FREEPORT-McMoRan

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May 10, 2023

Certified Mail # 70182290000117919250

Mr. John Rhoderick, Director
Water Protection Division
New Mexico Environment Department
P.O. Box 5469
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Dear Mr. Rhoderick:

Re: Interim Removal Action Residual Risk Assessment Report
Hanover/Whitewater Creek Investigation Unit – Chino AOC

Freeport-McMoRan Chino Mines Company (Chino) submits under separate cover the revised *Interim Removal Action Residual Risk Assessment Report for the Hanover/Whitewater Creek Investigation Unit* (HWCIU) under the Chino Administrative Order on Consent (AOC). The report has been revised as per conditional approval received in a letter dated April 28, 2023, from the New Mexico Environment Department (NMED). Revisions made to this report reflect the proposed edits Chino put forward in an email dated March 6, 2023, for NMED review and approval, following a group discussion of the assessment in a meeting on December 15, 2022. This report was submitted today to Mr. David Mercer, NMED AOC Project Manager.

Please contact Ms. Pam Pinson at (575) 912-5213 with any questions or comments concerning the residual risk assessment report.

Sincerely,

Sherry Burt-Kested
Manager, Environmental Services

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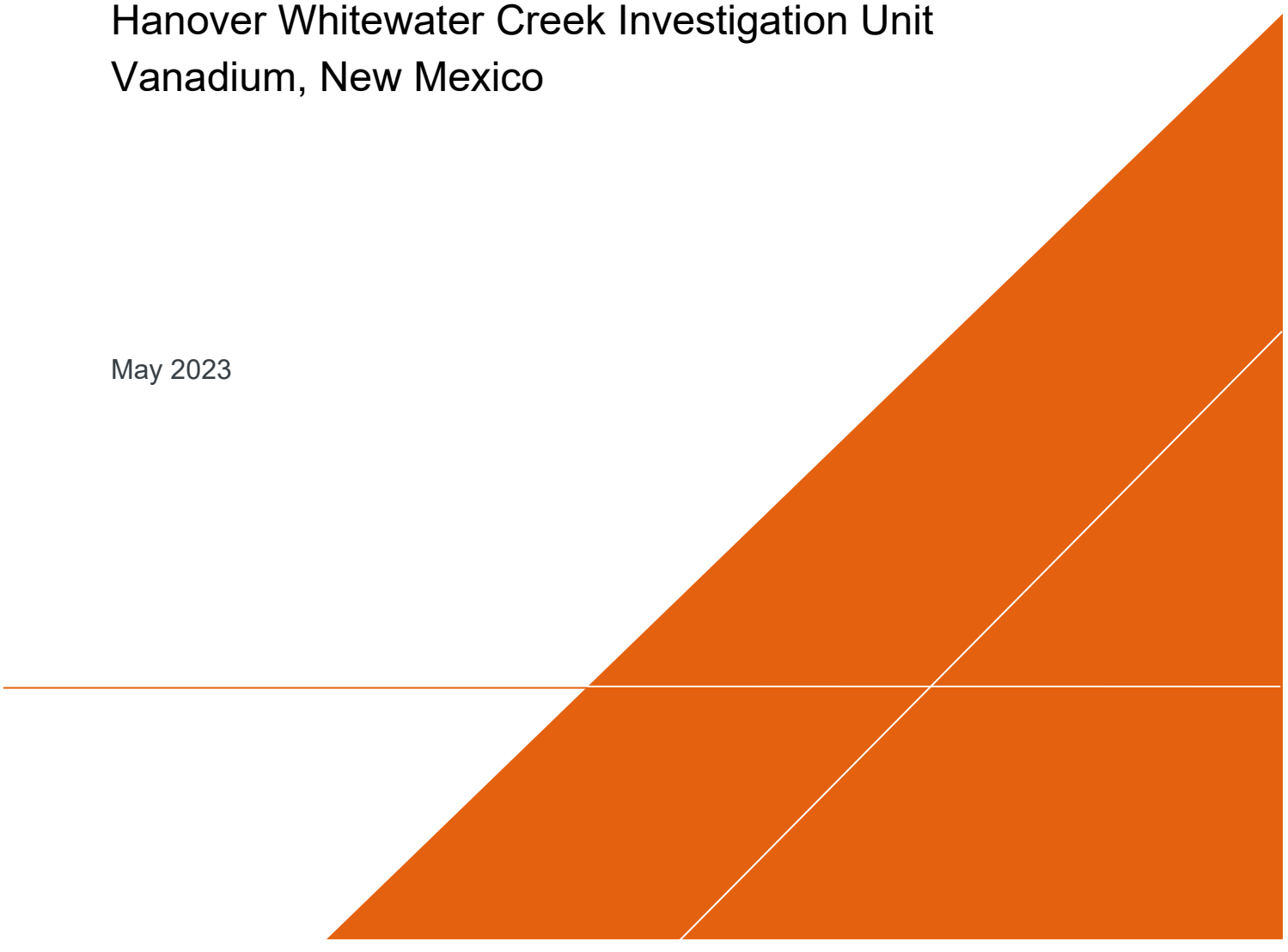
ARCADIS Design & Consultancy for natural and built assets

Freeport-McMoRan – Chino Mines Company

INTERIM REMOVAL ACTION RESIDUAL RISK ASSESSMENT REPORT

Hanover Whitewater Creek Investigation Unit
Vanadium, New Mexico

May 2023



INTERIM REMOVAL ACTION RESIDUAL RISK ASSESSMENT REPORT

Hanover Whitewater Creek
Investigation Unit
Vanadium, New Mexico

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ACRONYMS AND ABBREVIATIONS

AOC	Administrative Order on Consent
Arcadis	Arcadis U.S., Inc.
average	arithmetic average
AWA	area-weighted average
BBL	Blasland, Bouck, & Lee, Inc.
Chino	Freeport-McMoRan Chino Mines Company
COPC	constituent of potential concern
CTE	central tendency estimate
EA	Exposure Area
ERA	Ecological Risk Assessment
ESRI	Environmental Systems Research Institute
Formation	Formation Environmental
FS	feasibility study
Golder	Golder Associates
HHRA	human health risk assessment
HSIU	Hurley Soils Investigation Unit
HWCIU	Hanover and Upper Whitewater Creek Investigation Unit
IRA	Interim Removal Action
IU	Investigation Unit
mg/kg	milligram per kilogram
max	maximum concentration
min	minimum
n	sample count
Neptune	Neptune and Company
NMED	New Mexico Environment Department
P1	Physical Reach 1
P2	Physical Reach 2
P3	Physical Reach 3
P4	Physical Reach 4

QAP	Quality Assurance Plan
PEC	post-excavation confirmation
RAC	remedial action criteria
RI	Remedial Investigation
RME	reasonable maximum exposure
RRA	Residual Risk Assessment
RSL	Regional Screening Level
SD	standard deviation
SOP	Standard Operating Procedure
STSIU	Smelter Tailings/Soil Investigative Unit
SVL	SVL Analytical, Inc.
SWA	Site-Wide Abatement
SWPPP	Stormwater Pollution Prevention Plan
the site	Chino Mine located in Vanadium, New Mexico
TCO	Tin Can Operation
UCL	upper confidence level
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
XRF	x-ray fluorescence
µm	micron

EXECUTIVE SUMMARY

Chino Mines Company and the New Mexico Environment Department entered into an Administrative Order on Consent (AOC) in December 1994 to address the possible environmental impacts within the Hanover/Whitewater Creeks Investigation Unit (HWCIU). These possible environmental impacts are due to historical mineral processing operations, historical releases, and natural sources. An interim removal action (IRA) was completed between October 2018 and June 2019 to reduce the mass of constituents of potential concern in soil and sediment within the bar and overbank deposits of the HWCIU that could be an ongoing source of exposure to nearby residents or ecological receptors. The IRA also improved channel flow conditions by removing hardened physical obstructions in active channel, bar and overbank left by historical Tin Can Operations (TCOs). Arcadis (2021a) submitted a completion report documenting the IRA. Confirmation samples were collected during the IRA, and supplementary samples were collected at historical sampling locations for temporal comparison purposes.

This Interim Removal Action Residual Risk Assessment (RRA) presents an evaluation of the confirmation and supplementary samples collected during and following the IRA. Specifically, this RRA summarizes the mass removal and reduction demonstrated when results from the confirmation and supplementary sampling are compared to historical samples collected prior to the removal of the TCOs and as part of the remedial investigation (Golder Associates [Golder] 2000). A screening level risk evaluation is also presented with an analysis of supplemental samples collected in Physical Reaches 1 [P1] and 4 [P4] and supplemental samples and post-excavation confirmation samples collected in Physical Reach 2 [P2] and Physical Reach 3 [P3] of Hanover and Whitewater Creeks. This RRA also provides laboratory reports, data validation reports, summary information, and an evaluation of the residual risk to human health and ecological receptors for the HWCIU under the AOC.

There were significantly more samples collected during the IRA compared to previous sampling efforts, and cumulatively these sample results provide the most comprehensive understanding yet of metals concentrations in HWCIU. From this dataset, there are two key conclusions from the analysis presented herein:

1. Metals concentrations in the HWCIU Physical Reaches P1, P2, P3, and P4 were reduced through the IRA action based on data analysis.
2. The metals concentrations reported for IRA post-excavation confirmation and supplemental samples, when compared to screening level criteria, indicate no unacceptable risk to human or ecological receptors from exposure to soil in bar and overbank geomorphic features. See Tables 5-5 through 5-9.

The active channel sediment will be evaluated under DP-1340 and Site-Wide Abatement (Golder 2016). Based on the results contained herein, no further risk assessment for bar and overbank sediment in P1, P2, P3, and P4 is warranted based on the evaluation.

1 INTRODUCTION

Following the completion of the Interim Removal Action (IRA), Arcadis U.S., Inc. (Arcadis) prepared this Interim Removal Action Residual Risk Assessment (RRA) on behalf of Freeport-McMoRan Chino Mines Company (Chino) to describe residual risks to human and ecological receptors remaining after completion of an IRA for the Hanover/Whitewater Creek Investigation Unit (HWCIU) under the Administrative Order on Consent (AOC). On December 23, 1994, Chino and the New Mexico Environment Department (NMED) entered into the AOC to address the possible environmental impacts within the HWCIU due to mining operations, historical releases, and natural sources. Chino Mine is located in Vanadium, New Mexico (the site; Figure 1-1).

The purpose of the IRA was to reduce the mass of constituents of potential concern (COPCs) in soil and sediment within the bar and overbank deposits of the HWCIU that could be an ongoing source of exposure to nearby residents or ecological receptors, and to improve channel flow conditions by removing hardened physical obstructions left by historical Tin Can Operations (TCOs). NMED approved the Hanover Whitewater Creek Investigation Unit Interim Removal Action Work Plan in 2018 (IRA Work Plan; Arcadis 2018; NMED 2018). Construction at Hanover and Upper Whitewater Creek occurred between October 2018 and June 2019, and Arcadis (2021a) submitted a completion report documenting the removal action. Confirmation samples were collected during the IRA, and supplementary samples were collected at historical sampling locations for temporal comparison purposes. This RRA provides laboratory reports, data validation reports, summary information, and an evaluation of the residual risk to human health and ecological receptors for the HWCIU under the AOC.

1.1 Document Organization

The remaining sections of this RRA are organized as follows:

- *Section 2 – Project Background.* This section discusses the site setting and history.
- *Section 3 – Sample Collection and Analysis.* This section summarizes IRA sample and supplemental sample collection, laboratory methods, quality control, and data validation.
- *Section 4 – Data Analysis*. This section summarizes how laboratory results were combined into datasets for the RRA.
- *Section 5 – Data Evaluation.* This section references the datasets and screening levels and presents a screening level risk evaluation.
- *Section 6 – Conclusions*. This section summarizes conclusions of the RRA.
- *Section 7 – References.* This section provides references for documents cited within this RRA.

The RRA is also supplemented with five appendices that include Analytical Data (Appendix A), Data Quality Assessment Report (Appendix B), Site-Specific Regressions (Appendix C), Hanover-Whitewater Creek Thiessen Polygon Figures (Appendix D), Full Summary Statistics with Method and Statistical Output (Appendix E), and COPC Distributions (Appendix F).

2 PROJECT BACKGROUND

2.1 Site Setting

Chino operates the Santa Rita Mine in southeast Grant County, New Mexico (Figure 1-1). Nearby towns include Hanover, Vanadium, Bayard, North Hurley, and Hurley.

Hanover Creek begins in the Pinos Altos Range at an elevation of approximately 7,500 to 8,000 feet above sea level and flows to the south in a narrow valley for 8 miles at a slope of approximately 2 percent to the confluence with Whitewater Creek. Whitewater Creek originates within Chino mine operations and daylights downstream of Reservoir 17. From there, it flows west approximately 3,000 feet at a grade of approximately 1.7 percent to its confluence with Hanover Creek. Downstream of the confluence, Whitewater Creek flows for 7 miles to the south-southwest through a wide valley towards the Town of Hurley. The physical reaches within the above description was the focus of the IRA. The Whitewater Creek drainage system south of Hurley is buried under operational tailing dams, from under which it daylights to confluence with the rerouted flow around the tailings. Whitewater Creek then continues downstream to confluence with San Vicente Creek west of Highway 180.

The topography for the area ranges from mountainous in the north to flat plains in the south. The hillslopes are steep in the north, ranging from 10 percent slopes to vertical cliffs, and are gentle in the south, ranging from 0 to 3 percent slopes. Elevation, steepness, and ruggedness generally decrease from north to south.

Climate data are taken from two meteorological stations: the Santa Rita Station and the Hurley Station. The Santa Rita Meteorological Station is located near the mine at an elevation of approximately 6,200 feet. The Hurley Meteorological Station is located near the former Hurley Smelter at an elevation of 5,700 feet. The average annual precipitation from 1985 to 1999 for the Santa Rita and Hurley Stations were 19.18 and 15.69 inches, respectively; however, average annual precipitation fluctuates significantly, ranging from approximately 6 to 30 inches per year. The frost-free period is from late April to mid-October and lasts approximately 165 to 190 days. Spring and late fall months are generally dry (Golder Associates [Golder] 1998). Approximately half of the annual precipitation occurs in July, August, and September in high-intensity, short-duration rain events. During the rainy season, high flow conditions result in the scour and deposition of soil and sediment within and adjacent to Hanover and Whitewater Creeks.

2.2 Site History

Large-scale open-pit mining of copper began in 1910 at the current Santa Rita Mine site, but mining has occurred within the mining district for more than 200 years. For the Santa Rita Mine site copper is the primary mineral that has been extracted, but limited amounts of gold, molybdenum, and silver have also been produced as byproducts. Other local mines not operated by Chino have produced other products, including lead and zinc. The major activities associated with the Santa Rita Mine that have affected the creek system are listed below (Golder 2000):

- Santa Rita Creek, a large tributary to Whitewater Creek that originated near the Santa Rita Mine, was cut off before 1948 as the Santa Rita Pit grew (based on a 1948 United States Geological Survey [USGS] topographic map).

- Emplacement of the West Stockpile east of Hanover Creek began sometime after 1948 (based on the 1948 USGS topographic map). Six containment dams, including interceptor wells, were constructed between 1991 and 1993 along the western edge of the stockpile to capture runoff and seepage releases to Hanover Creek. Leaching operations on the West Stockpile ceased in 1995.
- The Chino Precipitation Plant, located on the north side of the historical Whitewater Creek channel where it daylights downstream of the South Stockpile, operated from the 1930s to 1998, after which it was demolished and removed. During upset conditions, overflows contributed process water to Whitewater Creek. The current Ivanhoe Concentrator was constructed near the Precipitation Plant in 1982. Dam 17 was constructed in 1998 immediately downstream of the Precipitation Plant and the Ivanhoe Concentrator to contain a 100-year return-interval flow event.
- Small TCOs historically operated within Whitewater Creek using Precipitation Plant runoff during upset conditions to collect copper precipitate product. In 1999, an IRA removed the infrastructure and debris down to the natural creek bed for 25 of these sites.
- The tailing pipeline from the Ivanhoe Concentrator to the tailing ponds near Hurley was constructed in 1982. Before that time, ore was shipped by rail to a concentrator at Hurley, and no pipeline was necessary. The pipeline runs through Bayard Canyon and along the east side of Whitewater Creek. Occasionally, pipeline leaks have resulted in releases of tailing slurry that have reached Whitewater Creek, although pipeline improvements made in the 2000's has reduced the frequency of such events.
- The historical Hurley Concentrator was constructed in approximately 1910. The former Hurley Smelter was constructed in 1939. Various materials from the smelter, historical mill, and concentrate handling components (e.g., concentrate tailing) were released to Lake One (which is near the tailing ponds) in the past. The smelter was permanently closed in 2003 and the smelter site, along with the former concentrator site, have been reclaimed.
- Lake One was developed in Whitewater Creek and constructed southeast of the Hurley Concentrator in 1910 to capture stormwater runoff from upstream Whitewater Creek to supply the concentrator operations. Lake One captured many of the releases from the Chino operation and other non-Chino upstream operations. It was reclaimed in 2014.
- Immediately downstream of Lake One, the older Chino tailing ponds operated from 1911 until the late 1980s with reclamation of most of this area completed in 2012. Pond 7 was constructed in 1987 and is currently in use. These tailing ponds also covered the former Whitewater Creek channel. Beginning just north of Lake One, Whitewater Creek has been diverted to the east of Lake One and the older and current tailing ponds. The diversion confluences with the original Whitewater Creek just south of Tailing Pond 7.
- After the AOC was executed, Hanover Creek Investigation Unit (IU) and Whitewater Creek IU were combined to form the HWCIU. Chino submitted a Phase I Remedial Investigation (RI) report to NMED (Golder 2000), which was commented upon by NMED, revised by Chino, and approved by NMED in 2000.

2.2.1 Human Health

NMED issued a Technical Memorandum: Risk-Based Analysis of Phase I Data for the Hanover/Whitewater Investigation Unit in June 2004 (Neptune and Company [Neptune] 2004). NMED prepared a finalized human health risk assessment (HHRA) and provided it to Chino in 2008. The conclusions from the HHRA are as follow:

- COPCs include arsenic, cadmium, chromium, copper, iron, lead, manganese, and zinc.
- Risk estimates were calculated for the recreational, trespasser, and off-site residential scenarios, but not for an on-site resident because there was deemed a lack of overbank samples to estimate exposure point concentrations.
- Cancer risk estimates for the off-site residential, trespasser, and recreational scenarios were generally near or below $1x10^{-6}$ for the central tendency estimate (CTE) and between $2x10^{-5}$ and $5x10^{-5}$ using reasonable maximum exposure (RME) assumptions. Cancer risks were wholly related to arsenic and, for the off-site residential and recreational scenarios, predominantly associated with ingestion of foodstuffs.
- Hazard quotient estimates were generally below 1.0 for the CTE assumptions. Using RME assumptions, hazard quotients for copper, iron, and zinc exceeded 1.0 in the adult recreational/ranching scenario in parts of Physical Reach 1 (P1) and for copper and iron in lower Whitewater Creek. In the off-site residential scenario, hazard quotients exceeded 1.0 only for the child receptor in P1 and Physical Reach 3 (P3). However, hazard quotients associated with background metals concentrations in soil also approach or exceed 1.0 for iron and zinc in the off-site residential and recreational/ranching scenarios in P1. As with cancer risk, exposure related to potentially unacceptable hazard were largely driven by foodstuff ingestion.
- The United States Environmental Protection Agency (USEPA) Integrated Exposure Uptake Biokinetic Model was used to assess the potential consequences of lead exposure for those scenarios for which exposure point concentrations were calculated. A threshold of a 5 percent probability of exceeding a blood lead level of 10 micrograms per deciliter was used to determine whether blood lead levels were of potential concern. This threshold was generally exceeded under both CTE and RME conditions for the off-site residential scenario in P1. In P3, the criterion was exceeded only under RME conditions, but lead concentrations in this area may be largely consistent with background levels. The blood lead criterion was not exceeded for the recreational/ranching scenario. Exposures were largely driven by foodstuff ingestion.

2.2.2 Ecological Risk

NMED issued a Revised Ecological Risk Assessment (ERA) in April 2015. The revised ERA conclusions are as follow:

- Cadmium, copper, lead, and zinc in the vegetative overbanks were the focus of the ERA.
- Elevated concentrations of lead and zinc appear to be related to sources in the Hanover Creek reach extending from the confluence with Whitewater Creek upstream and the Groundhog Mine

area. There are only two individual sample locations where COPC concentrations exceed the lowest observed effects level for avian receptors.

- Copper is the primary source of risk in areas downstream of Bayard on Whitewater Creek. Smelter/Tailing Soils Investigation Unit (STSIU) Pre-Feasibility Study (FS) remedial action criteria (RAC) for avian (total copper) and vegetation (cupric ion activity or pCu^{2+}) were used to evaluate copper risk. Copper concentrations and cupric ion activity met their respective Pre-FS RAC for the STSIU except at two locations that exceeded the avian RAC only.

Cadmium, copper, and zinc were identified as potential risk drivers to aquatic receptors along HWCIU. Metal concentrations and low pH in temporary pools following rainfall and during seasonal baseflow may exceed surface water quality criteria intended for protection of aquatic life. The Revised ERA concluded, however, that aquatic habitat in these areas is highly limited to ephemeral flows in some sections and the presence of rainfall pools in others and, without persistent aquatic habitat, aquatic life is limited to invertebrate species that breed in water, and potentially breeding and larval amphibians. Surface water quality issues are being assessed as part of the sitewide abatement project required by DP-1340.

2.3 Interim Remedial Action

Chino submitted the IRA Work Plan in May 2018, and it was subsequently approved by NMED (Arcadis 2018; NMED 2018). Construction at Hanover and Upper Whitewater Creeks occurred between October 2018 and June 2019. Arcadis (2021a) submitted a completion report documenting the removal action.

2.3.1 Project Objectives

The purpose of the IRA was to reduce the mass of COPCs in soil and sediment within the bar and overbank deposits of HWCIU, which could be an ongoing source of exposure to nearby residents or ecological receptors and to improve channel flow conditions by removing hardened physical obstructions left by historical TCOs. As described in the IRA Work Plan (Arcadis 2018), the IRA was designed to achieve the project objectives by removing material within or adjacent to Hanover/Whitewater Creeks that are either visually obtrusive (i.e., ferricrete), visually impacted, obviously stained, or otherwise contributing to the mass of COPCs within the Hanover/Whitewater Creeks system as identified in the Phase I RI Report (Golder 2000). The IRA is expected to accelerate existing natural recovery processes to further reduce COPC mass. Durable backfill was selected for placement within removal areas based on hydraulic calculations and to allow natural sediment transport processes active in the channel to infill and restore the pre-construction geomorphology. Details of the IRA are documented in the Hanover Whitewater Creek IU Interim Removal Action Completion Report (IRA Completion Report; Arcadis 2021a). Confirmation and quality assurance samples were collected as described in Section 3 (see Arcadis 2018).

2.3.2 Project Summary

The focus of the IRA was to remove accessible impacted sediment/soil deposited in the bars, overbanks, active channel (ferricrete only), and TCOs, located primarily in Physical Reach 3 (P2) and P3 in Whitewater Creek (see Figure 2-1a through 2-1f). P1, which comprises mostly Hanover Creek upgradient of the confluence with Whitewater Creek, does include sites in the lower part of the physical reach that exhibited visual impacts also addressed under the IRA. Samples were collected in P1 as part of the IRA

to supplement the existing dataset and to support the RRA. Additionally, although Physical Reach 4 (P4) was not a focus of the IRA, limited removals were completed in this reach based on observations made in the field, and supplemental samples were collected as described in Section 3.

In general, areas with visual ferricrete in the active channel due to the TCOs are included in the AOC IRA Work Plan (Arcadis 2018); however, active channel sediment itself is addressed by Site-Wide Abatement (SWA) under Discharge Permit 1340. A total of 36.7 acres was remediated across 124 removal areas, and 113,536 cubic yards of material was removed and placed on the West Stockpile.

As described in the IRA Completion Report (Arcadis 2021a), the general elements of the IRA are listed below:

- Complete pre-construction activities including:
  - Obtain necessary approvals and permits.
  - Mobilize equipment and personnel.
- Communicate to the community concerning the IRA activity and its use of public roads:
  - Two open houses, one month apart, before the start of the IRA.
  - Door hanger distributed frequently asked questions brochures within 0.25 mile of the project site.
- Place local radio and newspaper community advertisements advising of heavy traffic due to haulage support of IRA.
- Establish site access, construction staging areas, and temporary facilities.
- Establish traffic control and traffic patterns, identify/locate existing utilities, protect existing utilities.
- Install erosion and sediment control devices in accordance with the Chino Operations Storm Water Pollution Prevention Plan (SWPPP; NMR050000).
- Maintain a project-specific SWPPP field notebook documenting compliance with the Chino Operations SWPPP using templates provided by the owner.
- Remove select soil, sediment, and ferricrete.
- Construct and maintain temporary stockpiles in coordination with the haul contractor.
- Backfill removal areas.
- Perform site restoration.
- Demobilize equipment and personnel.

Soil, sediment, and friable ferricrete within the removal areas were excavated to depths required to accommodate the specified backfill material, or until competent ferricrete or bedrock was encountered. Expansion of removal area footprints was directed by the Arcadis Field Engineer with input and concurrence from Chino based on visual observations and x-ray fluorescence (XRF) screening, in accordance with the Excavation Sampling Best Practices presented in Appendix A of the IRA Completion Report (Arcadis 2021a). Friable ferricrete within the active channel was removed to underlying sediment or until flush with the surrounding bathymetry. Final removal volumes and backfill volumes per removal area are summarized in Table 1 of the IRA Completion Report (Arcadis 2021a).

Backfill was placed to restore the pre-construction grade of the removal area. No backfill was placed over bedrock, competent ferricrete, or where ferricrete was removed from the active channel, as placement of backfill in these areas would result in elevations higher than pre-excavation elevations. Backfill was placed along the sides of the active channel in removal areas R98 and R99 (see Figures 2-1e and 2-1f) to improve channel stability. No backfill was placed within the active channel in remaining removal areas. Backfill material consisted of hard armor underlain by filter stone, which was placed to resist erosive forces associated with the 100-year/24-hour storm event and estimated using United States Army Corps of Engineers (USACE) guidance (USACE 1994). The Nationwide Permit issued by USACE required erosion monitoring and corrective action if erosion was occurring (USACE Action Number SPA-2017-00362-LCO).

The IRA was performed in a manner that mitigated adverse impacts on the surrounding area and the community. Following backfill placement, removal areas were left to revegetate naturally, except at R3A/3B, R72, R93, and R118 (see Figure 2-1e), which were reseeded per an agreement with private property owners. Temporary features, such as access roads, equipment staging areas, clean backfill stockpile areas, and construction entrances, were removed and restored to match the surrounding conditions. Disturbed areas were graded to match surrounding topography in a manner that eliminated ponding of water to the extent practicable.

3 SAMPLE COLLECTION AND ANALYSIS

Two analytical datasets were generated to evaluate conditions on overbank and bar features along P1, P2, P3, and P4. One dataset was collected during the post-excavation confirmation (PEC) sampling program throughout the IRA construction period, and another, smaller dataset was collected at historical RI sampling locations that did not fall within the IRA removal areas over the same period. The latter dataset was supplemented in May 2022 with additional samples collected in P4 to address data gaps present in that physical reach.

The approved IRA Work Plan described a sampling program for collecting XRF data to document post-removal conditions, with one sample in every 20 XRF samples (5 percent) collected as field quality assurance samples submitted to a laboratory for analysis, following procedures stated in the RI Quality Assurance Plan (QAP; Chino 1997). During initiation of the IRA, however, this proposed sampling plan was altered to a more conservative method in that all samples collected upon the completion of each excavation were submitted for laboratory analysis to better support risk assessment. During the IRA, XRF was determined to be better used in the field as a screening tool to guide field decisions; therefore, XRF results themselves are not reported herein.

The adjustment to a more conservative approach to sampling was made with the goal of developing a more comprehensive dataset for the HWCIU: one representing current conditions within the HWCIU that would be comparable to data collected during past investigations. These data will be used to evaluate whether the IRA achieved its objective in reducing the mass of COPCs within Hanover/Whitewater Creeks, while also informing the associated reduction of potential human and ecological receptor exposure to COPCs.

Sampling and laboratory analytical methods are described in Sections 3.1 and 3.2. Section 3.3 summarizes quality assurance and data validation for the IRA confirmation dataset and the supplemental dataset.

3.1 Sample Collection

During the IRA, 843 surface soil samples were collected from overbank and bar features within the HWCIU and submitted for laboratory analysis. An additional 7 samples were collected in P4 in May 2022 and submitted for laboratory analysis (see Figure 2-1). Eight confirmatory samples were also collected in two upland areas just outside of the HWCIU where two small waste piles (R104 and R105) were removed using equipment that was on hand for the IRA. However, these samples were excluded from the HWCIU dataset and will be included in the Smelter/Tailing Soils Investigation Unit Feasibility Study. Because the removal areas associated with the IRA were largely focused on bars and overbanks and not the active channel, as described in Section 2.3.2, all sample media were treated as surface soil rather than sediment for sample preparation. Samples were collected following procedures established in the AOC RI Standard Operating Procedure (SOP)-22 Surface Soil Sampling (SRK 1996). Soil samples were sealed in plastic bags and shipped in coolers. Samples were handled and shipped in accordance with SOP-4 Sample Custody Procedures and SOP-5 Packaging and Shipping of Environmental Sample Containers. Laboratory samples were submitted under chain of custody to SVL Analytical, Inc. (SVL) in Kellogg, Idaho.

3.2 Sample Sieving and Laboratory Analyses

Upon receipt, samples were dried and sieved by SVL in preparation for analysis. Consistent with previous HWCIU investigations, samples were sieved to size fractions relevant to evaluation of risk to ecological and human receptors as described in Section 3.2.1. Laboratory methods are presented in Section 3.2.2, and the two analytical datasets collected during the IRA are described in Section 3.2.3.

3.2.1 Sample Sieve Size

All but 30 samples were sieved to <2,000 microns (µm), which represents the size fraction most likely to be ingested by wildlife receptors and, therefore, used for evaluation of ecological risk (Formation Environmental [Formation] 2015). One third of all samples were also sieved to <250 µm and were used for the evaluation of risk to human receptors. To supplement the <250 µm sieve dataset, site-specific regressions were developed to convert analytical values from the <2,000 µm sieved dataset to be equivalent to analytical results for samples sieved to <250 µm. All 7 samples collected in P4 in May 2022 were sieved to both <250 µm and <2,000 µm.

Due to laboratory error, 30 samples were sieved to <250 µm but not to <2,000 µm; therefore, regressions were also developed and applied to <250 µm to generate <2,000 µm size fraction.

Site-specific regressions are presented in Appendix C.

3.2.2 Laboratory Methods

SVL performed the following analyses on each sample and sieve size as follow:

- Arsenic via USEPA method 6020
- Cadmium via USEPA method 6010
- Chromium via USEPA method 6010
- Copper via USEPA method 6010
- Iron via USEPA method 6010
- Lead via USEPA method 6020
- Manganese via USEPA method 6010
- Zinc via USEPA method 6010
- pH via USEPA method 9045C
- Total organic carbon via method 600/2-78-054
- Percent moisture via Percent Solids.

Samples sieved to <2,000 µm were evaluated for copper, pH, and through a combination of these two parameters, pCu. Samples sieved to <250 µm were evaluated for arsenic, cadmium, copper, iron, lead, manganese, and zinc. Sample results are used herein to evaluate post-removal conditions.

3.2.3 Analytical Datasets

Two analytical datasets were generated to evaluate conditions on overbank and bar features along Reaches P1, P2, P3, and P4. One dataset was collected during the PEC sampling program throughout the IRA construction period, and another, smaller dataset was collected at historical sampling locations over the same period as described below and summarized in Table 3-1:

- *PEC Sample Dataset:* Of 843 samples collected between October 2018 and June 2019, 686 samples were collected during the PEC sampling program. Of those, 203 samples were taken on the floors of removal areas and 475 samples were collected from the edges of removal areas. The floor samples are not included in this risk assessment because at least 18 inches of backfill material was placed within removal areas above floor sample locations and therefore those locations no longer represent risk to human or ecological receptors. Sixty-eight field duplicates were also collected. Analytical results from these samples are presented in Table A-1 in Appendix A. PEC samples' names begin with the removal area name closest to where the sample was collected (RXX), followed by sample number, followed by "F" to indicate that it was a final sample for that location.
- *Supplemental Sample Dataset*: Of 858 samples collected between October 2018 and May 2022, 165 samples were collected at historical sampling locations on Hanover-Whitewater Creek overbank and bar features including 20 field duplicates. These samples were collected for comparison to analytical results obtained at coincident locations during previous RI sampling programs to evaluate temporal change in the HWCIU. The IRA completed between 1999 and 2000 removed the infrastructure and debris associated with 24 TCOs, and the RI completed in 2000 captured channel, bar, and overbank conditions around the time at which the IRA was completed[1]. Because nearly 20 years had passed since these COPC sources had been removed and the original samples had been collected, a reduction in COPC concentrations was expected to be identified through a supplemental sampling program. The supplemental sample dataset is presented in Table A-2 in Appendix A using the following nomenclature:
  - Historical samples with the nomenclature "B01-PX-X-XX" from the HWCIU AOC Interim Action Work Plan (Blasland, Bouck, & Lee, Inc. [BBL] 2006a). Field duplicates for these samples are denoted "B02-PX-X-XX."
  - Historical samples with the nomenclature "U03-XXXX" originated in the Phase I RI (Golder 2000) and HHRA (Neptune 2008). Field duplicates for these samples are denoted "U04-XXXX."
  - Historical samples with the nomenclature "ERA-XX" originated in the Ecological Risk Assessment (Formation 2015). There were no field duplicates for these samples.
  - Historical sample names followed by "M" indicate that a sample was moved from its original location. Sample locations were only moved if the original location was inaccessible or if the original location was within a removal area. Sample locations were moved to a location as close as possible to the original location on the same stream geomorphological feature.
- Twenty samples (including field duplicates) not associated with historical sampling programs but representing bar or overbank features not otherwise represented were collected and submitted to

[1] An additional two TCOs were removed in 2004 (Neptune 2008).

SVL for laboratory analysis. Thirteen of these samples follow the nomenclature "RAN-XX." These samples were intended to be XRF-only sampling points to augment the supplemental dataset and provide a greater understanding of COPC concentrations in features not included in the Supplemental Sampling Dataset. However, these 13 samples, all collected in Reach P1, were accidentally sent to the laboratory for analysis. As all analytical data collected as part of the IRA was included in the Residual Risk assessment (excluding PEC floor samples), these 13 samples were also included. "RAN-XX" samples provide a more complete dataset for Reach P1. Seven of the 20 samples were collected in P4 in May 2022 to address data gaps in that reach and subsequently sent to the laboratory for analysis. These samples follow the nomenclature "P4-X." Removal Area Fill Material Dataset: Metal concentrations of loose fines from fill material used in the removal areas associated with the IRA (filter stone and hard armor) were analyzed using XRF to confirm that COPC concentrations did not exceed screening criteria and because the size of the material prevented sample collection and analysis by a laboratory. All XRF samples were collected in accordance with the SOP-23 X-Ray Fluorescence One-Site Measurement SOP (SRK 1996). In order to verify that XRF results were comparable to analytical data, site-specific linear regressions were applied to XRF data and adjusted XRF values were used in statistics herein (Appendix C). Removal areas were assigned backfill concentrations based on fill material type used. The sample dataset is presented in Table A-3 In Appendix A. Removal area backfill material is discussed in further detail in the IRA Completion Report (Arcadis 2021a).

The three above-described datasets are summarized in Table 3-1. Analytical results are provided in Appendix A.

Table 3-1 Summary of Analytical Datasets

Post-excavation Confirmation Sample Dataset (PEC)	Supplemental Sample Dataset	Removal Area Fill Material Dataset
Samples collected in conjunction with IRA construction. Samples were associated with removal areas.	Samples collected at historical sampling locations on HWC overbank and bar features	Metal concentrations from fill material used in the removal areas associated with the IRA (filter stone and hard armor) were analyzed using XRF
686 Total PEC samples:	165 Total Supplemental Samples:	--
203 floor samples from removal areas (excluded from analysis)	132 Samples from historic sample locations	Results were adjusted for comparison to analytical results using site-specific regressions
483 edge samples (included in analysis)	20 Samples (including field duplicates) not associated with historical sampling programs but representing bar or overbank features were also collected	Results were used to estimate concentrations within removal areas for calculation of area-weighted average
68 field duplicates	20 field duplicates	--

3.3 Data Validation and Quality Assessment Reports

The analytical data collected during the IRA, including the supplemental samples, were validated by AECOM, which provided a data validation summary and data quality assessment in addition to validated data on March 17, 2020. The AECOM Data Validation Report and the Data Quality Assessment Report are provided in Appendix B. Based on the overall assessment provided in Section 7 of the Data Validation and Data Quality Assessment Reports, the sample data are considered to be acceptable for use in meeting project objectives as qualified. Further, the overall assessment for precision, accuracy, representativeness, comparability, completeness, and sensitivity indicates that the data met the data quality objectives described in the QAP (Chino 1997).

4 DATA ANALYSIS

The arsenic, cadmium, copper, iron, lead, manganese, and zinc data collected during the IRA were analyzed using a variety of spatial and statistical methods including standard statistical methods, the use of a Thiessen polygon spatial analysis, and spatially weighted averaging as described in Sections 4.1 through 4.3 below. Chromium was not carried through this analysis due to extremely low detections. Data for all metals are provided in Appendix A.

4.1 Descriptive Statistics

Descriptive statistics were summarized for each COPC in P1, P2, P3 and P4 including sample count (N), minimum (min), maximum concentration (max), arithmetic average (average), standard deviation (SD), and 95 percent upper confidence level on the mean (95UCL) (Appendix E). The 95UCL is defined as the value that, when calculated repeatedly for randomly drawn subsets of data, equals or exceeds the true mean 95 percent of the time (USEPA 1992). Use of the 95UCL (as representative of the average concentration) is recommended instead of the maximum concentration because it is highly unlikely that a receptor will be exposed to a single (e.g., maximum) concentration over the entire exposure duration. Rather, a receptor will likely be exposed to a range of concentrations in the exposure area (EA), from not detected to the maximum concentration, over the entire exposure period.

Typically, at least five detected concentrations and 10 total samples are necessary to calculate UCLs on the mean concentration (i.e., 95UCLs; USEPA 2015a). At least eight samples with at least five detected concentrations were available for each COPC in each physical reach; therefore, a conservatively based 95UCL was estimated using the USEPA-released statistical software ProUCL Version 5.1 (ProUCL 5.1; USEPA 2015a, 2015b, 2015c). ProUCL 5.1 employs statistical methods to evaluate both full environmental datasets without non-detected (ND) values and datasets with below detection limit or ND values (also known as left-censored datasets) without the use of proxy values. Where ProUCL 5.1 recommended two or more potential 95UCLs, the estimate that best represented the dataset was selected based on the most appropriate 95UCL method. The multiple UCL selection process is documented in Appendix E. ProUCL output results of COPCs are also presented in Appendix E.

Summary statistics for P1 through P4 are presented in Tables 4-1 through 4-3. Statistics are provided for arsenic, cadmium, copper, iron, lead, manganese, and zinc sieved to < 250 µm for human receptors and copper and pCu sieved to <2,000 µm for ecological receptors. pCu was calculated using the upland pCu equation developed for the HWCIU ERA (Formation 2015) (Equation 1), even if copper concentrations were below 327 mg/kg:

$$pCu = 7.34 + (0.93 * pH) - (1.15 * \ln[Cu_{tot}]) \quad \text{Equation 1}$$

Table 4-1 Summary Statistics for Reach P2

Analyte	Bar						Overbank					
	N	Average	Min	Max	95UCL	SD	N	Average	Min	Max	95UCL	SD
Sieve Size <250 µm												
Arsenic (mg/kg)	110	5.1	1.4	14	5.5	2.4	48	4.7	1.8	17.5	5.4	2.7
Cadmium (mg/kg)	110	3.0	0.4	22	3.5	2.4	48	2.7	0.7	6.1	2.9	.2
Copper (mg/kg)	110	1,279	67	11,400	1,847	1,368	48	560	54	3,439	684	536
Iron (mg/kg)	110	74,923	12,300	272,000	83,486	45,254	48	39,378	9,432	96,427	43,501	17,025
Lead (mg/kg)	110	268	47	1014	292	167	48	209	24	646	288	126
Manganese (mg/kg)	110	1,078	171	4,009	1,177	613	48	1,298	182	3,370	1,683	613
Zinc (mg/kg)	110	876	59	10,532	1,015	1,175	48	923	83	2,909	1,065	586
Sieve Size <2,000 µm												
Copper (mg/kg)	110	1,147	48	7,800	1,621	1,140	48	494	89	3,390	600	517
Lead (mg/kg)	110	247	37	1,970	282	224	48	174	18	556	241	106
Zinc (mg/kg)	110	805	50	9,960	979	1,104	48	866	124	2,680	997	552
pCu	110	5.4	1.8	10.1	5.7	1.5	48	7.3	3.4	9.3	7.6	1.4

Abbreviations:
mg/kg = milligram per kilogram
µm = micron

Table 4-2 Summary Statistics for Reach P3

Analyte	Bar						Overbank					
	N	Average	Min	Max	95UCL	SD	N	Average	Min	Max	95UCL	SD
Sieve Size <250 µm												
Arsenic (mg/kg)	167	6.4	2.2	18	6.8	3.5	203	5.6	0.3	18	6.6	1.1
Cadmium (mg/kg)	167	2.1	0.5	5.5	2.2	1.0	203	2.2	0.3	7.2	2.2	1.1
Copper (mg/kg)	167	602	129	1,850	701	295	203	663	65	2,344	769	342
Iron (mg/kg)	167	52,393	9,432	110,192	59,048	19,729	203	44,962	5,246	155,859	47,479	21,293
Lead (mg/kg)	167	210	24	528	243	99	203	196	0.1	559	231	115
Manganese (mg/kg)	167	1,129	182	3,493	1,182	432	203	1,053	202	2,819	1,095	387
Zinc (mg/kg)	167	750	90	2,080	814	412	203	764	49	3,578	827	488

Table 4-2 Summary Statistics for Reach P3

Analyte	Bar						Overbank					
	N	Average	Min	Max	95UCL	SD	N	Average	Min	Max	95UCL	SD
Sieve Size <2,000 µm												
Copper (mg/kg)	167	524	97	2,160	619	280	203	586	46	2,240	684	317
Lead (mg/kg)	167	172	18	451	201	84	203	164	0	479	194	97
Zinc (mg/kg)	167	665	77	1,600	718	367	203	700	42	3,310	757	449
pCu	167	6.7	3.9	9.2	6.8	1.1	203	6.6	2.8	10.3	6.8	1.3

Table 4-3 Summary Statistics for Reaches P1 and P4

Analyte	P1 Bar + Overbank						P4 Bar + Overbank					
	N	Average	Min	Max	95UCL	SD	N	Average	Min	Max	95UCL	SD
Sieve Size <250 µm												
Arsenic (mg/kg)	32	7.0	2.8	19	8.2	4.4	13	5.2	2.7	7.0	5.8	1.3
Cadmium (mg/kg)	32	4.2	1.2	11	4.8	1.9	13	2.2	1.1	3.2	2.6	0.7
Copper (mg/kg)	32	568	332	1,153	617	164	13	1,124	536	3,100	1,527	739
Iron (mg/kg)	32	55,655	35,612	92,401	61,850	13,996	13	32,521	16,400	45,052	37,162	9,387
Lead (mg/kg)	32	290	127	1,845	333	300	13	134	31	214	169	70
Manganese (mg/kg)	32	1,792	815	2,780	1,939	490	13	991	368	1,470	1,490	413
Zinc (mg/kg)	32	2,059	562	6,759	2,377	1,166	13	654	100	1,129	849	393
Sieve Size <2,000 µm												
Copper (mg/kg)	32	482	271	1,040	528	153	13	1,100	479	3,030	1,537	718
Lead (mg/kg)	32	241	98	1,660	276	273	13	134	24	232	169	74
Zinc (mg/kg)	32	1901	501	6,334	2,254	1,089	13	665	86	1,170	875	424
pCu	32	7.2	4.6	8.2	7.4	0.8	13	6.5	5.4	7.2	6.8	0.5

4.2 Area-Weighted Averages

In addition to descriptive statistics summarized in Section 4.1 based on the PEC and Supplemental datasets, area weighted averages (AWA) were also generated to understand the influence of removal areas on overall averages. The calculation for AWA is as follows:

$$\text{AWA} = \frac{\Sigma\,(\boldsymbol{Concentration\ x\ Area})}{\Sigma\,(\boldsymbol{Area})} \qquad \text{Equation 2}$$

AWAs were calculated by physical reach by bar features and overbank features for P2 and P3 or combined bar and overbank features for P1 and P4.

4.2.1 Estimates of Area Used to Generate AWA

As a means of characterizing post-IRA conditions in the HWCIU, Thiessen polygons were generated using three datasets (PEC, supplemental and removal area) to generate polygons. The polygons were used to calculate area (in acres) to generate AWAs. The Thiessen polygon method is a nearest neighbor interpolation method that assumes that the value at any unsampled point is the same as the value at the nearest sampled location. This assumption generates a set of polygons with boundaries that bisect the distance between pairs of points (Bolstad 2002).

Thiessen polygons were created from the HWCIU IRA PEC and supplemental sampling datasets described in Section 3.1.1 using the Create Thiessen Polygons tool in ArcGIS v10.5.1 (Environmental Systems Research Institute [ESRI] 2017). Thiessen polygons were generated from 567 sample locations from the PEC and supplemental datasets. Floor samples from the PEC dataset (203 samples) and field duplicates from both the PEC and supplemental datasets (88 samples in total) were not used in the spatial analysis.

Thiessen polygons based on PEC and supplemental sampling datasets were merged with removal area polygons (Arcadis 2021a) and clipped to bar and overbank stream morphology and TCO features based on geomorphology documented in the Phase 1 RI Report (Golder 2000). In P1 and P4, Thiessen polygons representing bar, overbank, and TCO features were evaluated together; whereas, Thiessen polygons for bar and combined overbanks and TCOs were evaluated separately in P2 and P3. Additionally, 29 samples generated Thiessen polygons that did not intersect with overbank, TCO, or bar features. These samples were located primarily in P2 above the confluence with Hanover Creek where stream geomorphology developed for the Phase 1 RI (Golder 2000) documented few bar and overbank features. Removals in this portion of Whitewater Creek focused on visually obtrusive sites between the channel and railroad tracks. Since Thiessen polygons generated from samples in this area did not overlap bar, overbank, and TCO features as mapped as part of the RI Report (Golder 2000), they were designated as “unassigned” and were not used in subsequent analyses (Table 4-4).

After generation of Thiessen polygons, the mapped final removal areas were superimposed onto the Thiessen polygons. Each removal area polygon superseded the Thiessen polygons which they overlapped. Figures showing the combined Thiessen polygons and removal area polygons used in the

spatial analysis are provided in Appendix D. Area was calculated using ArcGIS and exported to Microsoft Excel to generate the AWAs (Equation 2).

4.2.2 Estimates of Concentration used to Generate AWA

Areas calculated from clipped Thiessen polygons (Section 4.2.1) were combined with analytical and adjusted XRF data for associated sampling locations to calculate AWAs. Figures showing the Thiessen polygons and associated sample results used in the spatial analysis are provided in Appendix D.

AWAs were calculated separately for both ecological (i.e., < 2,000 µm sieve data) and human health (i.e., <250 µm sieve data) receptors. Of the 143 samples evaluated in the AWAs, 87 supplemental samples were sieved to <2,000 µm and 56 samples were split into two aliquots, with one sieved to <2,000 µm and the other sieved to <250 µm. As discussed in Section 3.1, if data from either sieve size were unavailable for a given area, site-specific regressions were used to convert analytical values to predicted values for the missing sieve size (Appendix C).

Fill material concentrations (Arcadis 2021a) were used for each of their respective removal area polygons to characterize current conditions (Table A-3). As the fill material is the material placed in the removal areas, and because these areas represent a significant proportion of the current channel, the fill material is considered the most appropriate to approximate current, post-IRA conditions. As described in Section 3.2.3, metal concentrations of fill material were analyzed using XRF; therefore, XRF-derived data were adjusted to be equivalent to analytical data using the site-specific linear regressions (Appendix C). Mean concentrations from these analyses were applied to removal area polygons in the AWAs dataset. Overall, mean concentrations of metals were low in backfill material (Table A-3) compared to Supplemental Samples and PEC samples (Tables 4-1 through 4-3). Moreover, backfill concentrations were consistent with or less than background concentrations reported by Chino in the Supplemental Sediment Background Report (Chino 2004) except for arsenic. Arsenic concentrations detected in dust collected from fill material was higher on average when compared to either the combined supplemental and PEC datasets (Tables 4-1 through 4-3) or background concentration (Chino 2004).

The nature of the fill material (filter stone and hard armor) did not allow for the measurement of pH of the fill in the removal areas. As a result, pCu could not be calculated for this material for ecological receptor evaluation purposes. Therefore, a conservative approach was taken to estimate post-IRA conditions using the analytical values for pH and copper from the PEC samples and the associated pCu for those samples was calculated using the upland pCu equation developed for the HWCIU ERA (Formation 2015) as shown in Section 4.1.

The results of the Thiessen polygon analysis used to calculate the AWAs are presented in Tables 4-4a through 4-4d. Data used in generation of AWAs are provided in Table A-1 (Appendix A).

5 DATA EVALUATION

This section describes evaluation of the data. Section 5.1 summarizes how data distributions for key constituents have changed over time, and Section 5.2 presents a screening level risk evaluation. Together, both sections inform conclusions about human and ecological risk associated with residual concentrations of COPCs detected in samples collected during the IRA.

5.1 COPC Concentration Reduction Over Time

As discussed in Section 2, the focus of the IRA was to remove accessible impacted sediment/soil deposited in the bars, overbanks, active channel (ferricrete only), and TCOs located in P2 and P3. In addition to PEC samples collected to confirm sidewall concentrations of the visual removal areas, supplemental samples were collected from locations sampled in the past (including the RI and other sampling events). The supplemental samples were collected to further understand possible changes in the nature and extent of contamination over the past two decades since the original RI data were collected. The supplemental samples were collected in P1, P2, P3, and P4 and, therefore, provide data upgradient and downgradient of the removal areas located in P2 and P3.

To understand how the mass associated with metals detected in soil and sediment changed over time, several statistical tools were employed to depict how concentrations may have changed before and after the IRA. First, probability frequency distributions were created based on historical and current datasets. Figure 5-1 depicts iron distributions in P2 based on historical data compared to the current RRA datasets. Iron was specifically used in these analyses because it is generally a strong surrogate for metals on the list of COPCs associated with the IRA. Iron is entrained with these metals in the fluvial system and focusing on a surrogate metal simplifies the analyses and discussion. The current data distribution plots have moved left on the X-axis compared to the 1995 pre-TCO Removal curve, indicating that more recently detected concentrations are *lower* than in the past and detected more frequently, and maximum concentrations are lower overall, which indicates mass reduction of iron over the past two decades. Moreover, many more samples were collected during the IRA than in other older sampling events; consequently, the distributions show high probability of detecting lower concentrations overall. Other frequency distributions for copper, lead, and manganese are presented in Appendix F.

Arcadis included density figures for P2 and P3 only due to size of datasets to create the graphs, largely because these reaches were the focus of the IRA, and a disproportionate amount of confirmation data was collected as a result. It is understood that manganese (and possibly iron) does not follow a decreasing trend, and this may be attributable to geochemical changes within the Hanover-Whitewater Creek system that may have led to increased manganese concentrations over time; however, even with these increases, the mean and 95UCL concentrations of manganese are still below the NMED Residential Regional Screening Level (RSL). To supplement the figures, a simple t-test was used to more definitively show whether concentrations are statistically significant. The results of the t-tests demonstrate that concentrations have been reduced between the two datasets for copper, iron and lead in P2, and copper and lead in P3. Iron and manganese distributions are about the same in P3; however, the post-2019 dataset has approximately three times as many points as the pre-2019 dataset, and the distributions shift to the right since the maximum, mean and median are higher for these metals. These statistics are included in Appendix F.

In addition to frequency distributions and t-tests based on historical and current datasets, standard statistical methods were used to compare historical and current samples collected from the same locations. Standard statistical data summary methods presented in Section 4.1 were compared for historical and current datasets at supplemental sample locations (Table 5-1). Specifically, summary statistics for supplemental sample locations from 2019 were compared with historical data collected at the same locations in 1999 (Remedial Investigation; Golder 2000; Ecological Risk Assessment; Formation 2015), 2006 (BBL 2006b). No samples from remediated areas were included in these summary statistics. For copper, iron, lead, and manganese, mean and 95UCL concentrations were lower in the current dataset compared to the historical dataset. Moreover, the maximum concentration of these constituents is much lower in the current dataset, and the standard deviation decreased markedly, which indicates lower concentrations and less variability in the current dataset. See Tables 5-1 through 5-4 below. Overall, this data comparison reflects mass load reductions similar to those illustrated in Figure 5-1. It should be noted that the presence of apparent outlier data, such as historical copper and lead concentrations at B01-P3-3-022 in P3 and 2019 iron concentrations at B01-P3-3-080, may skew results. However, even when these outliers were removed, there was still an overall decline in concentrations between historic and current sample datasets (Tables F-1 and F-2, Appendix F).

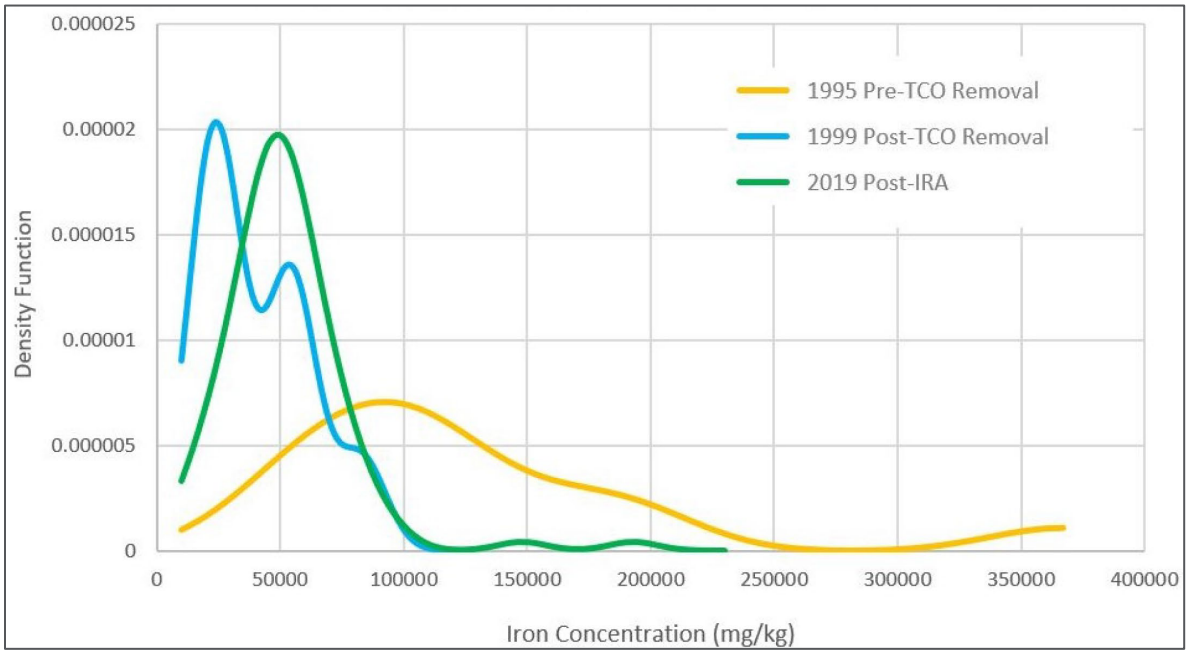

Figure 5-1 Pre- and Post-Removal Concentration Distributions for Iron Detected in P2

Table 5-1 Comparison of Summary Statistics for Historical versus Current Copper Concentrations

Parameter	Historical Samples	Current Samples (Supplemental Dataset)
Mean (mg/kg)	891	685
Median (mg/kg)	725	610
Minimum (mg/kg)	158	65
Maximum (mg/kg)	9,932	3,439
Standard Deviation	922	414
n	124	124
95% UCL (mg/kg)	1,053	758

Table 5-2 Comparison of Summary Statistics for Historical versus Current Iron Concentrations

Parameter	Historical Samples	Current Samples (Supplemental Dataset)
Mean (mg/kg)	48,003	43,651
Median (mg/kg)	45,080	40,863
Minimum (mg/kg)	11,300	5,246
Maximum (mg/kg)	128,425	155,859
Standard Deviation	22,722	21,181
n	119	119
95% UCL (mg/kg)	52,085	47,456

Table 5-3 Comparison of Summary Statistics for Historical versus Current Lead Concentrations

Parameter	Historical Samples	Current Samples (Supplemental Dataset)
Mean (mg/kg)	220	201
Median (mg/kg)	192	192
Minimum (mg/kg)	13	16
Maximum (mg/kg)	1,309	611
Standard Deviation	149	121
n	124	124
95% UCL (mg/kg)	246	222

Table 5-4 Comparison of Summary Statistics for Historical versus Current Manganese Concentrations

Parameter	Historical Samples	Current Samples (Supplemental Dataset)
Mean (mg/kg)	1,547	1,223
Median (mg/kg)	1,323	1,140
Minimum (mg/kg)	336	401
Maximum (mg/kg)	5,526	3,493
Standard Deviation	907	533
n	119	119
95% UCL (mg/kg)	1,710	1,319

While these comparisons show concentration reduction over time, each location is variable with some concentrations slightly increasing, which is expected from environmental datasets where error associated with sampling and laboratory methods produce higher or lower values within replicates of the same exact sample and location. Figures 5-2 through 5-4 below show the changes in concentration at each location between the historical and current datasets. Negative values on the chart represent a concentration change downward and, therefore, lower in the current dataset; whereas, positive values are the opposite.

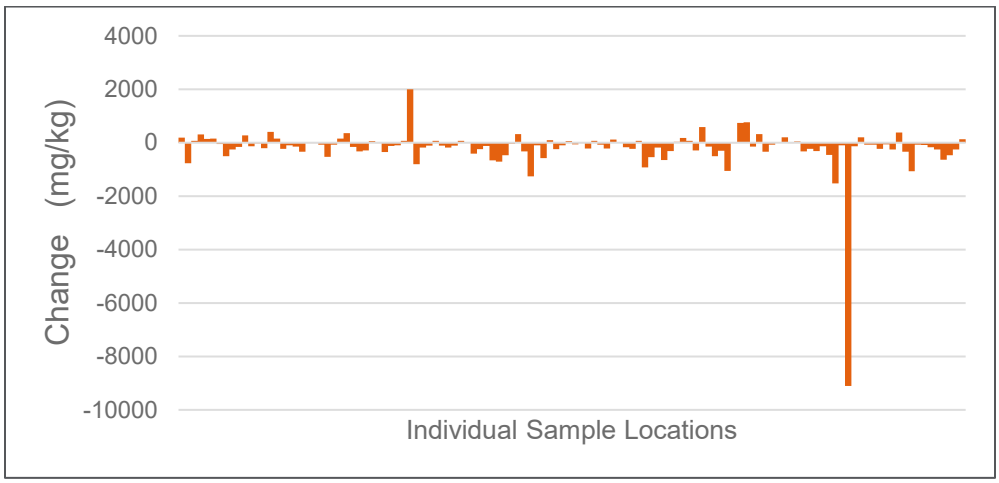

Figure 5-2 Changes in Copper Concentration at the Same Sampling Locations

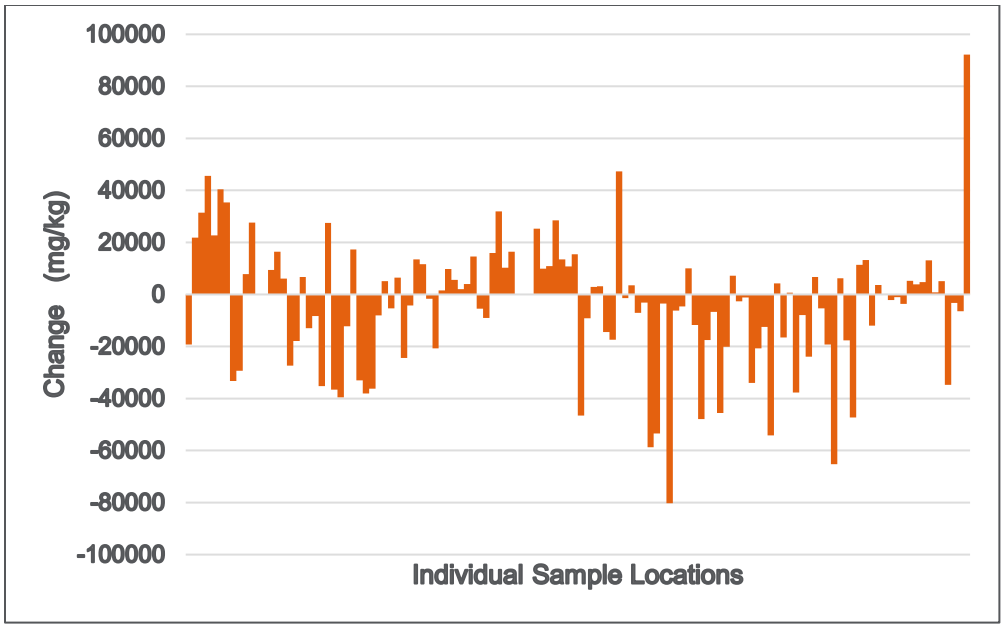

Figure 5-3 Changes in Iron Concentration at the Same Sampling Locations

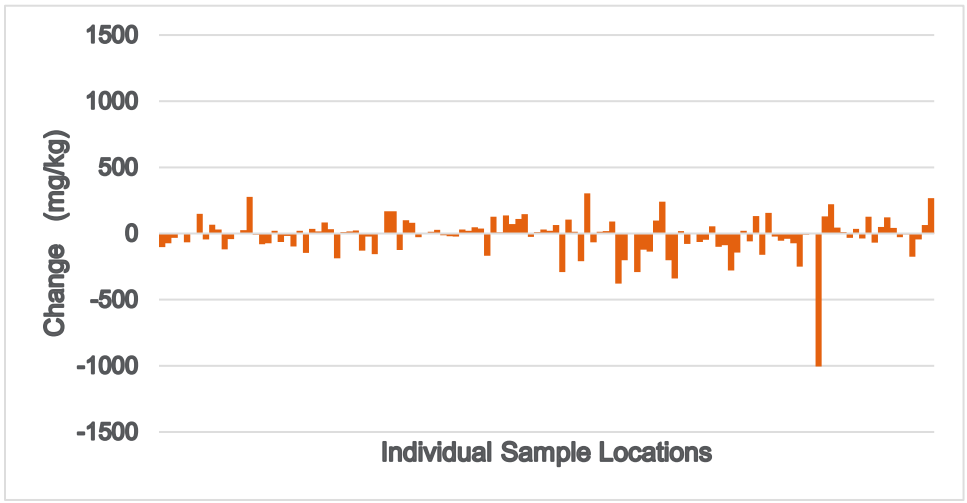

Figure 5-4 Changes in Lead Concentration at the Same Sampling Locations

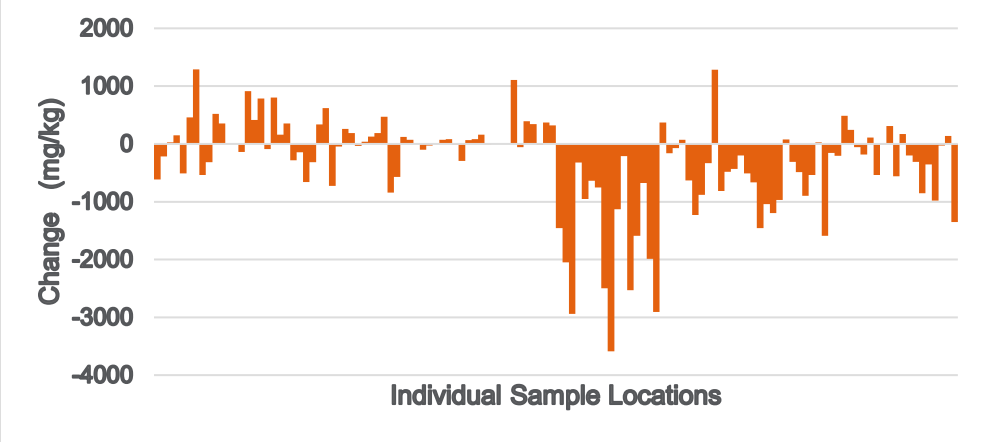

Figure 5-5 Changes in Manganese Concentration at the Same Sampling Locations

This dataset, representing decades of time (from 1999 RI Sampling to 2019 IRA supplemental sampling) as well as locations that were not remediated during the IRA, is quite remarkable in its consistency; however, the overall concentrations of these metals decreased between sampling events at many more locations, which suggests attenuation over time and reduced load in bar and overbank soil. That said, Figure 5-5 is a sub-set of the dataset which includes samples collected at the same location over a 20-year period (1999, 2019), and t-tests of the larger historical dataset compared to the post-IRA dataset do not demonstrate a statistically-significant difference for manganese in P2 or P3 as discussed above.

Another approach to understanding decreases in concentration is to compare summary statistical methods including mean, 95UCL, and AWA. The AWAs are developed from Thiessen polygons derived from PEC samples that are concentrated near removal areas and supplemental samples close to the channel. Previous investigations have focused on bar and overbank areas adjacent to the channel because risk is higher in that area, and therefore there were fewer historical sampling locations to choose from in more extensive overbank features that extended farther from the channel. The AWAs incorporate background concentrations associated with the Removal Area footprints and, therefore, offer a good estimate of overall mass reduction based on the remedy itself. Although the metal concentrations of backfill material is lower than those reported in the Sediment Background Investigation Technical Memorandum (Chino 2004), the use of backfill material is an appropriate proxy to estimate mass reduction, particularly given the removal of most historical sources of contamination in HWCIU (Golder 2016). The AWAs for copper, iron, lead, and manganese are decreased up to a factor of two or more from their respective means and 95UCLs (see Sections 5.2.1 to 5.2.4).

This evaluation indicates that the nature and extent of contamination documented in the final RI report have changed and improved over time. The IRA further improved conditions by removing COPC mass and excavating ferricrete to restore flow conditions in P2 and P3.

5.2 Screening Level Risk Evaluation

Generally, at sites where contaminant concentrations fall below screening levels, no further action or study is warranted under the Superfund program, so long as the exposure assumptions at a site match those taken into account by the screening level calculations (USEPA 2021a). Exposure assumptions at

HWCIU were discussed in NMED's HHRA (Neptune 2008) and some assumptions incorporated ingestion of garden produce, eggs, and beef. After the HWCIU HHRA was finalized, however, NMED issued residential pre-FS RAC for the Hurley Soils IU (HSIU) and STSIU that did not include these pathways because they are not complete exposure pathways in and around the mine site. Therefore, to expedite this evaluation, a screening level risk evaluation was conducted based on screening levels compiled from several sources including pre-FS RAC values for HSIU and STSIU as well as values published by NMED. All values were identified for residential, which is a conservative assumption because most exposures along HWCIU are not residential, but are trespasser, rancher, or recreator, all of which experience many fewer days of exposure compared to a resident.

In addition, NMED's ERA (Formation 2015) cited to the STSIU copper pre-FS RACs for avian receptors and plant communities and these values were carried forward into this assessment as well. Formation (2015) also generated preliminary remediation goals (PRG) for lead and zinc exposure for avian receptors.

Table 5-5 summarizes values compiled for all metals analyzed and reported in Appendix A.

Table 5-5 Screening Levels for all COPCs Analyzed in Samples Collected during IRA

COPC	Screening Level (mg/kg)	Basis of Selection for Residual Risk Assessment
Human Receptors		
Arsenic	27	STSIU pre-FS RAC for Residential
Cadmium	70	NMED Residential RSL
Chromium	11,700	NMED Residential RSL
Copper	5000	Hurley Soils IU and STSIU pre-FS RAC for Residential
Iron	100,000	STSIU pre-FS RAC for Residential
Lead	400	NMED Residential RSL
Manganese	3,590	NMED Residential RSL
Zinc	23,500	NMED Residential RSL
Ecological Receptors		
Copper[2]	1,600 and pCu≥5	STSIU pre-FS RAC for Ecological Risk
Lead	907	HWCIU ERA PRG
Zinc	4,800	HWCIU ERA PRG

Abbreviations:
RSL = Regional Screening Level

Datasets generated in Section 4 of this RRA were compared to these screening levels. The maximum concentrations of arsenic, cadmium, chromium, manganese, and zinc are less than their respective human health screening levels summarized above and lead and zinc are less than their respective ecological screening levels and, therefore, these metals are not evaluated further in this section.

[2] The NMED pre-FS RAC for pCu is listed as pCu≥5; however, the comparison to pCu is akin to pH, in that lower values may be more harmful to vegetation. Thus, it is not an "exceedance" of this value but a value lower than 5 which triggers further evaluation; however, this section will use the word "exceedance" to indicate data fail the screening level. Moreover, the pre-FS RAC is formally applied only when copper exceeds 327 mg/kg but pCu was calculated for all values as part of a screening level analysis.

Subsequent sections below are focused on copper for human health and ecological receptors, and iron and lead for human receptors.

5.2.1 P1

For P1, there were no TCO areas identified; although, two visually impacted areas in the lower part of the reach were noted during the field reconnaissance before the development of the IRA Work Plan; these sites were addressed as part of the IRA. This reach of Hanover Creek is narrow, mostly steep, flowing through a 1,000-foot vertical elevation change, with bedrock outcropping within the active channel and on the sides of the channel. Bar and overbank geomorphic features, therefore, are relatively small and localized. The current dataset includes supplemental samples collected from locations previously sampled during the RI. Bar and overbank datasets were averaged together and compared to risk screening criteria presented in Table 5-6a and 5-6b. The data in these tables indicate that copper, iron, and lead concentrations are well below their respective screening criteria.

In Tables 5-6a and 5-6b, there are no analyte exceedances of their respective screening criteria. In many cases, the arithmetic mean, 95UCL, and the AWA are similar, which indicates a dataset with relatively low variance. For example, the arithmetic mean, 95UCL, and AWA concentrations in the bar and overbank are 568 mg/kg, 617 mg/kg, and 566 mg/kg, respectively. These values are very similar considering sampling and analytical error for environmental datasets and suggest that the copper concentrations are consistent within the reach and across geomorphic features. Similarly, iron and lead values are consistent across arithmetic mean, 95UCL and AWA suggesting stable distributions of those COPCs as well.

These results indicate no unacceptable risk to human and ecological receptors.

Table 5-6a Screening Table for P1: Human Receptors (Sieve Size <250 µm)

Analyte	Screening Criteria	Bar + Overbank			
		N	Average	95UCL	AWA
Copper (mg/kg)	5,000	32	568	617	566
Iron (mg/kg)	100,000	32	57,655	61,850	55,190
Lead (mg/kg)	400	32	290	333	329

Table 5-6b Screening Table for P1: Ecological Receptors (Sieve Size <2,000 µm)

Analyte	Screening Criteria	Bar + Overbank			
		N	Average	95UCL	AWA
Copper (mg/kg)	1,600	32	482	528	484
pCu^{2+}	≤5	32	7.2	7.4	7.1

5.2.2 P2

For P2, removal areas were identified during the field reconnaissance to support development of the IRA Work Plan. This section of the IU begins where Hanover Creek flows into Whitewater Creek and the channel transitions from step, bedrock outcrop to shallower elevation change. Bar and overbank

geomorphic features, therefore, are somewhat larger than those in P1 but still relatively small and localized. The current dataset includes PEC and supplemental samples collected from locations previously sampled during the RI. Bar and overbank datasets were averaged together and compared to risk screening criteria presented in Tables 5-7a and 5-7b. The data in these tables indicate that copper, iron, and lead concentrations are well below their respective screening criteria.

In Tables 5-7a and 5-7b, there are no analyte exceedances of their respective screening levels. In some cases, AWAs are similar to the 95UCL, which indicates a dataset with less variance. For example, lead 95UCL concentrations in bar and overbank were 292 and 288 mg/kg, respectively, compared to arithmetic mean concentrations of 268 and 209 mg/kg. As stated in the analysis of P1, these values are very similar considering sampling and analytical error for environmental datasets and suggest that the lead concentrations are consistent within the reach and across geomorphic features.

Copper and iron follow this example for 95UCL and mean concentrations, but there is more variability in the results when comparing the mean concentration to the AWA. For example, the copper mean concentrations in bar and overbank were 1,279 and 560 mg/kg, respectively, compared to AWA concentrations of 449 and 526 mg/kg. The difference in the bar samples indicates that variability in the dataset and the backfill concentrations contribute to a mass reduction of copper in the bar geomorphic feature.

These results indicate no unacceptable risk to human and ecological receptors.

Table 5-7a Screening Table for P2: Human Receptors (Sieve Size <250 µm)

Analyte	Screening Criteria	Bar				Overbank			
		N	Average	95UCL	AWA	N	Average	95UCL	AWA
Copper (mg/kg)	5,000	110	1,279	1,847	449	48	560	681	526
Iron (mg/kg)	100,000	110	74,923	83,486	29,335	48	39,378	43,501	35,431
Lead (mg/kg)	400	110	268	292	131	48	209	288	119

Table 5-7b Screening Table for P2: Ecological Receptors (Sieve Size <2,000 µm)

Analyte	Screening Criteria	Bar + Overbank			
		N	Average	95UCL	AWA
Copper (mg/kg)	1,600	158	949	1,096	451
pCu^{2+}	≤5	158	6.0	6.2	7.6

5.2.3 P3

For P3, removal areas were identified during the field reconnaissance to support development of the IRA Work Plan. This section of the IU begins north of the Town of Bayard and flows south to the north end of Lake One. The channel flattens, alluvium deepens (on average 25 feet), and overbanks widen. Bar and overbank geomorphic features are larger than for P1 and P2. The current dataset includes PEC and supplemental samples collected from locations previously sampled during the RI. Bar and overbank datasets were averaged together and compared to risk screening criteria presented in Tables 5-8a and 5-

8b. The data in these tables indicate that copper, iron, and lead concentrations are well below their respective screening criteria.

In Tables 5-8a and 5-8b, there are no analyte exceedances of their respective screening levels. As was the case in the analyses for P1 and P2, in some cases, AWAs are similar to 95UCLs, which indicates a dataset with less variance. For example, lead 95UCL concentrations in bar and overbank were 243 and 231 mg/kg, respectively, compared to arithmetic mean concentrations of 210 and 196 mg/kg. The mean concentrations are lower than their respective 95UCLs but very similar considering sampling and analytical error for environmental datasets; this suggests that the lead concentrations are consistent within the reach and across geomorphic features. Lead concentrations decreased overall from P2, with concentrations attenuating with downgradient distance, as expected.

Copper and iron also follow the lead example when comparing the 95UCL and mean concentrations as well as when comparing the mean concentration to the AWA. There is less variability within and across geomorphic features in general compared to P2, which is expected as concentrations decrease with distance downgradient. In general, the PEC and supplemental sample datasets reflect less within geomorphic feature variability and thus more consistency, suggesting a credible and solid understanding of the nature and extent of contamination.

These results indicate no unacceptable risk to human and ecological receptors. Reach P4 transitions through an operational area and will be addressed under DP-1340.

Table 5-8a Screening Table for P3: Human Receptors (Sieve Size <250 µm)

Analyte	Screening Criteria	Bar				Overbank			
		N	Average	95UCL	AWA	N	Average	95UCL	AWA
Copper (mg/kg)	5,000	167	601	701	429	203	663	769	677
Iron (mg/kg)	100,000	167	52,393	59,048	33,568	203	44,962	47,479	43,252
Lead (mg/kg)	400	167	210	243	129	203	196	231	193

Table 5-8b Screening Table for P3: Ecological Receptors (Sieve Size <2,000 µm)

Analyte	Screening Criteria	Bar + Overbank			
		N	Average	95UCL	AWA
Copper (mg/kg)	1,600	370	558	627	553
pCu^{2+}	≤5	370	6.7	6.8	6.9

5.2.4 P4

For P4, one area with ferricrete was identified during the field reconnaissance to support the IRA Work Plan development, which was removed as part of the IRA. No other removal areas or potential sources of COPCs were identified in P4. Moreover, this section of Whitewater Creek transitions through an operational area, as the conceptual site model for P4 is different than in the other three reaches. For P1,

Table 5-9a Screening Table for P4: Human Receptors (Sieve Size <250 µm)

Analyte	Screening Criteria	Bar + Overbank			
		N	Average	95UCL	AWA
Copper (mg/kg)	5,000	13	1,124	1,527	824
Iron (mg/kg)	100,000	13	32,521	37,162	36,097
Lead (mg/kg)	400	13	134	169	140

P2 and P3, fluvial deposition due to flooding is the main transport mechanism. P4 has different sources, including overlapping fluvial, historic wind-blown concentrate, and stormwater deposition from uplands above the floodplain. Bar and overbank geomorphic features, therefore, are relatively non-existent in P4. The current dataset includes supplemental samples collected from locations previously sampled during the RI in addition to 7 new locations sampled to fill data gaps present in this reach. Bar and overbank datasets were averaged together and compared to risk screening criteria presented in Tables 5-9a and 5-9b. The data in these tables indicate that iron and lead concentrations are well below their respective screening criteria.

In Tables 5-9a and 5-9b, there are no analyte exceedances. The 95UCL concentration for copper in the 2,000 µm size fraction for ecological receptors (1,537 mg/kg) was near to but below the screening criteria of 1,600 mg/kg, and the mean was 1,100 mg/kg and the AWA was 982 mg/kg. The AWA is lower than the ecological screening criteria of 1,600 mg/kg and is the correct exposure point concentration to compare against the pre-FS RAC for pCu. The differences among the average, 95UCL, and AWA indicate the influence of the backfill concentrations. Ecological receptors integrate exposure across all areas and, therefore, these results suggest that ecological receptors are not at risk due to copper.

Table 5-9b Screening Table for P4: Ecological Receptors (Sieve Size <2,000 µm)

Analyte	Screening Criteria	Bar + Overbank			
		N	Average	95UCL	AWA
Copper (mg/kg)	1,600	13	1,100	1,537	824
pCu^{2+}	≤5	13	6.5	6.8	6.6

6 UNCERTAINTY

Within the steps of the risk assessment process, assumptions must be made due to a lack of full scientific knowledge. Some of the assumptions are supported by considerable scientific evidence, while others have less support. Every assumption introduces some degree of uncertainty into the risk assessment process. Thus, conservative assumptions have been made throughout the report so potential risks and hazards are not underestimated. Therefore, it is likely that, when the assumptions are combined, actual risks (if any) are overestimated rather than underestimated. This section discusses possible uncertainties associated with conducting the RRA.

6.1 Data Quality

Data used in this RRA were collected, analyzed, and validated in accordance with the approved IRA Work Plan, which described the procedures for conducting post-removal confirmation sampling activities based on the RI Quality Assurance Plan (QAP) (Chino 1997). Only laboratory data are included in the evaluation which strengthens data quality overall. The approved IRA Work Plan was designed to facilitate removal actions. Data validation was completed in accordance with the QAP and validated data were used in the RRA (Appendix B). The design of the approved IRA Work Plan, the collection of data following the approved SAP, and validation of the data following the approved QAP reduce the potential uncertainties associated with data quality.

6.2 Sample Locations

There is also uncertainty in areas of the floodplain where no samples are located. Concentrations of COPCs diminish with distance away from the channel, which reflects fluvial transport and flooding as transport pathways documented in the conceptual site model (Golder 2000). Moreover, TCOs were located adjacent to the channel for efficiency of operation and the majority of TCOs were removed in the late 1990s. Thus, the remedial investigation and subsequent investigations have concentrated where higher concentrations of COPCs were expected (adjacent to the channel). For the RRA, Thiessen polygons were built from a sample dataset clustered around removal areas and bar and overbank features adjacent to the channel, but the polygons extend across the entire floodplain which introduces a high bias to the evaluation. This method assumes that areas at the outer edge of the floodplain will maintain the same concentrations found near the channel.

6.3 Constituent of Potential Concern and Screening Levels

The RI, HHRA and ERA Reports identified COPCs for HWCIU. A subset of these COPCs were identified in Section 5 for further evaluation by comparing the maximum detected concentrations to screening levels summarized in Table 5-5. The comparison of the maximum detected concentrations in soil to these values reduces the potential uncertainties associated with the selection of COPCs. As indicated in Section 5, generally, at sites where contaminant concentrations fall below screening levels, no further action or study is warranted under the Superfund program, so long as the exposure assumptions at a site match those taken into account by the screening level calculations (USEPA 2021a). Exposure assumptions at HWCIU were discussed in NMED's HHRA (Neptune 2008) and some assumptions

incorporated ingestion of garden produce, eggs, and beef. After the HWCIU HHRA was finalized, however, NMED issued residential pre-FS RAC for the Hurley Soils IU (HSIU) and STSIU that did not include these pathways because they are not complete exposure pathways in and around the mine site. This is a conservative assumption because most exposures along HWCIU are trespasser, rancher, or recreator, which all experience many fewer days of exposure compared to a resident.

The HHRA does not include an adjustment for bioavailability for metals other than arsenic and lead and adjustment for those metals are based on USEPA default bioavailability values. The USEPA currently recommends a default bioavailability factor of 60 percent for ingestion of arsenic and lead in soils (USEPA 1994, 2007, 2012a, b, 2021b). The screening levels for arsenic and lead incorporate these values. Arsenic at the site is most likely present as an oxide compound; therefore, the use of the default RBA value may result in an overestimate of true soil ingestion risks associated with arsenic concentrations in soil/sediment. The risk estimates for other COPCs such as copper is assumed to be 100 percent, but similar to arsenic, they likely occur in geochemical forms that are bound to soil particulate and not available for uptake. These estimates for bioavailability contribute to conservative estimates of risk and overestimate the true risk. Bioavailability may also be determined empirically in a laboratory to better reflect site-specific geochemistry.

6.4 Estimation of Exposure Point Concentrations for In-filled Remediated Areas

As noted in Section 2.3.1, it is expected that natural sediment transport processes will infill and restore pre-construction geomorphology in the bars and overbanks. Exposure within the remediated areas is assumed to be equal to the concentration of the fill material in the AWA, but over time these areas may fill with deposited sediments from the active channel and other soil/sediment sources upstream. The creek system has largely cleaned up and sediment transport downstream will be clean following removal of historic TCOs, source control measures such as the Groundhog Mine reclamation, and improvement in storm water flow. That said, in-fill material from the active channel sediment is not accounted for in the RRA and, therefore, a brief sensitivity analysis was conducted to understand this uncertainty. Based upon the approved IRA workplan and Completion Report (Arcadis 2018, 2021a), smaller sized back-fill is 8-inch or 12-inch cobble. Making a simplifying assumption that the cobble is shaped like a sphere, then the range of possible porosities are 48 for loosest placement down to 26 for densest placement using an engineering equation for porosity (i.e., Porosity is Volume of Voids over Total Volume). The cobble is heavy and is tightly placed in the removal areas and, therefore, for this analysis, it was assumed up to 20 percent of the voids may be present at the surface and potentially contacted by a human receptor. Using the approved HHRA (Neptune 2008, see Table 3-10), concentrations for P3 active channel in the 0-250 um size fraction for copper (674 mg/kg) and lead (284 mg/kg) were substituted for 20% of the back-filled area in the AWA estimate. Based on this analysis, the relative percent difference between the AWA and the AWA with active channel infill was less than 12 percent for copper and 18 percent for lead [in bars, copper concentration increased 12 and 3 percent in bars and overbank, respectively (bars from 352 to 395 mg/kg and, in overbank, copper increased from 487 to 504 mg/kg) and lead concentrations increased 18 and 4 percent, respectively, in bars and overbank (bars 114 to 134 mg/kg and overbank 179 to 187 mg/kg).] Therefore, for the AWA estimates, incorporating 20 percent area with active channel in-fill does not substantively change the conclusions. All this said, the 95UCL estimate provided in Section 5 is an

upper bound estimate because it does not include backfill concentrations and, thus, the 95UCL provides a solid upper bound for exposure.

7 CONCLUSIONS

An IRA was completed for HWCIU between October 2018 and June 2019 with the purpose of reducing COPC mass in soil and sediment within the active channel, bar, and overbanks that could be an ongoing source of exposure to nearby residents, recreators, or ecological receptors. The IRA also improved channel flow conditions by removing hardened physical obstructions left by historical TCOs. Chino submitted a completion report documenting the IRA activities (Arcadis 2021a). Confirmation and supplemental samples were collected during the IRA, and this RRA provides the following additional supporting information:

- Laboratory Reports (Appendix A)
- Data Validation Reports (Appendix B)
- Site-Specific Regressions (Appendix C)
- Hanover/Whitewater Creeks Thiessen Polygon Figures (Appendix D)
- Statistical Outputs – (Appendix E)
- COPC Distribution Plots (Appendix F).

This information supported the evaluation of the residual risk to human health and ecological receptors included in this RRA for the HWCIU under the AOC.

Excluding field duplicates and post-excavation floor samples, 655 samples were used to characterize existing conditions on bar and overbank features from P1 through P4. This was significantly more samples than had been collected during previous investigations, and cumulatively these sample results provide the most comprehensive understanding yet of metals concentrations in HWCIU. From this dataset, there are two key conclusions from the analysis presented herein:

1. Copper, iron, and lead concentrations were reduced in P1 through P4 in HWCIU following the TCO removals and other IRA source controls; as well as attenuation based on data analysis.
2. The metal concentrations reported for PEC and supplemental samples, when compared to screening level criteria, indicate no unacceptable risk to human or ecological receptors from exposure to soil in bar and overbank geomorphic features.

The active channel sediment will be further evaluated under SWA and DP-1340 (Golder 2016). Based on the results contained herein, no further risk assessment for bar and overbank sediment in P1, P2, P3, and P4 is warranted based on the evaluation.

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TABLES

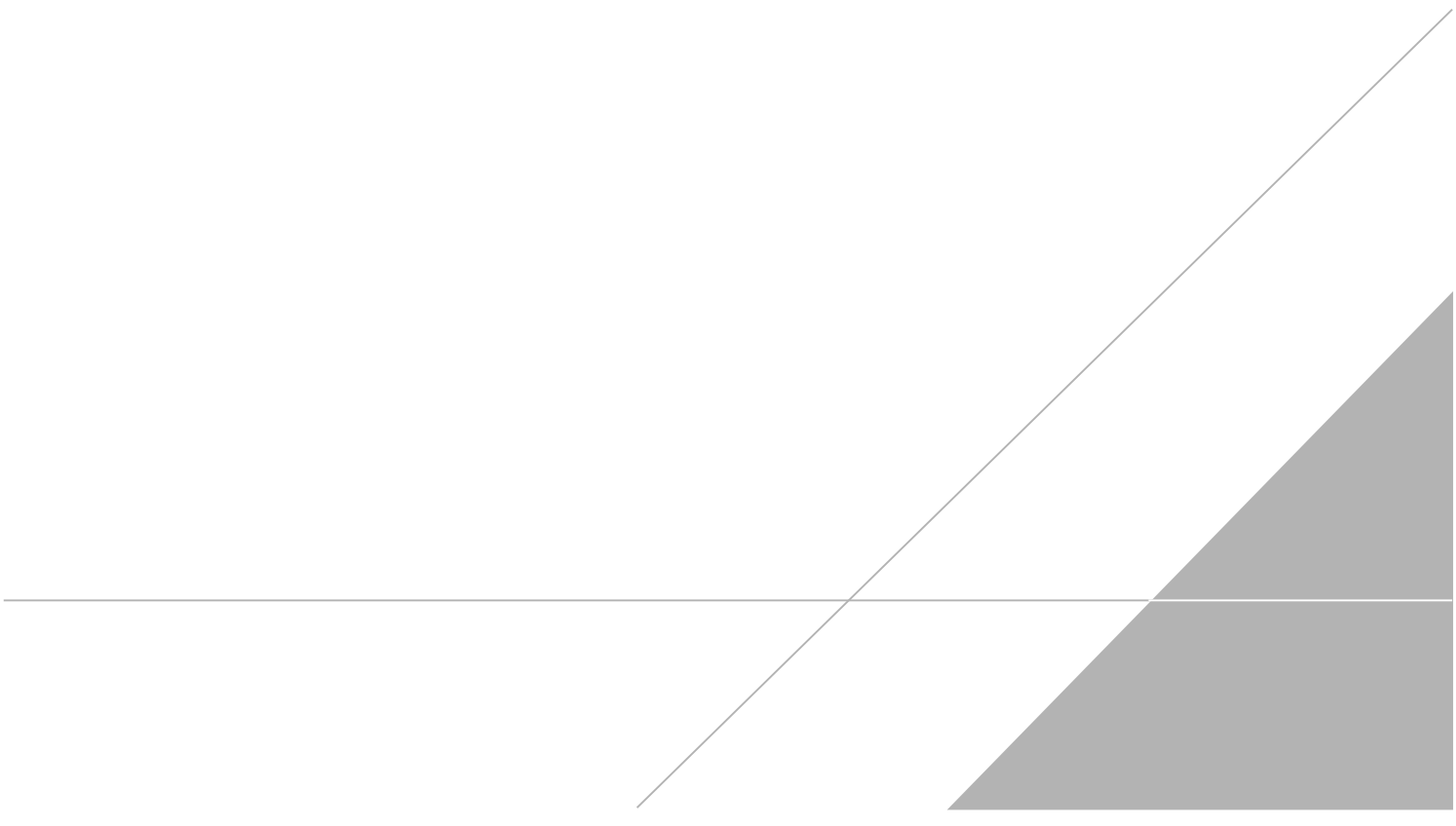

Table 4-4a
Summary of Data Integrated into Area-weighted Averages: Physical Reach 2
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar[2], Overbank[2], or Unassigned[3]	Associated with Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
Supplemental	B01-P1-3-025	Overbank	--	0.63	378	7.6	7.6	5.7	2.7	452	40397	588	1180
Supplemental	B01-P2-2-004	Bar	--	0.06	486	6.6	6.4	8.5	2.5	570	62982	431	1731
		Overbank	--	0.01									
		Unassigned	--	0.04									
Supplemental	B01-P2-2-012	Bar	--	0.05	627	6.8	6.3	8.5	5.4	851	74400	319	1940
		Unassigned	--	0.02									
PEC	R01-001F	Bar	--	0.02	357	7.7	7.7	4.2	1.4	230	25900	182	1100
		Overbank	--	0.00									
		Unassigned	--	0.03									
PEC	R01-002F	Bar	--	0.01	332	7.7	7.8	4.4	2.9	401	37900	148	1510
		Overbank	--	0.08									
		Unassigned	--	0.07									
PEC	R01-003F	Bar	--	0.03	48	7.8	10.1	3.3	4.0	67	12300	124	457
		Overbank	--	0.02									
		Unassigned	--	0.12									
PEC	R01-004F	Overbank	--	0.01	122	7.8	9.1	2.4	4.0	54	12500	114	259
PEC	R01-005F	Bar	--	0.01	89	7.7	9.3	4.2	0.8	119	16700	187	639
		Overbank	--	0.05									
		Unassigned	--	0.06									
PEC	R01-006F	Bar	--	0.01	414	7.7	7.6	4.1	3.3	492	41445	203	1562
		Overbank	--	0.05									
		Unassigned	--	0.02									
PEC	R01-007F	Overbank	--	0.02	684	7.2	6.5	7.1	2.8	782	52474	414	1301
		Unassigned	--	0.01									
PEC	R01-008F	Bar	--	0.05	581	7.4	6.9	4.2	4.0	583	44500	176	1600
		Overbank	--	0.01									
		Unassigned	--	0.05									
PEC	R01-010F	Bar	--	0.01	318	7.9	8.1	3.8	3.0	385	55366	229	1662
		Unassigned	--	0.12									
PEC	R01-011F	Unassigned	--	0.14	578	7.6	7.1	5.4	3.0	604	50900	227	1360
PEC	R01-012F	Bar	--	0.00	373	7.0	7.0	1.9	0.7	447	37014	99	811
		Overbank	--	0.01									
PEC	R01-013F	Overbank	--	0.02	667	5.3	4.8	6.8	3.4	764	43075	368	1492
PEC	R14-001F	Overbank	--	0.14	210	7.9	8.5	1.8	0.8	260	29900	53	345
		Unassigned	--	0.21									
PEC	R14-002F	Overbank	--	0.00	409	7.8	7.7	2.6	2.4	486	32569	127	1281
		Unassigned	--	0.02									
PEC	R14-003F	Overbank	--	0.29	332	7.8	7.9	2.5	2.2	401	31396	123	1281
		Overbank	R14	0.20	97	7.8	9.3	0.0	0.0	128	5246	15	250
		Unassigned	--	1.08	332	7.8	7.9	2.5	2.2	401	31396	123	1281
PEC	R14-004F	Overbank	--	0.00	177	7.8	8.6	2.6	2.1	290	34900	71	3370
		Unassigned	--	0.06									
PEC	R15-001F	Overbank	--	0.00	845	4.1	3.4	4.2	1.6	951	96427	224	314
PEC	R15-002F	Overbank	--	0.04	450	7.5	7.3	3.8	3.4	473	58200	170	1610
		Unassigned	--	0.29									
PEC	R15-003F	Overbank	R15	0.70	103	7.6	9.1	0.0	0.0	136	15618	25	182
		Overbank	--	0.19	419	7.6	7.5	3.7	3.5	497	45981	165	1592
		Unassigned	--	0.58									
PEC	R15-004F	Overbank	--	0.07	508	7.5	7.1	3.9	3.8	594	43889	201	1791
		Unassigned	--	0.29									
PEC	R15-005F	Overbank	--	0.02	194	7.8	8.5	1.9	1.7	245	20400	74	884
		Unassigned	--	0.19									
PEC	R15-006F	Overbank	--	0.18	815	6.1	5.3	4.9	1.3	920	71378	217	751
		Unassigned	--	0.02									
PEC	R15-007F	Overbank	--	0.08	386	7.6	7.6	3.3	3.5	461	46562	179	1721
		Unassigned	--	0.01									
PEC	R18-001F	Bar	--	0.03	291	7.8	8.1	3.5	3.1	352	58700	180	1570
		Overbank	--	0.04									
		Unassigned	--	0.03									
PEC	R18-002F	Bar	--	0.06	103	7.5	9.0	0.0	0.0	136	15618	25	181
		Overbank	--	0.04									
		Unassigned	--	0.05									
PEC	R18-003F	Bar	--	0.01	385	7.7	7.7	4.4	3.8	460	39700	185	1420
		Unassigned	--	0.10									
PEC	R18-004F	Bar	--	0.01	241	7.7	8.2	4.0	2.5	298	29700	176	1520
		Overbank	--	0.06									
		Unassigned	--	0.11									
PEC	R18-005F	Bar	--	0.04	441	7.6	7.4	9.4	3.7	962	57100	417	1560
		Unassigned	--	0.10									
PEC	R18-008F	Overbank	R18	0.51	103	6.9	8.4	0.0	0.0	136	15618	25	182
		Unassigned	--	0.17	1260	6.9	5.5	4.8	4.1	1377	44935	302	1562
PEC	R18-009F	Bar	--	0.08	103	7.5	9.0	0.0	0.0	136	15618	25	181
		Overbank	--	0.04									
		Unassigned	--	0.07									
PEC	R18-010F	Bar	--	0.02	103	7.5	9.0	0.0	0.0	136	15618	25	181
		Overbank	--	0.03									
		Unassigned	--	0.02									
PEC	R19-001F	Unassigned	--	0.35	924	4.8	4.0	10.6	2.0	1033	109170	486	1472
PEC	R19-002F	Bar	R19	0.18	97	7.2	8.8	0.0	0.0	129	9432	24	400
		Unassigned	--	0.02	3050	7.2	4.8	7.0	6.8	3119	86956	614	1512
PEC	R19-003F	Unassigned	--	0.05	907	6.5	5.6	3.8	3.3	1080	27500	306	1470
PEC	R19-004F	Unassigned	--	0.67	189	7.1	7.9	1.8	0.7	238	16390	91	733
PEC	R19-006F	Unassigned	--	0.20	124	7.5	8.8	1.4	0.4	207	14900	52	623

Table 4-4a
Summary of Data Integrated into Area-weighted Averages: Physical Reach 2
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar[2], Overbank[2], or Unassigned[3]	Associated with Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
PEC	R20-001F	Unassigned	--	0.48	413	4.7	4.8	3.4	1.7	491	57792	763	1301
PEC	R20-002F	Unassigned	--	0.03	372	7.0	7.0	4.3	2.4	564	43100	321	1320
PEC	R20-003F	Unassigned	--	0.15	384	6.1	6.2	3.8	2.0	459	50157	271	1109
PEC	R20-004F	Bar	R20	0.03	97	4.6	6.4	0.0	0.0	129	9432	24	400
		Unassigned	--	0.01	538	4.6	4.4	3.9	1.7	627	53515	371	1271
PEC	R21-001F	Unassigned	--	0.10	788	7.7	6.8	4.3	2.8	892	34091	181	1030
PEC	R21-002F	Unassigned	--	0.03	580	7.1	6.6	3.4	2.0	827	41000	182	975
PEC	R21-003F	Unassigned	--	0.04	582	7.4	6.9	5.6	2.9	674	42610	196	1060
PEC	R21-004F	Bar	R21	0.01	97	7.4	9.0	0.0	0.0	129	9432	24	400
		Unassigned	--	0.05	415	7.4	7.3	3.6	2.0	493	41445	117	896
PEC	R22-001F	Unassigned	--	0.08	972	5.6	4.6	3.2	2.7	1083	115299	187	447
PEC	R22-002F	Unassigned	--	0.05	1020	5.8	4.8	7.8	3.0	1132	123120	167	689
PEC	R22-003F	Unassigned	--	0.07	1150	5.5	4.4	3.0	1.6	1370	127000	210	1400
PEC	R22-004F	Bar	R22	0.02	97	5.6	7.3	0.0	0.0	129	9432	24	400
		Unassigned	--	0.02	1030	5.6	4.6	4.4	0.6	1143	145719	213	369
PEC	R23-001F	Unassigned	--	0.03	1120	4.6	3.5	3.2	0.5	1040	56600	150	429
PEC	R23-002F	Unassigned	--	0.01	541	6.8	6.4	3.9	1.4	630	42028	158	817
PEC	R23-003F	Unassigned	--	0.11	872	5.8	4.9	3.1	1.1	979	144591	158	650
PEC	R23-004F	Bar	R23	0.02	97	5.0	6.7	0.0	0.0	129	9432	24	400
		Unassigned	--	0.00	856	5.0	4.2	4.2	4.0	963	89583	133	624
PEC	R24-001F	Unassigned	--	0.08	887	5.4	4.6	4.2	4.0	995	97794	173	400
PEC	R24-002F	Unassigned	--	0.06	472	7.4	7.1	3.7	1.2	555	45749	171	1332
PEC	R24-003F	Unassigned	--	0.06	1020	6.0	5.0	3.4	2.5	1410	105000	154	495
PEC	R24-004F	Bar	R24	0.02	97	6.5	8.1	0.0	0.0	129	9432	24	400
		Unassigned	--	0.02	956	6.5	5.5	7.2	0.9	1066	96655	174	646
PEC	R25-001F	Unassigned	--	0.04	1090	5.9	4.8	5.1	4.0	1204	82954	129	509
PEC	R25-002F	Unassigned	--	0.05	498	7.2	6.9	4.1	1.7	583	50621	147	1001
PEC	R25-003F	Unassigned	--	0.01	426	7.4	7.3	2.9	1.8	501	30000	153	1130
PEC	R25-004F	Unassigned	--	0.01	1370	6.1	4.7	3.9	4.0	1488	71838	174	635
PEC	R26-001F	Bar	R25	0.37	97	5.7	7.4	0.0	0.0	129	9432	24	400
		Unassigned	--	0.08	1000	5.7	4.7	5.0	4.0	1112	64939	296	686
PEC	R26-002F	Unassigned	--	0.03	946	4.6	3.7	4.5	4.0	1056	126516	193	262
PEC	R26-003F	Bar	--	0.00	1640	5.4	3.8	3.6	3.1	1410	101000	298	918
		Overbank	--	0.00									
		Unassigned	--	0.01									
		Bar	R26	0.03	97	5.4	7.1	0.0	0.0	129	9432	24	400
PEC	R26-004F	Unassigned	--	0.01	825	5.5	4.7	4.9	4.0	931	75510	423	792
PEC	R27-001F	Unassigned	--	0.01	751	4.6	4.0	3.6	4.0	853	101210	301	828
PEC	R27-002F	Unassigned	--	0.00	965	7.2	6.1	3.5	1.8	1076	50273	265	1221
PEC	R27-003F	Unassigned	--	0.06	1390	7.2	5.7	3.0	2.4	1180	36500	193	1050
PEC	R27-004F	Bar	R27	0.01	97	4.5	6.3	0.0	0.0	129	9432	24	400
		Unassigned	--	0.01	1030	4.5	3.5	4.2	0.7	1143	198495	136	207
PEC	R28-001F	Unassigned	--	0.02	905	4.3	3.5	3.0	4.6	1780	224000	125	458
PEC	R28-003F	Bar	R28	0.04	97	5.5	7.2	0.0	0.0	129	9432	24	400
PEC	R28-004F	Unassigned	--	0.02	2260	4.9	3.0	5.5	3.3	2530	119000	262	544
PEC	R29-001F	Bar	--	0.03	950	4.2	3.4	3.1	4.0	1060	150228	192	246
		Overbank	--	0.01									
PEC	R29-002F	Bar	R29	0.03	97	5.1	6.8	0.0	0.0	129	9432	24	400
PEC	R30-001F	Bar	R30	0.03	97	5.0	6.7	0.0	0.0	129	9432	24	400
		Unassigned	--	0.01	1180	5.0	3.9	4.3	1.1	1296	176088	119	688
PEC	R30-003F	Unassigned	--	0.04	2460	7.1	5.0	3.5	2.0	2556	91866	182	842
PEC	R30-004F	Unassigned	--	0.09	770	4.3	3.7	5.7	4.0	873	159235	174	188
PEC	R310-003F	Bar	--	0.01	344	6.3	6.5	8.9	1.4	414	58831	518	1332
		Unassigned	--	0.07									
		Overbank	R310	0.89	97	6.3	7.9	0.0	0.0	129	9432	24	400
PEC	R310-004F	Unassigned	R310	0.02	97	6.3	7.9	0.0	0.0	129	9432	24	400
PEC	R31-003F	Bar	R31	0.02	97	5.5	7.2	0.0	0.0	129	9432	24	400
		Unassigned	--	0.05	1000	5.5	4.5	5.9	4.0	1112	64939	165	465
PEC	R31-004F	Unassigned	--	0.02	1130	5.3	4.2	3.6	4.0	1245	179453	142	305
PEC	R32-003F	Unassigned	--	0.31	763	6.8	6.0	3.1	1.6	866	40164	192	1251
PEC	R32-004F	Bar	R32	0.01	97	6.7	8.3	0.0	0.0	129	9432	24	400
		Unassigned	--	0.04	740	6.7	6.0	3.2	1.7	841	48766	946	1150
PEC	R34-001F	Overbank	--	0.02	1860	6.8	5.0	9.3	3.2	2070	57400	407	1180
		Unassigned	--	0.07									
PEC	R34-002F	Overbank	--	0.00	569	5.6	5.3	8.6	1.1	660	77115	739	1109
		Overbank	R34	0.02	92			0.0	0.0	123	5298	14	115
PEC	R34-003F	Overbank	--	0.00	743	7.0	6.2	6.8	4.4	845	64018	319	1682
		Unassigned	--	0.18									
PEC	R34-004F	Overbank	--	0.01	553	6.3	5.9	10.4	2.8	654	61300	549	1450
		Unassigned	--	0.10									
PEC	R35-003F	Overbank	R35	0.03	97	6.7	8.3	0.0	0.0	129	9432	24	400
PEC	R35-008F	Overbank	--	0.01	4860	7.7	4.7	6.6	5.9	5430	41400	346	962
PEC	R35-010F	Bar	--	0.13	4310	7.2	4.4	9.4	6.0	4294	62060	536	1771
		Overbank	--	0.18									
		Unassigned	--	1.11									
PEC	R36-001F	Unassigned	--	0.07	1750	4.9	3.3	4.4	1.2	1930	46800	230	539
PEC	R36-003F	Bar	R36	0.01	97	7.3	8.9	0.0	0.0	128	5246	15	250
		Unassigned	--	0.28	1490	7.3	5.7	4.5	2.7	1608	68851	248	1089
PEC	R36-004F	Unassigned	--	0.32	2460	5.1	3.1	6.4	1.7	2670	52200	346	645
PEC	R37-001F	Bar	R37	0.45	97	4.3	6.1	0.0	0.0	128	5246	15	250
		Unassigned	--	0.32	447	4.3	4.3	2.8	0.8	528	59638	71	304
PEC	R37-004F	Bar	--	0.02	1220	7.2	5.9	5.9	1.6	1360	63100	237	1140
		Unassigned	--	0.18									

Table 4-4a
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Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar[2], Overbank[2], or Unassigned[3]	Associated with Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
PEC	R37-005F	Unassigned	--	0.25	2740	5.8	3.6	7.1	2.0	2824	57445	310	755
PEC	R38-001F	Bar	--	0.02	661	7.5	6.8	4.6	5.5	758	50968	220	1890
		Unassigned	--	0.00									
PEC	R38-002F	Bar	--	0.03	685	6.5	5.9	8.4	3.0	783	79979	288	1312
		Unassigned	--	0.05									
PEC	R38-003F	Bar	--	0.02	672	6.9	6.3	7.9	4.0	897	92900	356	1330
		Bar	R38/R39/R40	0.10	97	6.9	8.5	0.0	0.0	128	5246	15	250
		Unassigned	--	0.03	672	6.9	6.3	7.9	4.0	897	92900	356	1330
PEC	R38-004F	Bar	--	0.03	630	6.7	6.2	7.1	3.7	725	70000	298	1472
		Unassigned	--	0.03									
PEC	R40-001F	Bar	--	0.06	1140	6.7	5.5	8.4	3.9	849	73000	252	1730
		Unassigned	--	0.00									
PEC	R40-002F	Unassigned	--	0.03	476	7.7	7.4	3.4	3.9	559	47722	255	2185
PEC	R40-003F	Bar	--	0.00	632	7.4	6.8	6.2	5.2	727	59292	266	1969
		Unassigned	--	0.15									
PEC	R40-004F	Bar	--	0.02	646	7.1	6.5	7.6	3.3	761	66000	297	1570
PEC	R41-001F	Bar	--	0.01	602	7.3	6.8	4.1	3.5	695	60792	235	1542
		Unassigned	--	0.09									
PEC	R41-002F	Unassigned	--	0.04	651	6.9	6.3	4.6	3.4	747	78031	267	1281
PEC	R41-003F	Bar	--	0.02	461	7.9	7.6	3.7	3.5	489	50500	173	1660
		Unassigned	--	0.03									
PEC	R41-004F	Bar	--	0.02	546	7.8	7.3	4.2	4.4	635	47142	250	1811
		Bar	R41	0.06	97	7.8	9.3	0.0	0.0	128	5246	15	250
		Unassigned	--	0.10	546	7.8	7.3	4.2	4.4	635	47142	250	1811
PEC	R41-005F	Bar	--	0.08	635	6.7	6.1	3.8	2.1	730	72871	255	930
		Unassigned	--	0.01									
PEC	R42-001F	Unassigned	--	0.13	632	7.5	6.9	5.0	5.1	727	46562	194	1761
PEC	R42-002F	Unassigned	--	0.05	475	7.3	7.0	4.5	3.8	558	39814	179	1612
PEC	R42-003F	Overbank	R42	0.05	96	5.9	7.6	0.0	0.0	127	8623	17	142
		Unassigned	--	0.08	628	5.9	5.4	7.2	1.3	690	51600	295	1680
PEC	R42-004F	Unassigned	--	0.00	935	6.5	5.5	5.3	6.1	1045	40747	273	1989
PEC	R44-001F	Bar	--	0.16	57	7.7	9.8	2.2	4.0	79	12600	48	405
		Unassigned	--	0.83									
PEC	R44-002F	Bar	--	0.03	379	6.1	6.2	5.3	1.2	453	78200	226	763
PEC	R44-003F	Bar	--	0.04	357	6.7	6.8	1.8	0.6	176	17300	47	555
		Unassigned	--	0.01									
PEC	R44-004F	Bar	R44	0.01	103	5.9	7.5	0.0	0.0	136	15618	25	182
PEC	R46-001F	Bar	--	0.00	285	7.2	7.5	5.8	1.4	348	50400	294	865
		Unassigned	--	0.24									
PEC	R46-002F	Bar	--	0.01	197	7.8	8.5	2.3	1.9	67	22300	646	2340
PEC	R46-003F	Bar	--	0.05	201	7.7	8.4	4.2	1.9	252	28900	242	1190
		Overbank	R46	0.07	92	7.7	9.3	0.0	0.0	123	5298	14	115
		Unassigned	--	0.01	201	7.7	8.4	4.2	1.9	252	28900	242	1190
PEC	R46-004F	Bar	--	0.02	242	7.9	8.4	3.6	3.0	299	38300	183	1440
		Unassigned	--	0.04									
PEC	R47-001F	Bar	--	0.01	548	7.4	7.0	5.7	4.6	637	47200	292	1840
		Unassigned	--	0.25									
PEC	R47-002F	Bar	--	0.11	416	7.6	7.5	5.3	3.5	494	46800	340	1390
		Unassigned	--	0.09									
PEC	R47-003F	Bar	R47	0.14	97	7.6	6.9	0.0	0.0	129	9432	24	400
		Bar	--	0.03	1160	5.2	4.1	4.1	0.8	1280	193000	285	281
		Unassigned	--	0.18									
PEC	R47-004F	Bar	--	0.01	841	6.9	6.0	5.6	1.5	947	85100	333	938
		Unassigned	--	0.05									
PEC	R48-001F	Bar	--	0.01	763	7.2	6.4	8.1	3.0	590	57300	339	1490
		Unassigned	--	0.04									
PEC	R48-002F	Unassigned	--	0.00	403	7.0	7.0	4.5	1.4	480	52800	224	815
PEC	R48-003F	Overbank	R48	0.05	97	7.0	9.1	0.0	0.0	129	9432	24	400
		Bar	--	0.15	221	7.6	8.2	3.3	2.2	275	37700	187	1250
		Unassigned	--	0.15									
PEC	R48-004F	Bar	--	0.09	436	7.5	7.3	3.7	3.1	326	43700	221	1410
		Unassigned	--	0.04									

Table 4-4a
Summary of Data Integrated into Area-weighted Averages: Physical Reach 2
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar[2], Overbank[2], or Unassigned[3]	Associated with Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
PEC	R79-003F	Overbank	R79	0.02	97	7.5	9.1	0.0	0.0	128	5246	15	250
PEC	R79-004F	Overbank	--	0.00	506	7.5	7.2	2.9	2.8	592	30575	212	1692
Supplemental	U02-3200	Unassigned	--	0.02	1580	6.9	5.3	5.8	3.0	1697	57099	220	1462
Supplemental	U03-1200M	Bar	--	0.00	864	6.9	6.0	8.5	11.0	971	48882	443	2732
		Unassigned	--	0.07									
Supplemental	U03-1202M	Unassigned	--	0.03	787	6.1	5.3	12.6	7.1	891	59638	418	2342
Supplemental	U03-2200	Bar	--	0.04	800	7.6	6.7	7.6	4.1	904	49694	250	1362
		Unassigned	--	0.02									
Supplemental	U03-3200M	Bar	--	0.00	3390	6.3	3.9	3.2	4.0	3439	70919	372	721
		Overbank	--	0.11									
		Unassigned	--	0.12									

Notes:

[1] Supplemental Sampling Program sample or Post-excavation Confirmation (PEC) Sampling sample

[2] Bars and overbank features are stream geomorphological features mapped in HWCIU Phase I RI Report (Golder Associates 2000)

[3] Unassigned Thiessen polygons represent Ares in the Hanover/Whitewater Creeks floodplain outside of bar, overbank, and TCO features (Golder Associates 2000). These areas may include active channel.

[4] For removal areas, COPC concentrations evaluated are for backfill material as provided in the HWCIU IRA Completion Report (Arcadis 2020).

µm = micron
COPC = constituent of potential concern
HWCIU = Hanover/Whitewater Creeks Investigation Unit
IRA = Interim Removal Action
mg/kg = milligram per kilogram
PEC = Post-excavation Confirmation Sample
RI = Remedial Investigation
TCO = Tin Can Operation

Arcadis. 2020. Hanover Whitewater Creek IU Interim Removal Action Completion Report. March.
Golder Associates. 2000. Administrative Order on Consent. Phase 1 Remedial Investigation Report. Hanover and Whitewater Creeks Investigation Units. Prepared for Chino Mines Company. May 2000.

Table 4-4b
Summary of Data Integrated into Area-weighted Averages: Physical Reach 3
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar[2], Overbank[2], or Unassigned[3]	Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
Supplemental	B01-P1-3-025	Bar	--	0.00	378	7.6	7.6	5.7	2.7	452	40397	588	1180
Supplemental	B01-P3-2-001	Bar	--	0.46	421	7.7	7.6	4.4	3.0	499	47142	249	1562
		Overbank	--	0.60									
		Unassigned	--	0.25									
Supplemental	B01-P3-2-004	Bar	--	0.09	423	7.7	7.5	4.3	3.4	502	36663	253	1472
		Overbank	--	1.07									
		Unassigned	--	0.01									
Supplemental	B01-P3-2-007	Bar	--	0.09	103	6.8	8.4	0.0	0.0	136	15618	25	401
		Overbank	--	0.00									
		Unassigned	--	0.01									
Supplemental	B01-P3-2-008	Bar	--	0.15	103	6.8	8.4	0.0	0.0	136	15618	25	401
		Overbank	--	0.17									
		Unassigned	--	0.06									
Supplemental	B01-P3-2-010	Bar	--	0.17	335	7.8	7.9	4.2	2.8	404	39348	194	1322
		Overbank	--	0.81									
		Unassigned	--	0.44									
Supplemental	B01-P3-2-012	Bar	--	0.14	97	6.8	8.4	0.0	0.0	129	9432	24	689
		Unassigned	--	0.15									
Supplemental	B01-P3-2-015M	Bar	--	0.00	417	7.3	7.2	4.6	3.2	495	59754	217	1602
		Unassigned	--	0.20									
Supplemental	B01-P3-2-017M	Bar	--	0.03	448	7.4	7.2	4.6	3.6	529	43191	229	1502
		Overbank	--	0.05									
		Unassigned	--	0.25									
Supplemental	B01-P3-2-022	Bar	--	0.07	586	6.7	6.2	7.2	2.8	678	52126	285	1322
		Overbank	--	0.01									
		Unassigned	--	0.11									
		Bar	R63	0.42	97	6.7	8.3	0.0	0.0	129	9432	24	400
Supplemental	B01-P3-2-023	Bar	--	0.15	534	6.5	6.2	11.6	1.2	622	57214	415	1572
		Overbank	--	0.40									
		Unassigned	--	0.03									
Supplemental	B01-P3-2-027	Bar	--	0.14	97	6.8	8.4	0.0	0.0	129	9432	24	689
		Overbank	--	0.27									
		Unassigned	--	0.61									
		Bar	R70	0.66									
Supplemental	B01-P3-2-028M	Bar	--	0.44	1130	7.9	6.6	2.6	1.7	1245	27402	128	925
		Overbank	--	0.03									
		Unassigned	--	0.03									
Supplemental	B01-P3-2-029	Bar	--	0.06	527	7.2	6.8	6.2	1.9	615	58253	326	1059
		Overbank	--	0.90									
		Unassigned	--	0.34									
		Overbank	R10	0.51	97	7.0	8.8	0.0	0.0	129	9432	24	400
Supplemental	B01-P3-2-032M	Bar	--	0.05	464	7.2	7.0	4.0	1.8	546	50968	227	1069
		Overbank	--	1.45									
		Unassigned	--	0.48									
Supplemental	B01-P3-2-034	Bar	--	0.16	764	7.9	7.1	3.4	3.0	867	28931	149	1089
		Overbank	--	0.54									
		Unassigned	--	0.01									
Supplemental	B01-P3-2-035M	Bar	--	0.09	613	5.7	5.3	3.7	1.2	707	46097	181	3493
		Overbank	--	0.00									
		Unassigned	--	0.57									
Supplemental	B01-P3-2-037M	Bar	--	0.00	514	5.3	5.1	5.5	1.6	601	61829	279	962
		Unassigned	--	0.18									
Supplemental	B01-P3-2-042M	Bar	--	0.14	1120	7.5	6.2	6.2	3.9	1235	50737	215	1332
		Overbank	--	0.11									
		Unassigned	--	0.23									
		Overbank	R101 NORTH	0.10	97	8.0	9.1	0.0	0.0	129	9432	24	400
		Overbank	R102	0.20									
Supplemental	B01-P3-2-043M	Bar	--	0.15	1210	8.1	6.7	4.2	2.1	1326	44122	128	1301
		Overbank	--	0.04									
		Unassigned	--	0.20									
Supplemental	B01-P3-2-044M	Bar	--	0.17	290	7.5	7.8	2.7	0.5	354	22446	30	838
		Unassigned	--	0.46									
Supplemental	B01-P3-2-045M	Bar	--	0.12	1050	6.5	5.4	4.4	2.5	1163	38998	139	971
		Overbank	--	0.20									
		Unassigned	--	0.06									
Supplemental	B01-P3-2-047	Bar	--	0.26	438	7.5	7.3	4.3	1.5	518	66205	160	960
		Overbank	--	0.00									
		Unassigned	--	0.08									

Table 4-4b
Summary of Data Integrated into Area-weighted Averages: Physical Reach 3
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

ARCADIS

Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar[2], Overbank[2], or Unassigned[3]	Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
Supplemental	B01-P3-2-048	Bar	--	0.37	443	7.3	7.1	5.0	1.4	524	70919	234	1035
		Overbank	--	0.01									
		Unassigned	--	0.69									
Supplemental	B01-P3-2-052	Bar	--	0.09	539	7.5	7.1	5.7	3.6	628	48650	275	1522
		Overbank	--	0.20									
		Unassigned	--	0.01									
Supplemental	B01-P3-2-055	Bar	--	0.20	998	7.3	6.2	10.9	1.9	1110	59292	393	1622
		Overbank	--	0.36									
		Unassigned	--	0.35									
Supplemental	B01-P3-2-061	Bar	--	0.33	438	8.1	7.9	3.4	0.8	518	30340	57	687
		Unassigned	--	1.04									
		Bar	R101 SOUTH	0.54	97	8.0	9.6	0.0	0.0	129	9432	24	400
Supplemental	B01-P3-3-001	Bar	--	0.27	159	7.7	8.7	6.8	1.6	203	32803	330	926
		Overbank	--	1.03									
		Unassigned	--	0.02									
Supplemental	B01-P3-3-004	Overbank	--	2.78	519	7.5	7.1	4.4	3.9	606	40514	216	1532
		Unassigned	--	0.09									
Supplemental	B01-P3-3-005	Bar	--	0.00	46	7.9	10.3	2.4	0.3	65	25753	19	565
		Overbank	--	0.16									
Supplemental	B01-P3-3-010	Overbank	--	1.30	378	7.9	7.9	3.7	1.6	452	38298	141	1028
		Unassigned	--	0.28									
Supplemental	B01-P3-3-012	Overbank	--	0.07	100	6.8	8.4	0.0	0.0	132	16702	16	431
Supplemental	B01-P3-3-017M	Overbank	--	1.75									
		Unassigned	--	0.00									
Supplemental	B01-P3-3-020	Bar	--	0.04	1030	7.1	6.0	7.0	2.2	1143	55712	260	1241
		Overbank	--	1.99									
		Unassigned	--	0.19									
Supplemental	B01-P3-3-021	Bar	--	0.02	339	8.1	8.2	3.8	2.1	409	26578	392	952
		Overbank	--	2.78									
		Unassigned	--	0.13									
Supplemental	B01-P3-3-022	Bar	--	0.01	722	6.9	6.2	7.5	2.6	823	81123	303	1231
		Overbank	--	1.51									
		Unassigned	--	0.15									
Supplemental	B01-P3-3-025M	Overbank	--	0.80	407	7.6	7.5	5.1	3.2	484	50505	226	1562
		Unassigned	--	0.51									
Supplemental	B01-P3-3-032	Bar	--	0.04	540	7.6	7.2	5.1	2.1	629	34910	270	1063
		Overbank	--	1.71									
Supplemental	B01-P3-3-034	Overbank	--	0.43	747	7.7	6.9	4.5	3.5	849	33154	285	1231
Supplemental	B01-P3-3-038	Overbank	--	1.64	551	7.7	7.2	2.8	1.8	641	28108	119	1069
Supplemental	B01-P3-3-041	Bar	--	0.11	595	7.8	7.2	2.9	1.5	688	26224	119	1063
		Overbank	--	1.47									
		Unassigned	--	0.37									
Supplemental	B01-P3-3-043	Overbank	--	3.36	964	7.7	6.6	5.3	3.4	1075	40630	212	1221
		Unassigned	--	0.28									
Supplemental	B01-P3-3-045	Overbank	--	1.05	714	6.0	5.4	2.8	1.7	814	24455	98	1079
		Unassigned	--	0.55									
Supplemental	B01-P3-3-046	Bar	--	0.12	741	7.9	7.1	4.4	2.0	843	30692	210	942
		Overbank	--	1.10									
		Bar	R89	0.41	97	7.9	9.4	0.0	0.0	129	9432	24	400
Supplemental	B01-P3-3-049	Bar	--	0.12	678	5.9	5.3	3.9	0.9	776	43424	152	769
		Overbank	--	1.22									
		Unassigned	--	0.41									
		Overbank	R74	0.03	97	5.9	7.6	0.0	0.0	128	5246	15	250
Supplemental	B01-P3-3-050	Overbank	--	0.94	825	7.7	6.8	4.5	2.3	931	30106	173	1099
		Unassigned	--	0.37									
Supplemental	B01-P3-3-053	Overbank	--	1.28	1030	6.3	5.2	11.2	4.6	1143	50737	377	1382
		Unassigned	--	0.09									
Supplemental	B01-P3-3-056	Overbank	--	0.87	1120	6.7	5.5	7.2	3.6	1235	52821	230	1322
		Unassigned	--	0.23									
Supplemental	B01-P3-3-057	Overbank	--	0.32	1140	7.9	6.6	4.3	4.9	1255	39931	202	1382
		Unassigned	--	0.27									
Supplemental	B01-P3-3-059	Overbank	--	1.8	1380	7.9	6.4	4.1	2.4	1498	37364	121	967
		Unassigned	--	1.1									
Supplemental	B01-P3-3-075	Overbank	--	0.01	100	6.8	8.4	0.0	0.0	132	16702	16	431
		Overbank	R55	0.05									
Supplemental	B01-P3-3-077	Bar	--	0.05	500	7.9	7.5	3.0	1.2	586	29166	103	991
		Overbank	--	1.71									
		Unassigned	--	0.45									
Supplemental	B01-P3-3-078	Overbank	--	1.80	905	7.7	6.7	4.4	7.2	1014	33037	210	1412
		Unassigned	--	0.42									
		Overbank	R404	0.01	97	7.7	9.2	0.0	0.0	129	9432	24	400

Table 4-4b
Summary of Data Integrated into Area-weighted Averages: Physical Reach 3
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

ARCADIS

Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar[2], Overbank[2], or Unassigned[3]	Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
Supplemental	B01-P3-3-080	Overbank	--	0.13	845	3.6	2.9	6.8	1.2	951	155859	548	511
		Unassigned	--	0.22									
Supplemental	ERA-22M	Bar	--	0.07	1310	7.7	6.2	3.2	1.5	1427	14240	58	597
		Unassigned	--	1.01									
Supplemental	ERA-28M	Overbank	--	0.15	332	6.7	6.9	4.5	0.8	401	57099	149	845
		Unassigned	--	0.08									
PEC	R02-001F	Bar	--	0.03	927	5.8	4.9	7.0	1.9	1036	46794	296	1029
		Overbank	--	1.35									
PEC	R02-002F	Bar	--	0.01	861	7.6	6.6	4.1	3.1	968	48766	189	1160
		Overbank	--	0.20									
		Overbank	R2	0.95	97	8.0	9.1	0.0	0.0	129	9432	24	400
PEC	R02-003F	Bar	--	0.04	599	7.3	6.8	4.0	2.2	596	40000	149	1250
		Overbank	--	0.83									
PEC	R02-004F	Overbank	--	1.10	992	7.5	6.4	6.0	3.3	1104	44703	243	1170
PEC	R03A-001F	Overbank	--	0.92	465	6.7	6.5	3.3	0.6	459	31700	104	550
PEC	R03A-002F	Overbank	--	0.25	459	7.8	7.5	3.2	1.1	541	28461	101	1069
PEC	R03A-003F	Overbank	--	0.03	768	4.1	3.5	7.0	2.8	871	67931	400	756
PEC	R03A-004F	Overbank	--	0.03	473	6.3	6.1	2.5	2.7	461	21100	49	1120
PEC	R03B-001F	Overbank	--	0.41	399	7.3	7.2	3.1	0.8	475	24691	61	896
PEC	R03B-002F	Overbank	R3A/B	0.15	285	8.0	8.3	0.0	0.0	348	25881	35	360
PEC	R03B-003F	Overbank	--	0.01	1250	7.9	6.5	3.3	1.2	1367	28578	93	1190
		Overbank	R3A/B	1.59	285	7.9	8.2	0.0	0.0	348	25881	32	360
PEC	R03B-004F	Overbank	--	0.10	953	8.1	7.0	3.6	2.1	1063	31983	130	1064
PEC	R03B-005F	Overbank	--	0.55	698	7.9	7.2	7.4	3.4	1010	55100	222	1270
		Unassigned	--	0.09									
PEC	R03B-006F	Bar	R97	2.17	103	5.7	7.3	0.0	0.0	136	15618	25	182
		Overbank	--	0.14	572	5.7	5.3	5.5	4.0	663	52126	227	696
		Unassigned	--	0.15									
PEC	R04-001F	Bar	R4	0.00	97	7.9	9.4	0.0	0.0	129	9432	24	400
		Overbank		0.27									
		Unassigned		0.12									
		Overbank		1.00									
PEC	R04-002F	Overbank	--	1.14	367	6.6	6.7	5.4	0.9	440	32803	224	712
		Unassigned	--	0.25									
PEC	R04-003F	Overbank	--	1.00	366	4.0	4.3	2.7	4.0	338	33000	57	322
PEC	R04-004F	Overbank	R4	0.34	97	7.7	9.2	0.0	0.0	129	9432	24	400
PEC	R06-001F	Overbank	--	0.15	693	7.6	6.9	3.1	1.8	732	33000	128	1030
		Unassigned	--	0.25									
PEC	R06-002F	Bar	--	0.05	979	7.3	6.2	5.5	2.8	1090	46097	230	995
		Overbank	--	2.47									
		Overbank	R5	0.42	97	6.7	8.3	0.0	0.0	129	9432	24	400
		Unassigned	--	0.04	979	7.3	6.2	5.5	2.8	1090	46097	230	995
PEC	R06-003F	Unassigned	--	0.38	489	6.7	6.4	5.8	1.6	574	29518	226	810
PEC	R06-004F	Overbank	--	0.35	639	7.6	7.0	3.7	3.6	699	35800	130	1100
		Unassigned	--	0.21									
PEC	R09M-008F	Overbank	--	0.16	634	4.0	3.6	4.8	4.0	632	90000	173	361
		Unassigned	--	0.59									
PEC	R09M-009F	Overbank	--	0.00	375	7.0	7.0	4.8	1.2	449	61368	189	935
		Unassigned	--	0.38									
PEC	R09M-010F	Unassigned	--	0.28	415	6.2	6.2	5.0	1.2	493	84327	152	887
PEC	R09M-011F	Overbank	--	0.02	374.0	5.8	5.9	0.0	1.0	445.0	89000	0.0	1190.0
		Unassigned	--	1.37									
		Overbank	R77	0.20	103	5.8	7.4	0.0	0.0	136	15618	25	182
		Overbank	R9	0.92									
PEC	R09M-012F	Overbank	--	0.15	412	6.1	6.1	4.3	1.3	490	61022	179	846
		Unassigned	--	0.09									
PEC	R09M-013F	Overbank	--	0.12	549	6.1	5.8	4.7	1.6	638	92664	217	1352
		Unassigned	--	0.00									
PEC	R09M-014F	Overbank	--	0.20	361	6.1	6.2	0.0	1.2	402	65500	0	1060
		Unassigned	--	0.08									
PEC	R10-001F	Overbank	--	0.44	1140	8.1	6.8	2.8	0.8	1255	24691	92	890
		Unassigned	--	0.10									
PEC	R10-002F	Overbank	--	0.89	318	7.8	8.0	3.1	1.3	385	34442	192	1010
		Unassigned	--	0.04									
PEC	R10-003F	Bar	--	0.01	61	8.2	10.2	1.8	4.0	79	28000	16	769
		Overbank	--	0.33									
PEC	R10-004F	Bar	R10	0.01	97	5.9	7.6	0.0	0.0	129	9432	24	400
		Overbank		0.00									
		Unassigned		0.67									
PEC	R101-001F	Bar	--	0.01	445	6.8	6.7	5.3	1.4	464	71200	171	1080
		Overbank	--	0.01									
		Unassigned	--	0.18									
PEC	R101-002F	Bar	--	0.05	395	6.8	6.8	3.8	1.3	471	65745	148	1008
		Unassigned	--	0.22									

Table 4-4b
Summary of Data Integrated into Area-weighted Averages: Physical Reach 3
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar[2], Overbank[2], or Unassigned[3]	Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
PEC	R102-001F	Overbank	--	2.99	794	7.5	6.6	3.3	2.6	898	34559	141	1130
		Unassigned	--	1.44									
PEC	R103-001F	Overbank	--	0.01	365	7.0	7.1	4.5	1.2	438	52589	173	845
		Unassigned	--	0.76									
PEC	R103-002F	Overbank	--	0.13	400	7.4	7.3	4.4	1.5	476	45400	152	943
		Unassigned	--	0.23									
PEC	R103-003F	Overbank	--	2.14	357	6.5	6.6	4.0	0.9	429	52358	141	898
		Unassigned	--	2.36									
PEC	R103-004F	Overbank	--	0.43	426	6.8	6.7	4.9	1.2	505	63327	174	960
		Unassigned	--	0.41									
PEC	R11-001F	Overbank	--	0.59	507	7.6	7.2	4.1	2.8	593	40630	155	1231
		Unassigned	--	0.41									
PEC	R11-002F	Overbank	--	2.96	510	5.9	5.7	2.7	0.9	600	93900	72	683
PEC	R11-003F	Overbank	--	0.09	1670	7.3	5.6	4.9	3.5	1787	38181	186	1119
		Unassigned	--	0.26									
PEC	R11-004F	Overbank	--	1.49	279	7.0	7.4	2.9	1.5	341	32100	104	1130
		Unassigned	--	0.32									
		Overbank	R11	0.22	97	7.0	8.6	0.0	0.0	129	9432	24	400
PEC	R116-001F	Overbank	--	0.75	295	7.9	8.1	5.3	1.1	359	47722	183	896
		Unassigned	--	0.17									
PEC	R116-002F	Overbank	--	0.01	361	7.5	7.5	7.0	1.2	433	63673	221	956
		Unassigned	--	0.04									
		Overbank	R116	0.20	100	8.0	9.0	0.0	0.0	132	16702	16	202
PEC	R116-003F	Overbank	--	2.25	585	5.6	5.2	6.3	0.8	766	123000	379	601
		Unassigned	--	0.06									
PEC	R116-004F	Bar	--	0.01	651	6.9	6.3	5.2	2.0	747	82726	305	1016
		Overbank	--	0.54									
		Unassigned	--	0.35									
PEC	R118-001F	Bar	--	0.07	393	6.7	6.7	5.3	4.0	469	65170	269	744
		Unassigned	--	0.01									
PEC	R118-002F	Bar	--	0.00	373	6.1	6.2	6.7	0.7	418	82200	285	1070
		Overbank	--	0.05									
		Bar	R89A	0.11	97	6.1	7.8	0.0	0.0	129	9432	24	400
PEC	R118-003F	Bar	--	0.36	564	4.1	3.9	6.7	1.7	655	78490	312	1079
		Overbank	--	0.92									
		Unassigned	--	0.34									
PEC	R118-005F	Overbank	R93/R118/R72	0.50	191	6.4	7.3	0.0	0.0	241	17314	28	380
		Unassigned		0.02									
PEC	R118-008F	Bar	--	0.06	2240	4.7	2.8	16.7	1.4	2344	86727	559	620
		Overbank	--	0.61									
		Unassigned	--	0.13									
PEC	R118-009F	Overbank	--	1.50	1710	6.9	5.2	6.9	2.3	1826	47026	330	970
PEC	R120-001F	Bar	--	0.14	547	5.5	5.2	6.0	1.0	636	59408	241	890
		Overbank	--	0.05									
		Unassigned	--	0.39									
PEC	R120-002F	Bar	--	0.33	1090	7.7	6.5	6.4	2.9	1290	42100	194	1130
		Unassigned	--	0.28									
		Bar	R120	0.80	97	7.7	9.2	0.0	0.0	128	5246	15	250
		Bar	R94	0.42									
PEC	R120-003F	Bar	--	0.28	668	7.3	6.6	5.5	2.1	765	61599	241	1030
		Unassigned	--	0.20									
PEC	R120-004F	Bar	--	0.10	465	7.6	7.3	5.4	1.4	548	57214	256	976
PEC	R12-001F	Overbank	--	0.29	438	5.4	5.4	8.4	1.6	518	64364	286	878
		Unassigned	--	0.22									
PEC	R12-002F	Overbank	--	0.30	608	5.4	5.0	5.9	1.6	702	67126	231	1119
		Overbank	R12	0.19	97	5.4	7.1	0.0	0.0	129	9432	24	400
PEC	R12-003F	Overbank	--	1.97	455	6.4	6.3	5.2	2.8	500	42600	184	1200
		Unassigned	--	0.11									
PEC	R12-004F	Unassigned	--	0.49	469	7.6	7.3	4.7	1.9	552	38765	169	1291
PEC	R121-001F	Overbank	--	0.02	390	7.6	7.5	3.7	1.5	381	66200	122	1150
		Unassigned	--	0.04									
PEC	R122-001F	Bar	--	0.11	476	5.1	5.0	6.5	0.9	559	58831	272	823
		Unassigned	--	0.06									
		Bar	R121	0.23	97	5.1	6.8	0.0	0.0	128	5246	15	250
		Bar	R122	1.01									
PEC	R122-002F	Bar	--	0.67	523	5.2	5.0	5.1	2.7	601	67200	191	873
		Unassigned	--	0.30									

Table 4-4b
Summary of Data Integrated into Area-weighted Averages: Physical Reach 3
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar[2], Overbank[2], or Unassigned[3]	Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
PEC	R122-003F	Bar	--	1.18	481	5.1	5.0	5.4	0.8	565	61945	217	715
		Overbank	--	0.37									
PEC	R122-004F	Bar	--	0.42	579	6.0	5.6	6.6	1.4	671	60446	270	804
		Overbank	--	0.51									
PEC	R301-001F	Overbank	--	0.04	392	7.3	7.3	0.3	1.0	468	71608	0	997
		Unassigned	--	0.12									
PEC	R301-002F	Overbank	--	0.01	468	7.8	7.5	5.5	2.3	551	50505	518	1190
		Unassigned	--	0.09									
		Overbank	R301	0.01	97	8.0	9.3	0.0	0.0	129	9432	24	400
PEC	R301-003F	Overbank	--	0.01	411	6.7	6.6	4.5	0.7	488	86613	215	741
		Unassigned	--	0.06									
PEC	R302-001F	Unassigned	--	0.25	750	7.6	6.8	0.0	2.3	501	60500	215	1390
PEC	R302-002F	Unassigned	--	0.12	447	7.7	7.5	4.6	1.9	528	64824	209	1170
PEC	R302-003F	Overbank	--	0.00	496	7.6	7.3	4.7	2.2	581	42959	224	1241
		Unassigned	--	0.11									
PEC	R302-004F	Bar	R302	0.16	97	7.0	8.6	0.0	0.0	128	5246	15	250
		Overbank	--	0.68	462	7.0	6.8	4.2	1.2	496	60500	164	825
		Unassigned	--	0.42									
PEC	R303-001F	Bar	--	0.01	905	7.9	6.9	4.2	3.9	1080	33400	164	1310
		Overbank	--	0.80									
PEC	R303-002F	Bar	--	0.13	741	6.6	5.9	3.5	2.8	843	32217	173	2166
		Overbank	--	0.00									
		Unassigned	--	0.13									
PEC	R303-003F	Bar	--	0.03	525	6.6	6.3	3.7	1.2	613	31631	145	1492
		Overbank	--	0.33									
PEC	R303-004F	Overbank	--	0.55	909	4.9	4.1	4.2	0.6	851	23300	134	410
		Overbank	R303	0.17	97	4.9	6.6	0.0	0.0	128	5246	15	250
PEC	R304-001F	Bar	--	0.03	1250	5.3	4.1	4.0	2.4	1367	29988	152	1642
		Overbank	--	0.12									
		Unassigned	--	0.01									
PEC	R304-002F	Bar	--	0.04	533	7.2	6.8	5.8	2.7	539	61300	273	1250
		Overbank	--	0.16									
		Unassigned	--	0.28									
PEC	R304-003F	Bar	--	0.07	676	4.9	4.4	6.0	1.4	774	45284	395	1006
		Overbank	--	0.21									
		Unassigned	--	0.00									
		Bar	R304	0.29	97	4.9	6.6	0.0	0.0	129	9432	24	400
PEC	R304-004F	Bar	--	0.00	736	6.2	5.5	8.2	4.4	837	41911	390	1472
		Overbank	--	0.30									
PEC	R305-001F	Bar	--	0.01	736	6.9	6.2	5.3	3.2	837	46213	250	1241
		Overbank	--	0.04									
PEC	R305-002F	Bar	--	0.01	418	7.8	7.7	5.2	2.5	453	57200	215	1420
		Overbank	--	0.00									
		Unassigned	--	0.08									
PEC	R305-003F	Overbank	--	0.06	1160	5.7	4.5	9.6	5.0	1275	54787	438	1582
		Unassigned	--	0.03									
		Overbank	R305	0.06	97	5.7	7.4	0.0	0.0	129	9432	24	400
PEC	R305-004F	Overbank	--	0.05	845	5.6	4.8	7.8	2.7	951	57214	376	1211
PEC	R306-001F	Overbank	--	0.00	887	4.5	3.7	2.9	0.8	995	27284	69	1781
		Unassigned	--	0.15									
PEC	R306-003F	Unassigned	--	0.26	759	5.9	5.2	5.8	3.6	722	41700	209	874
PEC	R306-004F	Overbank	R306	0.20	97	7.0	8.6	0.0	0.0	129	9432	24	400
		Unassigned	--	0.23	639	7.0	6.4	4.7	2.6	735	43424	191	1241
PEC	R307-001F	Bar	--	0.00	721	6.5	5.8	9.4	2.6	821	67586	362	1502
		Overbank	--	0.87									
		Unassigned	--	0.20									
PEC	R307-002F	Overbank	--	0.23	504	6.4	6.1	8.9	0.7	552	74600	317	886
		Unassigned	--	0.02									
PEC	R307-003F	Overbank	--	0.32	745	7.6	6.8	7.0	3.6	847	75854	309	1761
		Unassigned	--	0.05									
		Overbank	R307	0.19	97	7.6	9.1	0.0	0.0	129	9432	24	400
PEC	R307-004F	Overbank	--	0.04	588	7.4	6.9	8.4	2.0	680	71149	301	1352
		Unassigned	--	0.11									
PEC	R50-001F	Bar	--	0.00	154	5.0	6.2	1.9	0.8	197	64500	288	623
		Unassigned	--	0.05									
PEC	R50-002F	Unassigned	--	0.02	326	7.8	7.9	3.6	3.2	394	39200	281	1540
PEC	R50-003F	Unassigned	--	0.06	432	7.8	7.6	3.7	3.1	422	37500	158	1450
PEC	R50-004F	Unassigned	--	0.01	270	7.5	7.9	3.8	2.4	331	35300	190	1520
PEC	R50-005F	Bar	R50	0.02	103	6.9	8.4	0.0	0.0	136	15618	25	182
		Bar	--	0.03	401	6.9	6.9	5.2	1.1	477	82954	182	1051
		Unassigned	--	0.13									

Table 4-4b
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Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar[2], Overbank[2], or Unassigned[3]	Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
PEC	R51-001F	Bar	--	0.03	239	7.8	8.3	2.9	2.8	296	34700	217	1340
		Overbank	--	0.03									
		Unassigned	--	0.07									
PEC	R51-002F	Bar	--	0.03	473	7.8	7.5	3.7	3.3	413	38200	203	1440
		Overbank	--	0.38									
		Unassigned	--	0.02									
PEC	R51-003F	Bar	--	0.14	627	7.2	6.6	7.0	2.3	536	54600	266	1530
		Overbank	--	0.32									
		Unassigned	--	0.09									
		Bar	R51	0.01	103	7.2	8.7	0.0	0.0	136	15618	25	182
PEC	R51-004F	Bar	--	0.02	377	7.5	7.5	6.2	1.8	451	56200	234	1240
		Unassigned	--	0.00									
PEC	R52-001F	Bar	R52	0.07	103	6.8	8.3	0.0	0.0	136	15618	25	181
		Overbank		0.00									
		Unassigned		0.02									
PEC	R52-002F	Bar	--	0.05	373	7.7	7.7	3.5	3.3	447	45000	162	1850
		Overbank	--	0.33									
		Unassigned	--	0.13									
PEC	R52-003F	Bar	--	0.19	345	6.3	6.5	6.2	0.6	415	55400	221	737
		Overbank	--	0.69									
		Unassigned	--	0.06									
		Bar	R52	0.18	103	6.3	7.9	0.0	0.0	136	15618	25	182
PEC	R52-004F	Bar	--	0.11	390	6.8	6.8	8.9	1.3	454	72900	312	1340
		Overbank	--	0.10									
PEC	R52A-001F	Bar	--	0.11	577	7.0	6.5	5.6	1.5	668	66205	248	1109
		Overbank	--	0.03									
		Unassigned	--	0.05									
PEC	R52A-002F	Bar	--	0.05	547	7.6	7.2	6.4	3.7	638	56400	231	1650
		Overbank	--	0.07									
		Unassigned	--	0.08									
PEC	R52A-003F	Bar	--	0.04	717	6.8	6.1	7.0	1.9	817	60792	275	1109
		Overbank	--	0.01									
PEC	R52A-004F	Bar	--	0.02	512	5.1	4.9	5.3	2.3	599	53631	233	1271
		Overbank	--	0.11									
PEC	R55-001F	Overbank	--	0.13	409	7.3	7.2	4.7	2.0	486	42600	170	997
		Unassigned	--	0.14									
PEC	R55-002F	Overbank	--	0.02	366	7.6	7.6	4.0	1.2	439	34800	139	877
PEC	R55-003F	Overbank	--	0.08	636	7.0	6.4	8.1	1.7	576	58500	307	1010
		Unassigned	--	0.12									
PEC	R55-004F	Overbank	--	0.08	508	6.9	6.6	9.4	2.0	594	52300	319	1000
		Unassigned	--	0.07									
PEC	R55M-001F	Overbank	--	0.82	778	7.5	6.7	9.9	4.2	881	59638	343	1522
		Unassigned	--	0.00									
PEC	R55M-002F	Overbank	--	1.26	498	7.3	7.0	9.6	0.6	583	62175	342	843
PEC	R55M-003F	Overbank	--	0.10	471	7.9	7.6	3.3	1.0	320	34100	130	830
PEC	R55M-004F	Overbank	--	0.01	455	7.3	7.1	4.9	3.1	537	52937	214	1572
PEC	R56-001F	Overbank	--	0.02	616	6.8	6.3	7.9	1.6	710	79635	278	1721
		Unassigned	--	0.01									
PEC	R56-002F	Overbank	--	1.26	321	7.7	7.9	4.2	2.6	422	37900	173	1300
PEC	R56-003F	Overbank	--	2.81	561	7.7	7.2	4.1	1.6	651	40164	140	1402
		Unassigned	--	0.15									
		Overbank	R56	0.13	100	7.7	9.2	0.0	0.0	132	16702	16	202
PEC	R56-004F	Overbank	R56	0.11	100	7.7	9.2	0.0	0.0	132	16702	16	202
		Unassigned		0.21									
PEC	R57-001F	Overbank	--	1.09	441	7.8	7.6	5.8	2.6	521	60792	178	1482
		Unassigned	--	0.44									
		Overbank	R309	0.08	100	7.8	9.3	0.0	0.0	132	16702	16	202
PEC	R57-002F	Overbank	--	0.51	477	7.8	7.5	5.7	3.5	561	65630	269	1612
		Unassigned	--	0.18									
PEC	R57-003F	Overbank	--	0.25	490	7.6	7.3	5.9	2.6	492	75700	231	1630
		Unassigned	--	0.20									
PEC	R57-004F	Overbank	--	0.03	501	7.8	7.4	5.6	3.5	587	68046	212	1672
		Unassigned	--	0.26									

Table 4-4b
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Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar[2], Overbank[2], or Unassigned[3]	Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
PEC	R58-001F	Overbank	--	0.78	684	7.5	6.8	5.9	2.5	782	49114	205	1099
PEC	R58-002F	Overbank	--	0.37	670	7.6	6.9	5.9	2.5	917	52300	244	1570
PEC	R58-003F	Bar	R58	0.05	97	7.8	9.3	0.0	0.0	129	9432	24	400
		Unassigned	--	0.09	726	7.8	7.0	6.9	2.0	827	58484	262	1412
PEC	R58-004F	Overbank	--	0.02	394	7.0	7.0	4.1	0.0	470	34442	165	2819
		Unassigned	--	0.05									
PEC	R59-001F	Overbank	--	0.37	548	7.8	7.3	4.8	3.3	519	46600	215	1470
		Unassigned	--	0.07									
PEC	R59-002F	Overbank	--	0.59	1040	7.5	6.3	9.2	6.3	1153	40047	319	1642
PEC	R59-003F	Overbank	--	0.63	575	7.5	7.0	6.1	3.4	666	46097	272	1442
		Unassigned	--	0.29									
PEC	R59-004F	Overbank	--	0.00	363	7.9	7.9	4.0	2.8	447	48500	218	1450
		Unassigned	--	0.09									
		Overbank	R59	0.14	97	7.9	9.4	0.0	0.0	128	5246	15	250
PEC	R6/71-008F	Bar	--	0.00	745	7.1	6.3	6.9	2.0	847	62636	294	1119
		Overbank	--	0.02									
		Unassigned	--	0.70									
PEC	R6/71-009F	Bar	--	0.12	494	7.7	7.4	5.2	2.2	579	49926	235	1140
		Unassigned	--	1.60									
PEC	R60-001F	Unassigned	--	0.11	349	7.5	7.6	3.8	2.6	394	49500	226	1460
PEC	R60-002F	Bar	R60	0.04	97	7.7	9.2	0.0	0.0	128	5246	15	250
		Unassigned	--	0.12	415	7.7	7.6	4.1	3.1	493	43657	215	1372
PEC	R61-001F	Overbank	--	0.52	883	7.7	6.7	5.4	3.1	991	42493	217	1261
		Unassigned	--	0.20									
PEC	R61-002F	Overbank	--	0.60	809	7.2	6.3	4.6	4.9	914	65285	216	1332
		Unassigned	--	0.20									
		Overbank	R61	0.11	97	7.2	8.8	0.0	0.0	128	5246	15	250
PEC	R62-001F	Bar	--	0.06	378	7.2	7.2	3.9	2.4	452	48302	199	1241
		Overbank	--	0.26									
		Unassigned	--	0.35									
PEC	R62-002F	Bar	--	0.38	2160	6.6	4.6	5.1	2.4	1850	46900	350	2160
		Overbank	--	0.48									
		Unassigned	--	1.89									
PEC	R62-003F	Bar	--	0.46	398	6.1	6.1	5.7	1.3	474	76541	331	816
		Overbank	--	0.80									
		Unassigned	--	0.05									
PEC	R62-004F	Bar	--	0.24	666	4.9	4.4	7.4	0.9	763	76198	319	710
		Overbank	--	0.44									
		Unassigned	--	0.24									
		Bar	R62	0.77	97	4.9	6.6	0.0	0.0	129	9432	24	400
PEC	R63-001F	Bar	--	0.19	491	7.9	7.6	3.8	3.5	550	45600	223	1610
		Overbank	--	0.14									
		Unassigned	--	0.32									
PEC	R63-002F	Bar	--	0.01	428	7.4	7.3	4.4	3.4	507	45284	244	1791
		Unassigned	--	0.17									
PEC	R63-003F	Bar	--	0.05	323	7.7	7.9	4.3	2.4	391	43773	221	1150
		Unassigned	--	0.20									
PEC	R63-004F	Bar	--	0.01	489	6.6	6.4	7.8	1.3	734	91400	275	1430
		Overbank	--	0.04									
PEC	R64-001F	Bar	R64	0.04	97	7.3	8.9	0.0	0.0	129	9432	24	400
		Unassigned	--	0.29	418	7.3	7.2	5.1	2.3	463	49400	228	1270
PEC	R65-001F	Bar	--	0.10	405	7.6	7.5	3.9	2.6	482	45052	168	1322
		Overbank	--	0.31									
		Unassigned	--	0.38									
PEC	R65-002F	Bar	--	0.01	433	7.9	7.7	4.2	2.9	432	47800	215	1480
		Unassigned	--	0.17									
PEC	R65-003F	Bar	--	0.03	388	7.7	7.6	4.3	2.3	463	45284	216	1180
		Unassigned	--	0.31									
		Bar	R65	0.05	97	7.7	9.2	0.0	0.0	129	9432	24	400
		Bar	R66	0.07									
PEC	R67-001F	Overbank	--	1.67	609	6.6	6.1	7.0	2.5	703	47258	242	1352
		Overbank	R67	0.05	97	6.6	8.2	0.0	0.0	129	9432	24	400
PEC	R68-001F	Bar	--	0.01	736	4.5	3.9	8.9	1.2	837	52589	405	1271
		Overbank	--	0.23									
		Unassigned	--	0.10									
PEC	R68-002F	Overbank	--	1.79	755	6.9	6.1	10.9	1.7	857	58369	532	989
PEC	R68-003F	Bar	R68	0.01	97	6.2	7.8	0.0	0.0	129	9432	24	400
		Overbank		0.05									
		Unassigned		0.08									
PEC	R69-001F	Overbank	--	0.06	565	5.3	5.0	6.6	0.7	656	87413	302	801
		Unassigned	--	0.01									
PEC	R69-002F	Overbank	--	0.30	933	7.2	6.2	7.4	3.2	1100	59200	277	1450
		Unassigned	--	0.05									
		Overbank	R68	0.15	97	7.2	8.8	0.0	0.0	129	9432	24	400
		Overbank	R69	0.17									
PEC	R69-003F	Bar	R69	0.00	97	7.1	8.7	0.0	0.0	129	9432	24	400
		Overbank		0.00									
		Unassigned		0.17									
PEC	R75-003F	Overbank	--	0.94	524	5.6	5.3	5.4	1.8	618	55700	220	1240
		Unassigned	--	0.55									
		Overbank	R75	0.08	103	5.6	7.2	0.0	0.0	136	15618	25	182

Table 4-4b
Summary of Data Integrated into Area-weighted Averages: Physical Reach 3
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar[2], Overbank[2], or Unassigned[3]	Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
PEC	R75-004F	Overbank	--	0.00	436	6.4	6.3	5.1	1.4	516	61829	180	853
		Unassigned	--	0.17									
PEC	R75M-006F	Unassigned	--	0.67	436	5.4	5.4	5.8	0.8	516	57214	248	1003
PEC	R77M-001F	Overbank	--	0.06	494	4.5	4.4	7.9	0.9	579	56637	487	623
		Unassigned	--	0.05									
PEC	R77M-002F	Overbank	--	0.25	781	4.5	3.9	7.3	1.9	956	55600	291	732
		Unassigned	--	0.10									
PEC	R77M-003F	Overbank	--	1.88	456	7.2	7.0	4.7	1.7	538	71149	181	1109
		Unassigned	--	0.28									
PEC	R78-001F	Overbank	--	0.18	481	7.7	7.4	3.9	1.5	565	36079	200	1180
		Unassigned	--	0.05									
		Overbank	R78	0.06	97	7.7	9.2	0.0	0.0	129	9432	24	400
PEC	R78-002F	Overbank	--	0.02	340	7.6	7.7	4.0	1.2	410	47142	158	1109
		Unassigned	--	0.04									
PEC	R78-003F	Overbank	--	0.08	481	5.5	5.4	6.7	0.7	585	77800	282	1590
		Unassigned	--	0.01									
PEC	R78-004F	Overbank	--	0.06	409	7.7	7.6	5.8	1.1	486	47490	235	1041
PEC	R80-001F	Bar	--	0.17	548	7.0	6.6	7.0	11.1	637.3	62290.3	267.4	1220.8
		Overbank	--	0.06									
		Unassigned	--	0.26									
PEC	R80-002F	Bar	--	0.01	97	5.6	0.0	0.0	0.0	129	9432	24	400
		Unassigned	--	0.01									
PEC	R80-003F	Bar	--	0.35	680	6.8	6.2	16.4	2.1	976	86800	481	2000
		Unassigned	--	0.35									
PEC	R80-004F	Bar	--	0.28	919	7.1	6.1	5.6	1.7	1028	47722	231	1332
		Overbank	--	0.16									
		Unassigned	--	0.40									
PEC	R80-006F	Bar	--	0.19	805	7.8	6.9	5.9	5.0	1070	52600	230	1510
		Overbank	--	0.04									
		Unassigned	--	0.26									
PEC	R80-007F	Bar	--	0.27	693	6.8	6.1	10.2	2.0	756	55800	331	1560
		Overbank	--	0.03									
		Unassigned	--	0.56									
PEC	R80-008F	Bar	--	0.09	439	7.7	7.5	4.7	2.9	519	54209	221	1721
		Bar	R80	2.28	97	7.7	9.2	0.0	0.0	129	9432	24	400
		Overbank	--	0.10	439	7.7	7.5	4.7	2.9	519	54209	221	1721
		Unassigned	--	0.21									
PEC	R80-009F	Bar	--	0.15	376	7.7	7.7	3.7	2.8	450	51084	185	1392
		Overbank	--	0.24									
		Unassigned	--	0.30									
PEC	R80-010F	Bar	--	0.08	411	7.7	7.6	4.3	3.3	519	47700	203	1590
		Unassigned	--	0.22									
PEC	R80-011F	Bar	--	0.17	454	7.8	7.6	5.7	3.1	536	70230	228	1612
		Unassigned	--	0.37									
PEC	R80-012F	Bar	--	0.12	589	7.1	6.6	8.2	2.1	681	67586	324	1342
		Overbank	--	2.56									
		Unassigned	--	0.28									
PEC	R80-013F	Bar	--	0.22	1250	7.2	5.8	10.6	3.9	1520	64200	344	1570
		Unassigned	--	0.22									
PEC	R80-014F	Bar	--	0.26	673	6.9	6.3	9.0	1.9	771	66896	315	1939
		Unassigned	--	0.27									
PEC	R81-001F	Overbank	--	0.08	481	7.4	7.1	4.7	3.5	480	48900	199	1500
		Unassigned	--	0.20									
PEC	R81-002F	Overbank	--	0.21	828	6.6	5.8	8.9	4.5	934	54672	338	1552
		Unassigned	--	0.02									
PEC	R81-003F	Bar	R80	0.02	97	4.3	6.1	0.0	0.0	129	9432	24	400
		Overbank	--	0.41	502	4.3	4.2	8.9	0.6	588	59523	335	943
		Unassigned	--	0.04									
PEC	R81-004F	Overbank	--	0.01	452	7.6	7.4	4.8	3.4	528	46100	238	1500
		Unassigned	--	0.12									
PEC	R82-001F	Overbank	--	0.77	446	7.6	7.4	4.7	2.2	527	39931	140	1015
		Unassigned	--	0.32									
PEC	R82-002F	Overbank	--	0.63	746	7.6	6.8	6.8	3.1	797	42200	205	1290
		Unassigned	--	0.12									
		Overbank	R82	0.02	97	7.6	9.1	0.0	0.0	129	9432	24	400
PEC	R82-003F	Overbank	--	1.58	626	7.1	6.5	8.2	2.5	721	54209	422	1221
		Unassigned	--	0.04									
PEC	R83-001F	Bar	--	0.27	501	7.0	6.7	6.5	1.8	587	70115	286	1281
		Overbank	--	0.21									
		Unassigned	--	0.15									
PEC	R83-002F	Bar	--	0.10	518	7.2	6.8	4.5	1.7	605	43773	194	1291
		Bar	R83	1.71	97	7.2	8.8	0.0	0.0	129	9432	24	400
		Overbank	--	0.30	518	7.2	6.8	4.5	1.7	605	43773	194	1291
		Unassigned	--	0.14									

Table 4-4b
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Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar[2], Overbank[2], or Unassigned[3]	Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
PEC	R83-003F	Bar	--	0.14	967	6.9	5.9	10.5	5.5	1260	61000	365	1510
		Overbank	--	0.32									
		Unassigned	--	2.04									
PEC	R83-004F	Bar	--	0.01	530	5.8	5.5	6.5	1.2	618	67011	298	1322
		Overbank	--	0.02									
		Unassigned	--	0.16									
PEC	R84-001F	Unassigned	--	0.19	445	5.7	5.6	6.9	1.0	526	67241	260	970
PEC	R84-002F	Bar	--	0.00	637	6.4	5.9	5.3	2.3	803	46700	205	2220
		Overbank	--	0.37									
		Unassigned	--	2.72									
		Overbank	R84	1.46	97	6.4	8.0	0.0	0.0	129	9432	24	400
PEC	R84-003F	Unassigned	--	0.19	775	6.0	5.3	8.7	1.4	878	53400	287	1079
PEC	R84-004F	Unassigned	--	0.22	1090	7.4	6.2	5.6	3.5	1204	49462	253	1190
PEC	R84-005F	Unassigned	R87	0.07	97	7.3	8.9	0.0	0.0	129	9432	24	400
PEC	R84-007F	Overbank	R84	0.23	97	7.2	8.8	0.0	0.0	129	9432	24	400
		Unassigned		0.02									
PEC	R84-008F	Overbank	--	0.01	454	5.2	5.1	6.3	0.5	536	58253	236	661
		Unassigned	--	0.13									
PEC	R84-009F	Unassigned	--	0.16	410	4.9	5.0	3.7	0.5	483	40200	181	2090
PEC	R85-001F	Bar	--	0.83	489	6.8	6.5	5.8	1.6	574	62290	220	975
		Overbank	--	0.01									
		Unassigned	--	0.99									
		Bar	R87	1.21	97		8.4	0.0	0.0	129	9432	24	400
PEC	R85-002F	Bar	--	0.15	482	7.2	6.9	4.0	2.0	566	55943	187	1271
		Unassigned	--	0.15									
		Bar	R85	0.69	97	7.2	8.8	0.0	0.0	129	9432	24	400
PEC	R85-003F	Bar	R85	0.01	97	7.0	8.6	0.0	0.0	129	9432	24	400
		Unassigned		1.00									
PEC	R85-004F	Bar	--	0.16	422	6.0	6.0	6.2	1.0	501	76083	249	898
		Unassigned	--	0.25									
PEC	R86-001F	Overbank	R86	0.04	97	7.0	8.6	0.0	0.0	129	9432	24	400
		Unassigned		0.01									
PEC	R86-002F	Overbank	R86	0.05	97	4.0	5.8	0.0	0.0	129	9432	24	400
PEC	R86-003F	Overbank	--	1.89	637	4.2	3.8	9.6	0.9	733	68966	341	728
		Unassigned	--	0.01									
PEC	R86-004F	Bar	--	0.16	373	7.3	7.3	4.5	1.8	447	53978	179	834
		Unassigned	--	0.37									
		Overbank	--	3.63									
		Bar	R86	1.56	97	7.3	8.9	0.0	0.0	129	9432	24	400
		Overbank	R86	1.46									
PEC	R87-001F	Bar	--	0.38	407	7.0	6.9	6.4	1.9	484	127648	215	1402
		Unassigned	--	0.44									
PEC	R87-002F	Bar	--	0.30	477	6.0	5.8	6.6	1.3	534	78700	244	1560
		Unassigned	--	0.37									
PEC	R87-003F	Bar	--	0.14	486	5.8	5.6	5.5	1.0	570	94945	237	1048
		Overbank	--	0.29									
		Unassigned	--	0.34									
PEC	R87-004F	Bar	--	0.06	410	5.4	5.4	8.1	4.0	487	81810	522	852
		Overbank	--	0.57									
		Unassigned	--	0.30									
PEC	R87-005F	Bar	--	0.21	506	6.7	6.4	6.1	1.1	563	61900	257	1100
		Overbank	--	0.36									
		Unassigned	--	0.51									
PEC	R87-006F	Bar	--	0.13	721	7.6	6.8	5.6	2.4	821	65515	284	1190
		Overbank	--	0.12									
		Unassigned	--	0.27									
PEC	R89-001F	Bar	--	0.15	162	8.0	8.9	2.2	4.0	192	29900	31	814
		Overbank	--	0.03									
		Unassigned	--	0.11									
PEC	R89-002F	Bar	--	0.21	457	5.3	5.2	10.2	0.9	539	88784	528	1130
		Overbank	--	0.13									
		Unassigned	--	0.19									
PEC	R89-003F	Bar	--	0.11	475	7.6	7.3	4.9	1.9	558	60100	200	1301
PEC	R89-004F	Bar	--	0.15	210	7.8	8.4	3.4	1.2	306	51200	108	955
		Unassigned	--	0.02									
PEC	R89A-001F	Bar	--	0.09	777	7.5	6.7	6.1	2.2	880	50968	270	1053
		Overbank	--	0.76									
PEC	R89A-002F	Bar	--	0.05	700	5.1	4.5	7.3	1.5	799	53747	338	709
		Overbank	--	0.78									
PEC	R89A-003F	Bar	--	0.02	487	6.0	5.8	5.8	0.9	516	58000	233	811
		Overbank	--	0.20									

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Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar[2], Overbank[2], or Unassigned[3]	Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
PEC	R89A-004F	Bar	--	0.03	584	7.6	7.1	4.7	1.6	676	47606	185	899
PEC	R90-001F	Bar	--	0.08	682	6.6	6.0	5.0	2.5	780	110192	242	1731
PEC	R90-002F	Bar	--	0.21	444	7.2	7.0	5.1	0.9	525	67356	354	968
		Overbank	--	0.07									
		Bar	R90	0.04	97	7.2	8.8	0.0	0.0	128	5246	15	250
PEC	R90-003F	Bar	--	0.29	584	6.2	5.8	6.5	1.5	684	55800	245	1380
		Overbank	--	1.20									
PEC	R90-004F	Bar	--	0.09	551	7.2	6.8	4.4	2.5	641	72641	422	1160
PEC	R91-001F	Bar	--	0.04	501	5.8	5.6	6.5	1.4	630	63500	261	898
		Overbank	--	0.32									
PEC	R91-002F	Bar	--	0.02	516	7.3	6.9	4.5	1.6	603	44587	159	890
		Overbank	--	1.02									
PEC	R91-003F	Bar	--	0.02	390	5.9	6.0	6.7	0.8	434	61900	220	852
		Overbank	--	0.01									
		Unassigned	--	0.17									
PEC	R91-004F	Bar	--	0.03	398	7.0	7.0	5.3	1.8	474	65400	243	898
		Unassigned	--	0.06									
PEC	R92-001F	Bar	--	0.03	477	5.7	5.5	6.5	0.9	584	52400	262	734
		Bar	R91	0.17	97	5.7	7.4	0.0	0.0	128	5246	15	250
PEC	R92-002F	Bar	--	0.00	1310	5.0	3.7	3.4	1.4	1427	31983	90	1612
		Overbank	--	0.46									
		Bar	R92	0.13	97	5.0	6.7	0.0	0.0	128	5246	15	250
PEC	R92-003F	Bar	--	0.01	677	4.9	4.4	6.1	0.8	775	71378	219	532
		Overbank	--	0.14									
		Unassigned	--	0.01									
PEC	R92-004F	Bar	--	0.00	250	4.4	5.1	3.0	1.4	308	45052	66	709
		Overbank	--	0.01									
		Unassigned	--	0.19									
PEC	R93-001F	Bar	R93	0.01	191	6.1	7.0	0.0	0.0	241	17314	28	380
		Overbank		0.07									
		Unassigned		0.15									
PEC	R93-002F	Bar	R93	0.04	191	6.1	7.0	0.0	0.0	241	17314	28	380
		Overbank		0.48									
		Unassigned		0.04									
PEC	R93-003F	Bar	--	0.06	587	7.0	6.5	7.0	2.1	679	78146	328	1180
		Unassigned	--	0.02									
		Overbank	--	0.91									
		Bar	R119	0.08	191	7.0	7.8	0.0	0.0	240	17314	28	380
		Bar	R93/R118/ R72	1.51									
		Overbank	R93/R118/ R72	0.34									
PEC	R93-004F	Overbank	--	1.71	727	5.1	4.5	8.4	2.1	828	62175	413	766
		Unassigned	--	0.10									
		Overbank	R93	0.01	191	5.1	6.0	0.0	0.0	240	17314	28	380
PEC	R94-001F	Bar	--	0.07	426	4.7	4.7	5.7	4.0	505	95971	275	686
		Unassigned	--	0.29									
PEC	R94-002F	Bar	--	0.12	433	5.3	5.3	4.9	4.0	513	87184	256	595
		Unassigned	--	0.08									
		Bar	R95	0.04	97	5.3	7.0	0.0	0.0	129	9432	24	400
PEC	R94-003F	Bar	--	0.52	1090	6.5	5.3	7.1	5.4	1250	51100	270	1440
		Overbank	--	1.13									
PEC	R94-004F	Bar	--	0.55	762	7.5	6.7	5.4	2.7	865	49578	233	1211
		Overbank	--	1.28									
PEC	R95-001F	Bar	--	0.02	726	6.7	6.0	6.6	3.9	827	52011	256	1402
		Overbank	--	2.62									
		Unassigned	--	0.24									
PEC	R95-002F	Bar	--	0.05	792	7.7	6.8	2.9	2.0	828	35600	103	951
		Unassigned	--	0.17									
PEC	R97-001F	Overbank	--	0.12	367	7.1	7.2	4.9	1.6	440	54325	185	847
		Unassigned	--	0.26									
PEC	R97-002F	Unassigned	--	0.10	390	8.0	7.9	3.0	1.1	465	29988	98	1150
PEC	R97-003F	Unassigned	--	0.01	572	7.5	7.0	4.4	1.8	724	49600	163	1430
PEC	R97-004F	Unassigned	--	0.08	539	7.6	7.2	4.9	1.5	628	52242	182	1119
PEC	R97-005F	Unassigned	--	0.07	564	4.8	4.5	5.1	0.7	571	56500	196	718
PEC	R97-006F	Overbank	--	0.08	445	7.4	7.2	4.6	2.2	526	48070	186	1352
		Unassigned	--	1.09									
PEC	R98-001F	Overbank	--	0.35	625	7.7	7.1	7.5	2.6	703	53600	221	1350
		Unassigned	--	0.14									
PEC	R98-002F	Unassigned	--	0.16	556	5.4	5.1	4.9	1.0	646	58253	205	833
PEC	R98-003F	Unassigned	--	0.16	365	6.8	6.9	3.7	1.1	438	63327	128	973
		Overbank	--	0.01									
		Bar	R98 NORTH	0.93	103	6.8	8.3	0.0	0.0	136	15618	25	182
PEC	R98-004F	Bar	R99	0.19	103	6.7	8.2	0.0	0.0	136	15618	25	182
		Unassigned		0.34									
PEC	TC East-001F	Bar	--	0.42	700	4.3	3.8	2.9	0.5	799	30810	65	316
		Overbank	--	0.03									
		Unassigned	--	0.13									
PEC	TC East-002F	Unassigned	--	0.11	97	6.8	8.4	0.0	0.0	129	9432	24	689
PEC	TC East-003F	Overbank	--	1.50	1370	7.2	5.7	4.0	2.0	1488	34559	160	1048
		Unassigned	--	0.23									
		Bar	R76	0.10	97	7.2	8.8	0.0	0.0	128	5246	15	250
		Overbank	R76A	0.11	97	7.2	8.8	0.0	0.0	128	5246	15	250

Table 4-4b
Summary of Data Integrated into Area-weighted Averages: Physical Reach 3
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

ARCADIS

Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar[2], Overbank[2], or Unassigned[3]	Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
PEC	TC East-005F	Overbank	R76A	0.20	97	7.2	8.8	0.0	0.0	128	5246	15	250
PEC	TC West-001F	Bar	--	0.00	517	4.4	4.2	7.8	0.6	604	82840	271	533
		Overbank	--	0.13									
		Unassigned	--	0.10									
PEC	TC West-002F	Overbank	--	0.26	570	4.5	4.2	5.2	0.5	661	48998	363	612
		Overbank	R92A	0.04	97	4.5	6.3	0.0	0.0	128	5246	15	250
PEC	TC West-003F	Overbank	--	0.21	466	6.0	5.9	5.4	0.7	549	62636	226	647
		Unassigned	--	0.67									
PEC	TC West-004F	Unassigned	--	0.13	444	5.7	5.6	5.8	1.0	525	72526	199	648
Supplemental	U03-10308	Overbank	--	0.61	718	8.0	7.2	3.1	1.5	818	32452	119	982
Supplemental	U03-10319	Overbank	--	0.63	729	8.0	7.2	3.0	1.2	830	28225	117	923
Supplemental	U03-10324	Overbank	--	1.11	657	8.1	7.4	3.1	1.2	754	31162	83	939
Supplemental	U03-10335	Overbank	--	0.11	380	8.1	8.0	2.4	1.1	454	29048	73	922
		Unassigned	--	0.18									
Supplemental	U03-10340	Overbank	--	4.53	336	7.8	7.9	2.4	1.2	405	24809	62	914
Supplemental	U03-10345	Unassigned	--	0.24	1060	7.7	6.5	6.6	3.9	1173	38065	228	1322
Supplemental	U03-10346M	Bar	--	0.04	998	7.9	6.7	3.1	1.5	1110	24573	88	626
		Overbank	--	3.27									
		Unassigned	--	0.98									
		Bar	R96	0.03	97	7.9	9.4	0.0	0.0	128	5246	15	250
Supplemental	U03-10357	Overbank	--	0.15	768	7.4	6.6	5.6	3.4	871	34325	367	1190
Supplemental	U03-1301	Bar	--	0.09	270	7.8	8.2	3.0	2.9	331	34793	189	1422
		Overbank	--	1.69									
		Unassigned	--	0.24									
Supplemental	U03-1302M	Overbank	--	0.19	267	7.7	8.1	2.4	0.9	328	23865	52	866
		Unassigned	--	0.38									
Supplemental	U03-1304	Unassigned	--	0.14	498	7.8	7.5	4.4	2.6	583	71378	206	1482
Supplemental	U03-1306	Unassigned	--	0.44	403	7.8	7.7	3.7	2.5	480	52126	172	1291
Supplemental	U03-1307M	Overbank	--	0.33	450	7.5	7.3	4.2	6.2	531	40863	182	1382
		Unassigned	--	0.30									
Supplemental	U03-1309M	Bar	--	0.03	546	7.7	7.3	2.6	1.0	635	23865	97	926
		Overbank	--	1.89									
		Unassigned	--	0.63									
Supplemental	U03-1311M	Bar	--	0.64	419	7.2	7.1	4.1	1.4	497	66436	162	918
		Overbank	--	2.45									
		Unassigned	--	1.11									
Supplemental	U03-1313	Bar	R100	0.28	103	6.8	8.4	0.0	0.0	136	15618	25	401
		Overbank	--	0.08									
		Unassigned	--	0.28									
Supplemental	U03-1316M	Bar	--	0.11	583	7.7	7.2	5.5	2.4	675	53862	205	1362
		Unassigned	--	0.61									
Supplemental	U03-1317M	Bar	--	0.01	485	7.6	7.3	5.1	1.6	569	53515	181	1140
		Overbank	--	0.46									
		Unassigned	--	0.38									
Supplemental	U03-2302	Bar	--	0.00	97	6.8	8.4	0.0	0.0	129	9432	24	689
		Unassigned	--	0.08									
Supplemental	U03-2305M	Bar	--	0.08	375	7.4	7.4	5.3	2.3	449	46794	228	1251
		Overbank	--	0.05									
		Unassigned	--	0.14									
Supplemental	U03-2312	Bar	--	0.08	467	7.3	7.1	3.9	1.8	550	55597	205	1031
		Overbank	--	0.00									
		Unassigned	--	0.15									
Supplemental	U03-2315	Bar	--	0.01	583	5.5	5.1	5.0	0.9	675	54556	201	733
		Overbank	--	0.01									
		Unassigned	--	0.20									
Supplemental	U03-2316M	Unassigned	--	0.22	747	5.1	4.5	5.0	0.8	849	55943	238	826
Supplemental	U03-2318M	Bar	--	0.10	402	7.3	7.2	5.0	1.0	479	58138	168	825
		Overbank	--	0.00									
		Unassigned	--	0.27									
Supplemental	U03-2320	Bar	--	0.18	347	7.9	8.0	3.1	0.7	418	29753	35	715
		Unassigned	--	0.36									
Supplemental	U03-2323	Bar	--	0.35	378	7.4	7.4	4.4	0.9	452	59061	160	854
		Unassigned	--	0.67									
Supplemental	U03-3302	Overbank	--	0.82	635	7.0	6.4	8.9	1.3	730	58600	454	1150
Supplemental	U03-3303M	Overbank	--	0.84	623	7.3	6.7	5.1	3.7	718	35144	162	1432
		Unassigned	--	0.40									
Supplemental	U03-3305M	Overbank	--	0.23	418	7.2	7.1	4.1	2.7	496	44238	240	1261
		Unassigned	--	0.44									
Supplemental	U03-3306	Overbank	--	0.39	949	7.4	6.3	5.2	3.8	1059	38415	275	1271
		Unassigned	--	0.01									
Supplemental	U03-3308	Overbank	--	0.59	539	7.6	7.2	2.3	1.2	628	22328	66	850
Supplemental	U03-3309	Overbank	--	0.84	109	7.5	8.9	1.7	0.4	143	18533	32	626
Supplemental	U03-3311	Overbank	--	0.88	149	6.9	8.0	1.4	0.6	191	15794	25	663
Supplemental	U03-3312	Overbank	--	0.39	905	7.8	6.8	2.8	1.4	1014	29401	146	937
Supplemental	U03-3314	Overbank	--	1.18	665	7.9	7.2	2.9	1.3	762	33623	102	1010
Supplemental	U03-3316	Bar	--	0.10	482	7.8	7.5	2.6	1.1	566	26342	86	927
		Unassigned	--	0.01									
		Overbank	--	1.07									
		Bar	R71/R88/R6	1.17	97	7.8	9.3	0.0	0.0	129	9432	24	400
Supplemental	U03-3317	Overbank	--	3.16	320	6.7	6.9	1.7	0.7	387	14359	37	524
Supplemental	U03-3318	Bar	--	0.01	985	7.8	6.7	5.2	2.8	1096	38998	155	1007
		Overbank	--	0.80									
		Unassigned	--	0.00									
Supplemental	U03-3320	Bar	--	0.39	1110	7.8	6.5	5.2	3.3	1224	62290	198	1190
		Overbank	--	0.91									

Table 4-4b
Summary of Data Integrated into Area-weighted Averages: Physical Reach 3
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar[2], Overbank[2], or Unassigned[3]	Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
		Unassigned	--	0.34									
Supplemental	U03-3321	Overbank	--	2.20	915	8.0	6.9	3.2	1.3	1024	23983	74	883
Supplemental	U03-3322	Overbank	--	2.29	1040	7.7	6.5	4.5	2.1	1153	38998	159	1048
		Unassigned	--	0.22									
Supplemental	U03-3324	Overbank	--	0.83	687	7.7	7.0	2.9	1.8	786	30223	131	1052
Supplemental	U03-3325	Unassigned	--	0.22	1190	7.5	6.2	10.2	4.1	1306	59638	323	1352
Supplemental	U03-3326	Overbank	--	1.70	829	7.9	7.0	3.0	1.5	935	25989	86	929
Supplemental	U03-7300M	Overbank	--	1.38	345	7.8	7.9	4.4	1.9	415	32569	155	954
		Unassigned	--	0.35									
Supplemental	U03-7301M	Overbank	--	0.69	400	7.6	7.5	4.0	3.1	476	44587	209	1522
		Unassigned	--	0.28									
Supplemental	U03-7302M	Bar	--	0.01	695	7.4	6.7	7.0	4.0	794	52358	277	1352
		Overbank	--	4.11									
		Unassigned	--	0.37									
Supplemental	U03-7303M	Overbank	--	1.10	198	7.8	8.5	4.2	1.2	249	25281	107	883
		Unassigned	--	0.04									
		Overbank	R308	0.15	100	7.8	9.3	0.0	0.0	132	16702	16	202
Supplemental	U03-7304M	Overbank	--	1.49	194	7.7	8.4	2.2	1.0	244	22100	97	983
		Unassigned	--	0.08									
Supplemental	U03-7305M	Overbank	--	1.51	469	7.6	7.3	4.7	1.9	552	38765	169	1291
		Unassigned	--	0.15									
Supplemental	U03-9302M	Overbank	--	0.68	431	7.5	7.3	4.0	3.0	510	50968	230	1452
		Unassigned	--	0.34									

Notes:

[1] Supplemental Sampling Program sample or Post-excavation Confirmation (PEC) Sampling sample

[2] Bars and overbank features are stream geomorphological features mapped in HWCIU Phase I RI Report (Golder Associates 2000)

[3] Unassigned Thiessen polygons represent Ares in the Hanover/Whitewater Creeks floodplain outside of bar, overbank, and TCO features (Golder Associates 2000). These areas may include active channel.

[4] For removal areas, COPC concentrations evaluated are for backfill material as provided in the HWCIU IRA Completion Report (Arcadis 2020).

µm = micron
COPC = constituent of potential concern
HWCIU = Hanover/Whitewater Creeks Investigation Unit
IRA = Interim Removal Action
mg/kg = milligram per kilogram
PEC = Post-excavation Confirmation Sample
RI = Remedial Investigation
TCO = Tin Can Operation

Arcadis. 2020. Hanover Whitewater Creek IU Interim Removal Action Completion Report. March.
Golder Associates. 2000. Administrative Order on Consent. Phase 1 Remedial Investigation Report. Hanover and Whitewater Creeks Investigation Units. Prepared for Chino Mines Company. May 2000.

Table 4-4c
Summary of Data Integrated into Area-weighted Averages: Physical Reach 1
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar/Overbank[2] or Unassigned[3]	Removal Area[4]	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
Supplemental	B01-P1-2-021	Bar/Overbank	--	0.08	285	7.1	7.4	6.4	1.8	348	53747	253	1020
		Unassigned	--	0.21									
Supplemental	B01-P1-2-025	Bar/Overbank	--	0.12	465	7.0	6.8	9.7	11.6	548	48882	611	2215
		Unassigned	--	0.09									
Supplemental	B01-P1-3-013	Bar/Overbank	--	0.39	435	7.3	7.1	8.2	5.9	515	66896	421	2440
		Unassigned	--	0.49									
Supplemental	B01-P1-3-014	Bar/Overbank	--	0.70	341	7.7	7.8	5.5	6.7	411	39581	277	1781
		Unassigned	--	0.10									
Supplemental	B01-P1-3-016	Bar/Overbank	--	0.11	348	7.0	7.1	9.0	1.7	419	63097	309	1221
		Unassigned	--	0.12									
Supplemental	B01-P1-3-024	Bar/Overbank	--	0.48	271	7.9	8.2	3.5	3.0	332	51432	148	1332
Supplemental	B01-P1-3-025	Bar/Overbank	--	0.04	378	7.6	7.6	5.7	2.7	452	40397	588	1180
		Unassigned	--	0.22									
Supplemental	ERA-29	Unassigned	--	0.85	529	7.4	7.0	6.5	6.4	617	59292	334	2146
PEC	R33-001F	Bar/Overbank	--	0.06	445	7.5	7.3	10.6	1.2	526	71493	324	818
PEC	R33-002F	Bar/Overbank	--	0.06	522	7.6	7.2	4.5	3.0	609	50505	172	2225
PEC	R33-003F	Bar/Overbank	R33	0.06	539	7.3	6.9	8.7	3.3	697	64400	308	1290
		Unassigned	--	0.13	97	7.3	8.9	0.0	0.0	128	5246	15	250
PEC	R33-004F	Bar/Overbank	--	0.37	404	4.6	4.7	12.7	1.2	481	63558	461	815
Supplemental	RAN-01	Bar/Overbank	--	0.02	387	8.0	7.9	3.8	5.8	462	37948	168	
		Unassigned	--	0.17									1721
Supplemental	RAN-03	Bar/Overbank	--	0.13	461	8.0	7.7	4.0	4.7	543	45052	137	1702
		Unassigned	--	1.04									
Supplemental	RAN-04	Bar/Overbank	--	0.60	583	7.9	7.4	4.0	5.3	675	65975	178	1562
		Unassigned	--	0.48									
Supplemental	RAN-05	Bar/Overbank	--	0.55	537	7.7	7.3	4.8	5.0	625	50853	186	1831
		Unassigned	--	0.45									
Supplemental	RAN-06	Bar/Overbank	--	0.29	1040	5.6	4.6	18.0	4.3	1153	62636	1845	1721
		Unassigned	--	0.65									
Supplemental	RAN-07	Unassigned	--	0.19	363	8.0	8.0	3.8	3.9	435	50042	158	1652
Supplemental	RAN-08	Bar/Overbank	--	0.12	583	6.0	5.6	4.5	3.1	675	48418	191	2293
		Unassigned	--	0.60									
Supplemental	RAN-09	Unassigned	--	0.11	309	7.8	8.0	3.4	3.2	431	51600	143	1600
Supplemental	RAN-11	Bar/Overbank	--	0.18	436	7.8	7.6	3.4	3.8	516	41795	136	1642
		Unassigned	--	0.67									
Supplemental	RAN-12	Unassigned	--	0.38	510	7.8	7.4	3.6	5.5	0	0	146	0
Supplemental	U02-10154	Bar/Overbank	--	0.19	371	7.4	7.4	6.4	4.0	444	54556	396	2008
Supplemental	U02-1100M	Bar/Overbank	--	0.37	685	7.9	7.2	5.8	6.4	783	71952	242	2391
		Unassigned	--	0.18									
Supplemental	U02-1102M	Unassigned	--	0.04	736	7.9	7.1	4.7	5.0	837	74477	129	1692
Supplemental	U02-1103	Bar/Overbank	--	0.01	671	7.8	7.1	8.0	4.5	769	83984	173	1969
		Unassigned	--	0.24									
Supplemental	U02-1105M	Bar/Overbank	--	0.06	475	7.5	7.2	6.2	4.6	558	85927	310	2722
		Unassigned	--	0.23									
Supplemental	U02-2100	Bar/Overbank	--	0.50	330	7.8	7.9	2.8	4.2	399	35612	127	1522
		Unassigned	--	0.10									
Supplemental	U02-2102	Bar/Overbank	--	0.005	488	7.6	7.3	6.9	3.5	573	47954	223	1382
		Unassigned	--	0.40									
Supplemental	U02-3100	Bar/Overbank	--	0.15	432	7.7	7.5	4.4	10.6	511	45981	315	2780
Supplemental	U02-3102	Bar/Overbank	--	0.06	400	7.5	7.4	6.6	3.6	476	56406	202	2146
		Unassigned	--	0.38									
Supplemental	U02-3104	Bar/Overbank	--	0.13	572	7.8	7.3	4.3	5.2	663	54672	175	1998
		Unassigned	--	0.09									

Notes:

[1] Supplemental Sampling Program sample or Post-excavation Confirmation (PEC) Sampling sample

[2] Bars and overbank features are stream geomorphological features mapped in HWCIU Phase I RI Report (Golder Associates 2000)

[3] Unassigned Thiessen polygons represent Ares in the Hanover/Whitewater Creeks floodplain outside of bar, overbank, and TCO features (Golder Associates 2000). These areas may include active channel.

[4] For removal areas, COPC concentrations evaluated are for backfill material as provided in the HWCIU IRA Completion Report (Arcadis 2020).

µm = micron
COPC = constituent of potential concern
HWCIU = Hanover/Whi
IRA = Interim Removal Action
mg/kg = milligram per kilogram
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RI = Remedial Investigation
TCO = Tin Can Operation

Arcadis. 2020. Hanover Whitewater Creek IU Interim Removal Action Completion Report. March.
Golder Associates. 2000. Administrative Order on Consent. Phase 1 Remedial Investigation Report. Hanover and Whitewater Creeks Investigation Units. Prepared for Chino Mines Company. May 2000.

Table 4-4d
Summary of Data Integrated into Area-weighted Averages: Physical Reach 4
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

Sample Category[1]	Sample ID	Stream Geomorphological Features: Bar/Overbank[2] or Unassigned[3]	Removal Area	Area (acres)	Ecological Screening (sieved to <2,000 µm)			Human Health Screening (sieved to <250 µm)					
					Copper (mg/kg)	pH	pCu	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
PEC	R103-003F	Bar/Overbank	--	0.16	357	6.5	6.63	4.03	0.95	429	52358	141	898
PEC	R117-001F	Bar/Overbank	--	1.01	1010	7.5	6.36	4.55	2.55	1122	32686	135	1180
		Unassigned	--	0.69									
PEC	R117-002F	Bar/Overbank	--	0.01	3030	7.8	5.38	2.72	1.08	3100	21026	31	451
PEC	R117-003F	Bar/Overbank	--	1.28	2150	7.9	5.86	3.69	1.72	2257	21736	36	454
		Unassigned	--	0.06									
PEC	R117-004F	Bar/Overbank	--	0.59	479	7.5	7.22	3.95	2.17	563	31631	128	1140
		Unassigned	--	0.21									
		Bar/Overbank	R117[4]	0.06									
Supplemental	U03-1400	Bar/Overbank	--	0.81	593	7.6	7.07	4.48	1.96	686	45052	156	1211
		Unassigned	--	3.75									
Supplemental	U03-3400	Bar/Overbank	--	3.16	738	7.7	6.91	5.00	3.19	839	39348	191	1442
		Unassigned	--	5.68									
Supplemental	P4-1	Bar/Overbank	--	1.87	1180	7.6	6.27	4.93	1.15	1030	16400	42	368
		Unassigned	--	1.67									
Supplemental	P4-2	Bar/Overbank	--	1.92	595	7.5	6.97	6.09	2.37	536	44500	214	1200
		Unassigned	--	0.72									
Supplemental	P4-3	Bar/Overbank	--	1.27	1150	7.4	6.12	6.50	3.23	999	34300	170	1470
		Unassigned	--	1.00									
Supplemental	P4-4	Bar/Overbank	--	0.94	782	7.9	7.03	4.83	1.18	1090	22400	53	385
		Unassigned	--	1.03									
Supplemental	P4-5	Bar/Overbank	--	0.16	936	7.2	6.17	6.95	2.79	810	38800	191	1180
		Unassigned	--	1.85									
Supplemental	P4-6	Bar/Overbank	--	0.10	680	7.5	6.81	6.42	2.40	588	39400	200	1170
		Unassigned	--	1.44									
Supplemental	P4-7	Unassigned	--	0.59	978	7.6	6.49	6.86	2.79	993	35500	201	1230

Notes:

[1] Supplemental Sampling Program sample or Post-excavation Confirmation (PEC) Sampling sample

[2] Bars and overbank features are stream geomorphological features mapped in HWCIU Phase I RI Report (Golder Associates 2000)

[3] Unassigned Thiessen polygons represent areas in the Hanover/Whitewater Creeks floodplain outside of bar, overbank, and TCO features (Golder Associates 2000). These areas may include active channel.

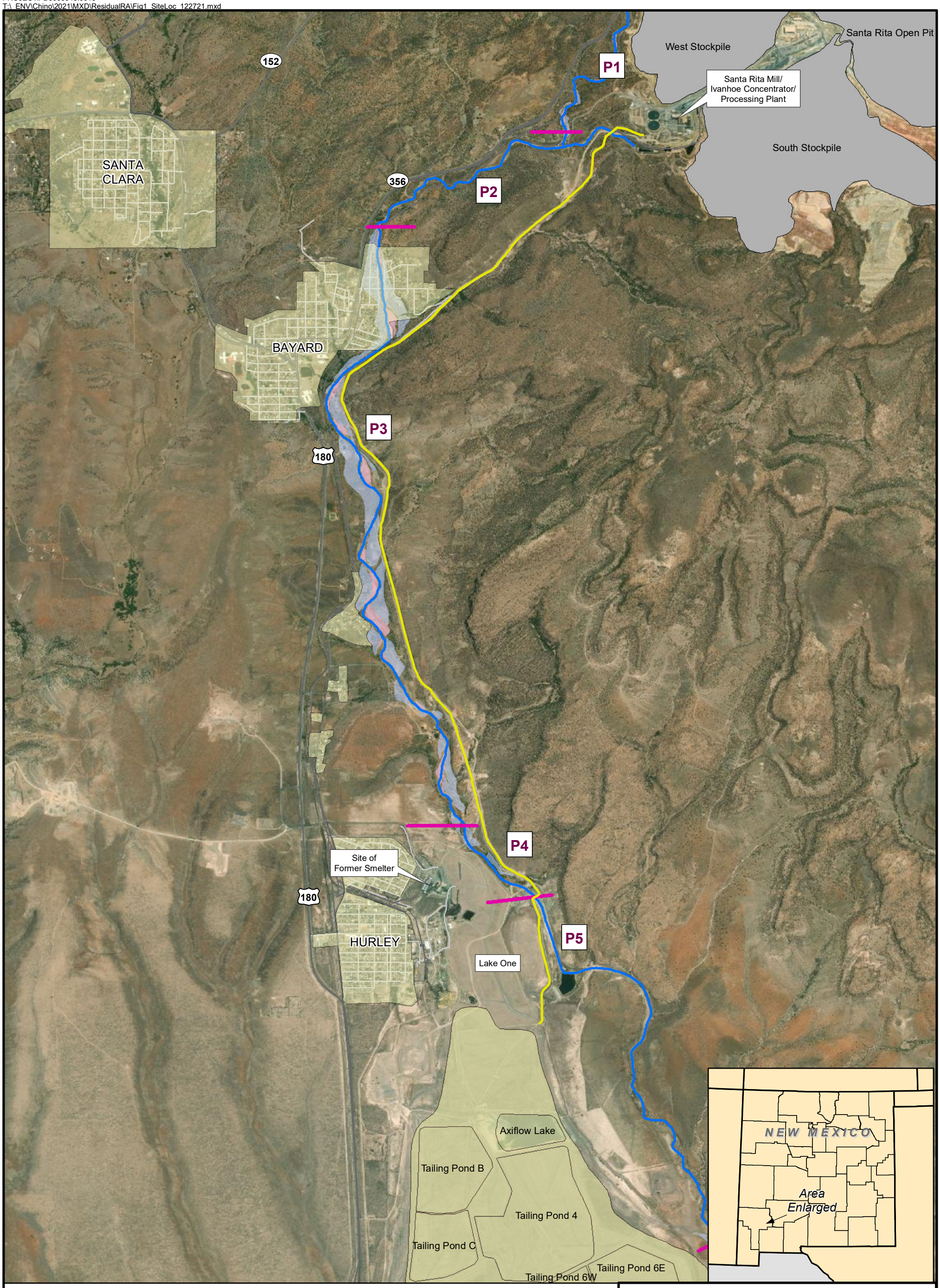
[4] Ferricrete removal, with no backfill

µm = micron
HWCIU = Hanover/Whitewater Creeks Investigation Unit
IRA = Interim Removal Action
mg/kg = milligram per kilogram
PEC = Post-excavation Confirmation Sample
RI = Remedial Investigation
TCO = Tin Can Operation

Golder Associates. 2000. Administrative Order on Consent. Phase 1 Remedial Investigation Report. Hanover and Whitewater Creeks Investigation Units. Prepared for Chino Mines Company. May 2000.

FIGURES

OFFICE: LAKEWOOD DB: MEB TM: MB PM: AT
PROJECT# B0063543.0018
T:_ENV\Chino\2021\MXD\ResidualRA\Fig1_SiteLoc_122721.mxd



Legend

- Hanover Whitewater Creek Centerline
- Bar
- Overbank
- P1 Physical Reach
- Tailing Pipeline
- Stockpiles
- Major Roads
- Railroad
- Town Roads

N

0 0.5 1
Scale in Miles

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

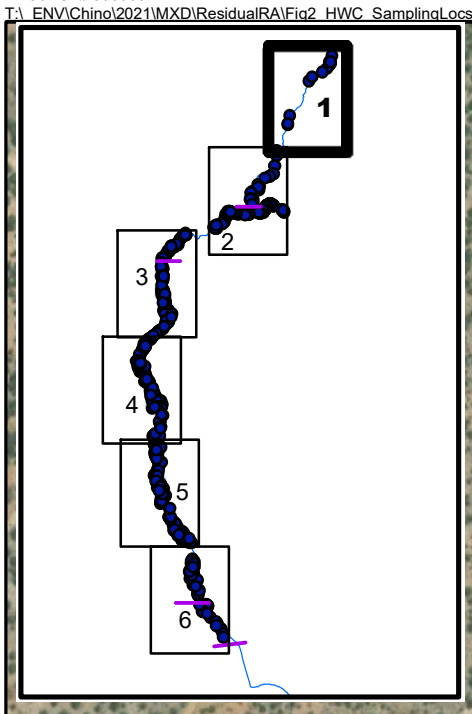
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT

SITE OVERVIEW

ARCADIS

FIGURE
1-1

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\Fig2_HWC_SamplingLocs_Mapbook_012721.mxd



P1

152

RAN-03

U02-1102M

U02-1100M

U02-3104

U02-3100

U02-2100

RAN-01 & 02

RAN-04

RAN-05

RAN-06

ERA-29

RAN-07

RAN-08

RAN-09 &10

RAN-11

WEST
STOCKPILE

Legend

Sample Locations

- Supplemental Sample
- Post-Excavation Confirmation Sample
- Post-Excavation Floor Sample
- Final Removal Limits
- Former Tin Can Operation

P1 Physical Reach

- HWC Centerline
- Major Roads
- Railroad
- Town Roads
- City Areas
- Stockpiles

Stream Geomorphic Units

- Bar
- Overbank
- Channel

N

0 500 1,000
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 7/27/2022.

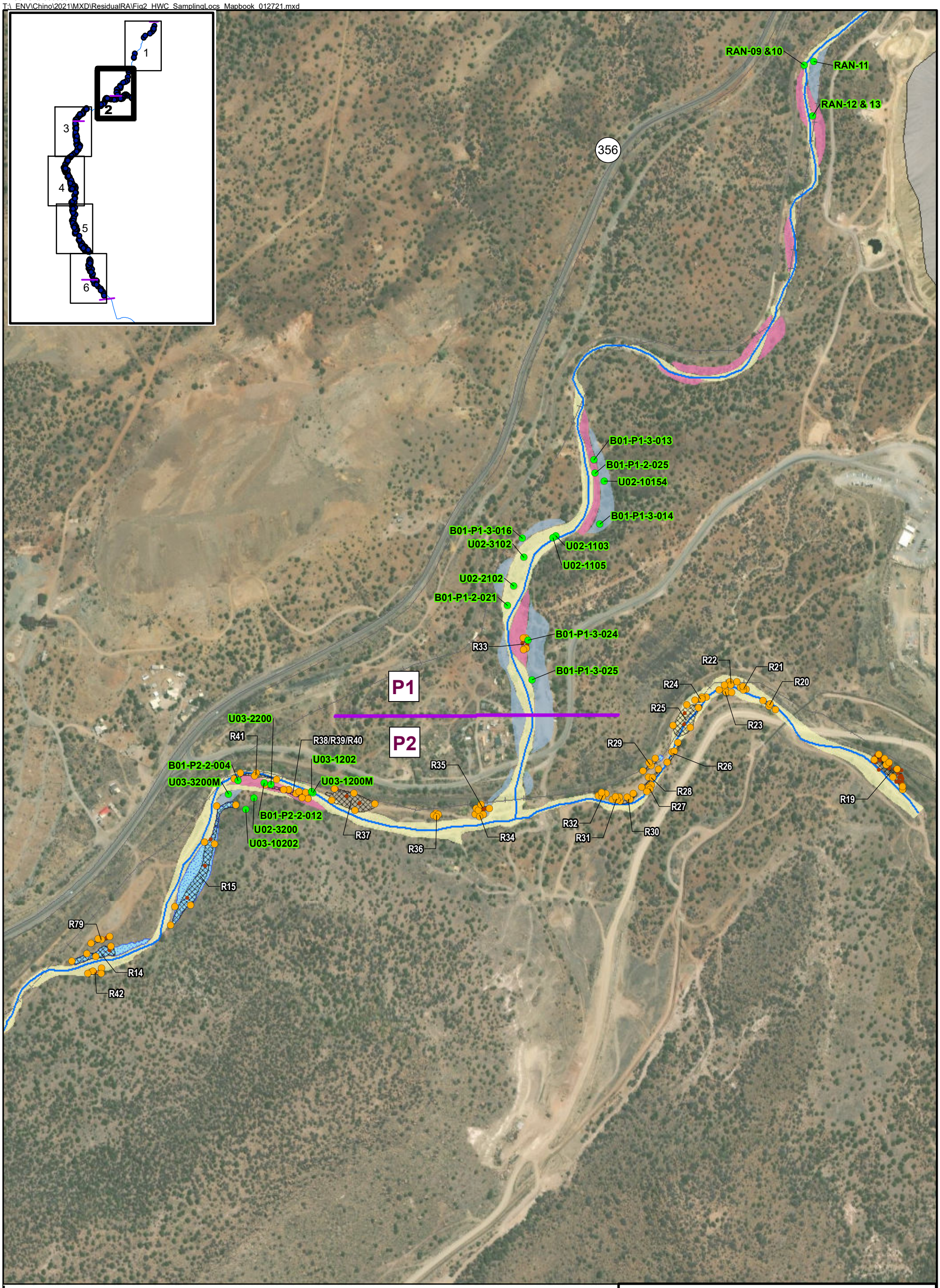
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT

SAMPLE LOCATIONS
SHEET 1

ARCADIS

FIGURE
2-1a

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\Fig2_HWC_SamplingLocs_Mapbook_012721.mxd



Legend

Sample Locations

- Supplemental Sample
- Post-Excavation Confirmation Sample
- Post-Excavation Floor Sample
- Final Removal Limits
- Former Tin Can Operation

- Physical Reach
- HWC Centerline
- Major Roads
- Railroad
- Town Roads
- City Areas
- Stockpiles

Stream Geomorphic Units

- Bar
- Overbank
- Channel

N

0 500 1,000
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 7/27/2022.

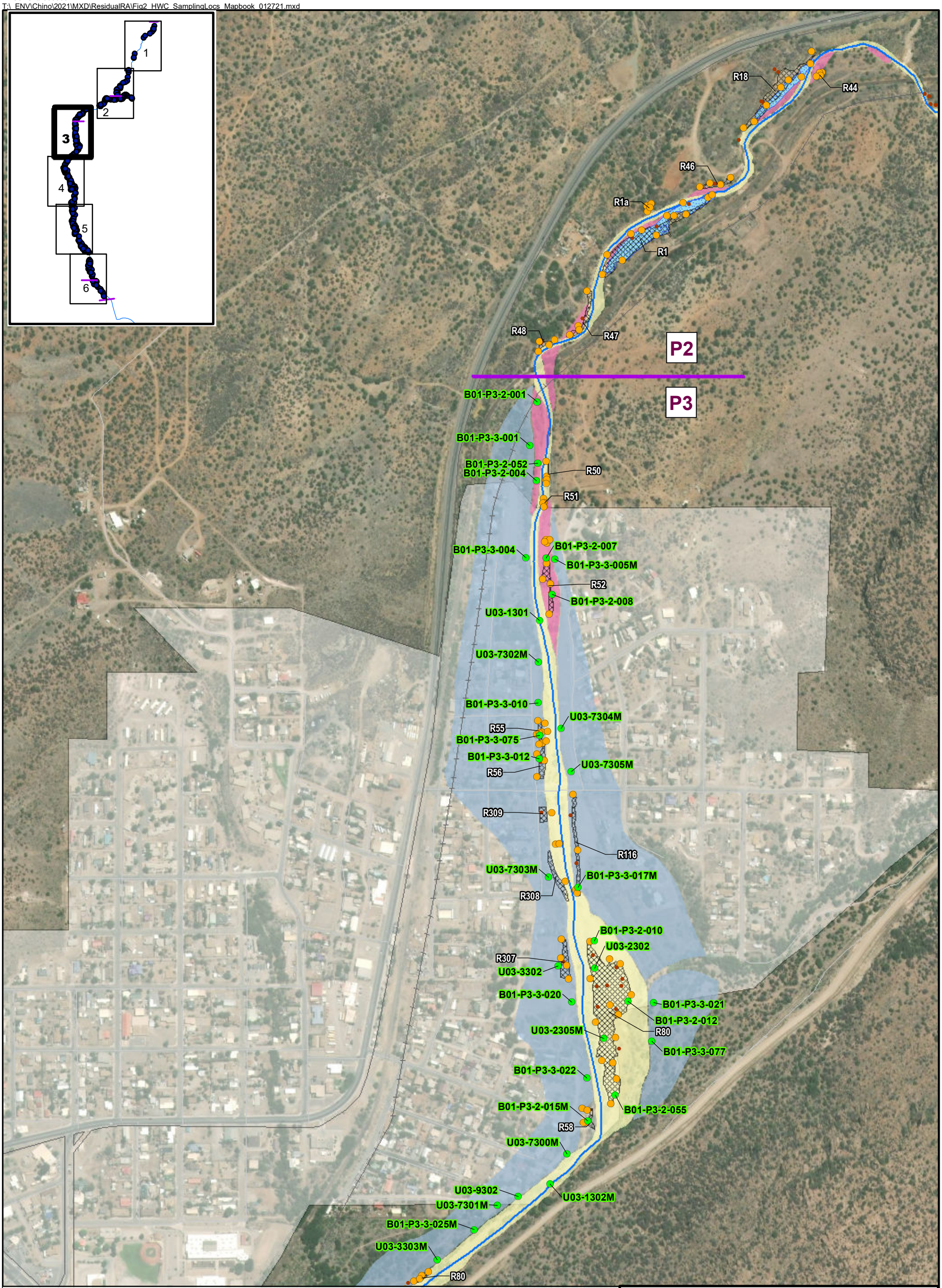
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT

SAMPLE LOCATIONS
SHEET 2

ARCADIS

FIGURE
2-1b

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\Fig2_HWC_SamplingLocs_Mapbook_012721.mxd



Legend

Sample Locations

- Supplemental Sample
- Post-Excavation Confirmation Sample
- Post-Excavation Floor Sample
- Final Removal Limits
- Former Tin Can Operation

P1
- Physical Reach
- HWC Centerline
- Major Roads
- Railroad
- Town Roads
- City Areas
- Stockpiles

Stream Geomorphic Units

- Bar
- Overbank
- Channel

N

0 500 1,000
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 7/27/2022.

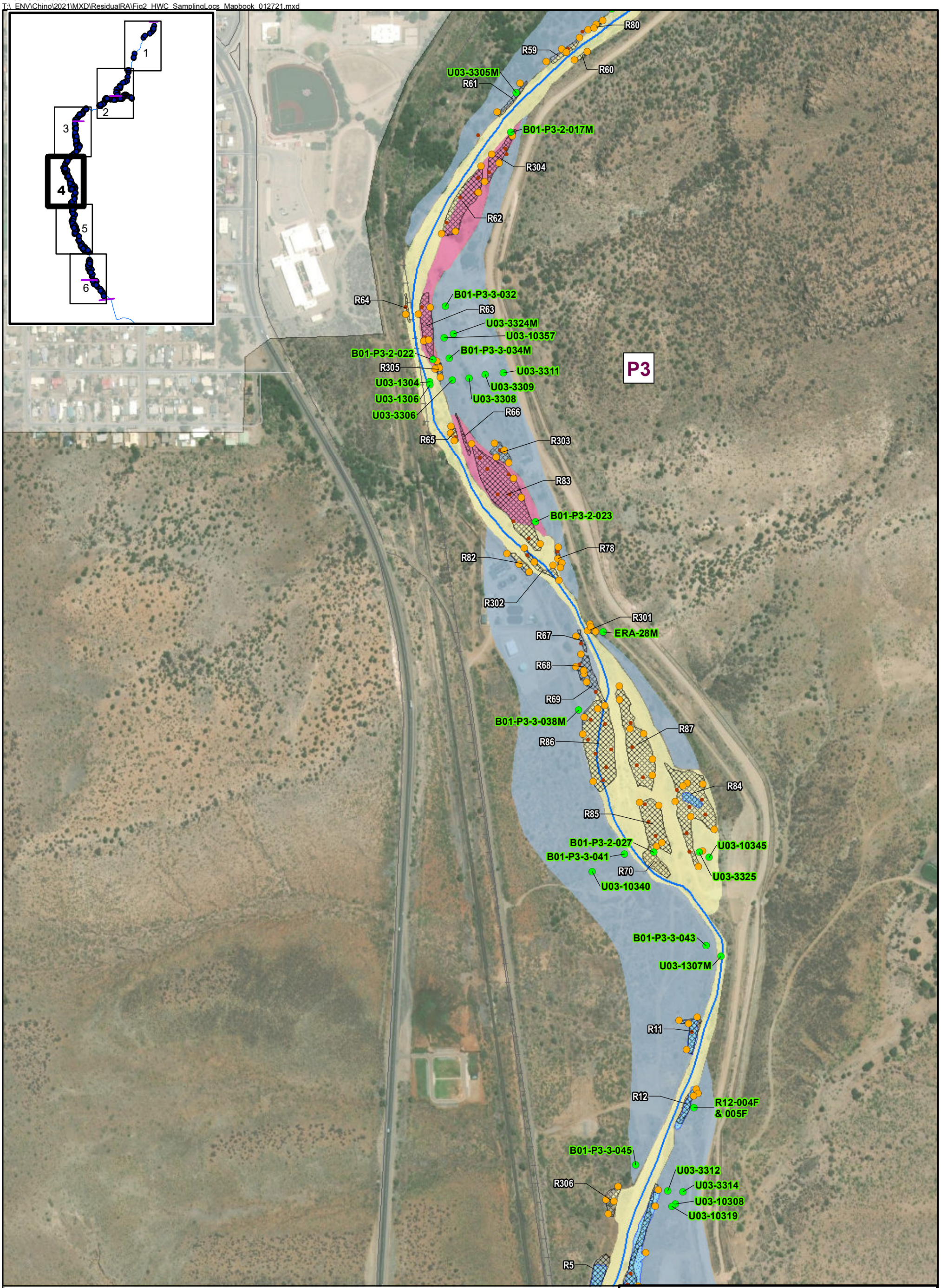
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT

SAMPLE LOCATIONS
SHEET 3

ARCADIS

FIGURE
2-1c

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\Fig2_HWC_SamplingLocs_Mapbook_012721.mxd



Legend

Sample Locations

- Supplemental Sample
- Post-Excavation Confirmation Sample
- Post-Excavation Floor Sample
- Final Removal Limits
- Former Tin Can Operation

P1 Physical Reach
HWC Centerline
Major Roads
Railroad
Town Roads
City Areas
Stockpiles

Stream Geomorphic Units

- Bar
- Overbank
- Channel

N

0 500 1,000
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 7/27/2022.

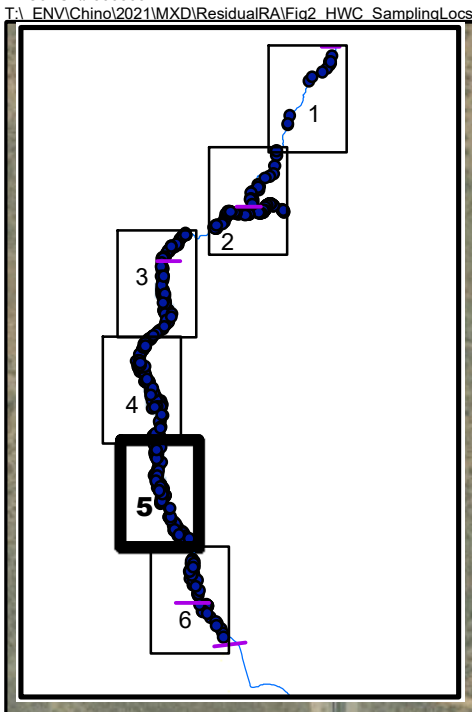
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT

SAMPLE LOCATIONS
SHEET 4

ARCADIS

FIGURE
2-1d

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\Fig2_HWC_SamplingLocs_Mapbook_012721.mxd



R5
R71/R88/R6
U03-3317M
U03-3317M
U03-3316
B01-P3-2-028M
R4
R10
B01-P3-2-029
B01-P3-3-046
R89
U03-1309M
R89A
R93/R118/R72
B01-P3-2-032M
B01-P3-2-034
R93
R119
R95
B01-P3-2-035M
R94
R120
R90
B01-P3-2-037M
R122
R121
B01-P3-3-078
B01-P3-3-078
R404
P3
B01-P3-3-049
R74
U03-2312
R76A
R91
U03-2315
R92
R76
U03-2316
R92A
U03-1311M
U03-3326M
U03-10346M
R96
B01-P3-3-050
R75
R9
R77
B01-P3-3-080
R97
R3A/B
B01-P3-3-053
R98 NORTH
U03-1313
R98 SOUTH
U03-10335
R99

Legend

Sample Locations

- Supplemental Sample
- Post-Excavation Confirmation Sample
- Post-Excavation Floor Sample
- Final Removal Limits
- Former Tin Can Operation

P1 Physical Reach
HWC Centerline
Major Roads
Railroad
Town Roads
City Areas
Stockpiles

Stream Geomorphic Units

- Bar
- Overbank
- Channel

N

0 500 1,000
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 7/27/2022.

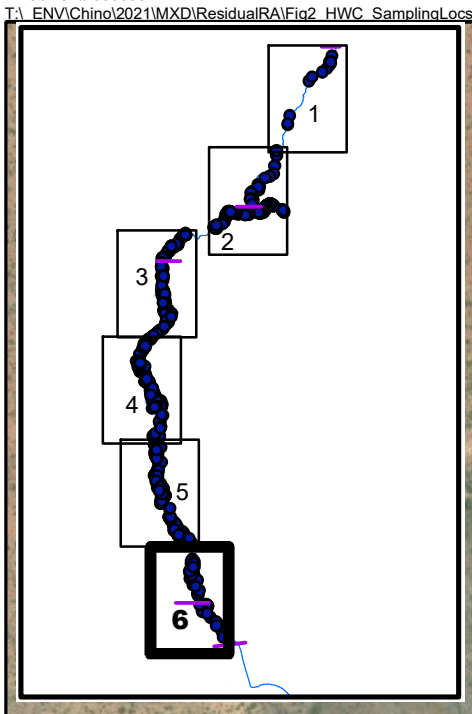
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT

SAMPLE LOCATIONS
SHEET 5

ARCADIS

FIGURE
2-1e

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\Fig2_HWC_SamplingLocs_Mapbook_012721.mxd



R100
R101 NORTH
R102
B01-P3-2-042M
B01-P3-3-056
B01-P3-3-057
B01-P3-2-043M
U03-3318
U03-2318M
B01-P3-2-045M
B01-P3-2-044M
U03-10324
R101 SOUTH
B01-P3-2-061
U03-2320
U03-2323
R2
B01-P3-2-047
B01-P3-2-048m
ERA-22M
U03-3320
U03-3321
U03-1316M
U03-1317M
B01-P3-3-059
U03-3322
R103
P3
P4-1
P4
R117
P4-2
U03-1400
P4-3
U03-3400
P4-6
P4-4
P4-5
P4-7
P4
P5

Legend

Sample Locations
- Supplemental Sample
- Post-Excavation Confirmation Sample
- Post-Excavation Floor Sample
- Final Removal Limits
- Former Tin Can Operation

P1 Physical Reach
HWC Centerline
Major Roads
Railroad
Town Roads
City Areas
Stockpiles

Stream Geomorphic Units
- Bar
- Overbank
- Channel

N

0 500 1,000
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 8/5/2022.

FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT

SAMPLE LOCATIONS
SHEET 6

ARCADIS

FIGURE
2-1f

APPENDIX A

Analytical Data

Appendix A. Analytical Data
Table A-1. Chino Excavation Data
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Analyte	Arsenic		Cadmium		Chromium		Copper		Iron	
										CAS	7440-38-2		7440-43-9		7440-47-3		7440-50-8		7439-89-6	
										Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
										Sample Date	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R01-001F	R01	11/29/2018	U	Primary	--	2633524.26	645153.98	2000	R01-001F(11292018) 2000	11/29/2018	3.53		3.53	J	11.6		357		34000	
	R01	11/29/2018	U	Primary	--	2633524.26	645153.98	250	R01-001F(11292018) 250	11/29/2018	4.17		1.41	J	7.76		230		25900	
R01-002F	R01	11/29/2018	R	Primary	--	2633361.73	645111.02	250	R01-002F(11292018) 250	11/29/2018	4.41		2.91	J	12.1		401		37900	
R01-003F	R01	11/29/2018	R, D	Primary	--	2633068.78	644936.12	250	R01-003F(11292018) 250	11/29/2018	3.26		4		2.4	J	66.6		12300	
R01-004F	R01	11/29/2018	D	Primary	--	2633020.79	644787.49	2000	R01-004F(11292018) 2000	11/29/2018	2.2		0.96	J	10.6		122		21100	
	R01	11/29/2018	D	Primary	--	2633020.79	644787.49	250	R01-004F(11292018) 250	11/29/2018	2.36		4		3.87	J	54		12500	
R01-005F	R01	11/29/2018	L	Primary	--	2633271.08	645038.47	250	R01-005F(11292018) 250	11/29/2018	4.24		0.77	J	3.98	J	119		16700	
R02-001F	R02	12/17/2018	U	Primary	--	2634667.07	623451.11	2000	R02-001F(12172018) 2000	12/17/2018	5.99		1.72	J	15.3		927		39300	
R02-002F	R02	12/17/2018	R	Primary	--	2634645.82	623333.32	2000	R02-002F(12172018) 2000	12/17/2018	3.52		3.02	J	13.5		861		41000	
R02-003F	R02	12/17/2018	D	Primary	--	2634691.99	623143.54	2000	R02-003F(12172018) 2000	12/17/2018	3.64		2.12	J	14.2		599		38900	
	R02	12/17/2018	D	Primary	--	2634691.99	623143.54	250	R02-003F(12172018) 250	12/17/2018	3.97		2.24	J	13.7		596		40000	
R02-004F	R02	12/17/2018	L	Primary	--	2634689.08	623257.11	2000	R02-004F(12172018) 2000	12/17/2018	5.11		3.22	J	11.9		992		37500	
R02-005F	R02	12/17/2018	L	Field Duplicate	R02-004F	2634689.08	623257.11	2000	R02-005F(12172018) 2000	12/17/2018	5.03		3.00	J	13.0		967		40100	
R02-006F	R02	2/14/2019	F	Primary	--	2634665.26	623386.76	2000	R02-006F(02142019) 2000	02/14/2019	1.83		0.69		8.61		296		20700	
	R02	2/14/2019	F	Primary	--	2634665.26	623386.76	250	R02-006F(02142019) 250	02/14/2019	2.53		1.34		13.5		579		28100	
R02-007F	R02	2/14/2019	F	Primary	--	2634671.13	623320.13	2000	R02-007F(02142019) 2000	02/14/2019	2.96		1.87		11.8		835		31900	
R02-008F	R02	2/14/2019	F	Primary	--	2634688.85	623216.07	2000	R02-008F(02142019) 2000	02/14/2019	2.45		0.5		12.6		305		40500	
R02-009F	R02	2/14/2019	F	Primary	--	2634710.39	623162.37	2000	R02-009F(02142019) 2000	02/14/2019	2.58		0.39		11.5		186		41200	
	R02	2/14/2019	F	Primary	--	2634710.39	623162.37	250	R02-009F(02142019) 250	02/14/2019	2.8		0.35		15.3		201		52500	
R03A-001F	R03A	12/18/2018	U	Primary	--	2633335.92	626292.27	2000	R03A-001F(12182018) 2000	12/18/2018	3.71		< 4.00		19.6		465		34400	
	R03A	12/18/2018	U	Primary	--	2633335.92	626292.27	250	R03A-001F(12182018) 250	12/18/2018	3.28		0.59	J	18.0		459		31700	
R03A-002F	R03A	12/18/2018	R	Primary	--	2633338.93	626249.93	2000	R03A-002F(12182018) 2000	12/18/2018	2.81		0.98	J	16.5		459		23600	
R03A-003F	R03A	12/18/2018	D	Primary	--	2633371.70	626257.83	2000	R03A-003F(12182018) 2000	12/18/2018	6.01		2.72	J	30.1		768		57600	
R03A-004F	R03A	12/18/2018	L	Primary	--	2633369.01	626285.68	2000	R03A-004F(12182018) 2000	12/18/2018	2.69		2.85	J	12.5		473			
	R03A	12/18/2018	L	Primary	--	2633369.01	626285.68	250	R03A-004F(12182018) 250	12/18/2018	2.48		2.66	J	10.4		461		21100	
R03A-005F	R03A	12/18/2018	D	Field Duplicate	R03A-003F	2633371.70	626257.83	2000	R03A-005F(12182018) 2000	12/18/2018	6.16		2.74	J	28.4		764		55900	
R03B-001F	R03B	12/18/2018	U	Primary	--	2633431.27	626207.53	2000	R03B-001F(12182018) 2000	12/18/2018	2.69		0.7	J	10.3		399		20400	
R03B-002F	R03B	12/18/2018	R	Primary	--	2633606.72	625953.69	2000	R03B-002F(12182018) 2000	12/18/2018	2.59		1.15	J	11.6		808		28400	
	R03B	12/18/2018	R	Primary	--	2633606.72	625953.69	250	R03B-002F(12182018) 250	12/18/2018	2.88		1.4	J	11.3		810		28500	
R03B-003F	R03B	12/18/2018	R	Primary	--	2633830.09	625625.39	2000	R03B-003F(12182018) 2000	12/18/2018	2.88		1.05	J	15.0		1250		23700	
R03B-004F	R03B	12/18/2018	D	Primary	--	2633934.29	625598.02	2000	R03B-004F(12182018) 2000	12/18/2018	3.09		1.96	J	13.0		953		26600	
R03B-005F	R03B	12/18/2018	L	Primary	--	2633812.73	625776.72	2000	R03B-005F(12182018) 2000	12/18/2018	5.02	J	2.26	J	10.6		698		28300	
	R03B	12/18/2018	L	Primary	--	2633812.73	625776.72	250	R03B-005F(12182018) 250	12/18/2018	7.38		3.37	J	15.7		1010		55100	
R03B-006F	R03B	12/18/2018	LU	Primary	--	2633645.12	626027.54	2000	R03B-006F(12182018) 2000	12/18/2018	4.70		< 4.00		13.7		572		43900	
R03B-007F	R03B	12/18/2018	R	Field Duplicate	R03B-002F	2633606.72	625953.69	2000	R03B-007F(12182018) 2000	12/18/2018	2.84		1.12	J	10.6		635		25400	
R03B-010F	R03B	2/6/2019	F	Primary	--	2633917.01	625609.08	2000	R03B-010F(02062019) 2000	02/06/2019	1.88		0.82		18.1		455		58800	
	R03B	2/6/2019	F	Primary	--	2633917.01	625609.08	250	R03B-010F(02062019) 250	02/06/2019	2.5		0.65		23.3		602		65500	
R03B-014F	R03B	2/7/2019	F	Field Duplicate	R03B-013F	2633611.67	625943.25	2000	R03B-014F(02072019) 2000	02/07/2019	2.19		0.62		10.5		358		36800	
R04-006F	R04	2/26/2019	F	Primary	--	2632241.79	631403.12	2000	R04-006F(02262019) 2000	02/26/2019	2.43		0.79		10.7		406		26900	
R04-007F	R04	2/26/2019	F	Primary	--	2632216.09	631469.65	2000	R04-007F(02262019) 2000	02/26/2019	2.56		0.46		11.3		395		30500	
R09M-009F	R09M	1/24/2019	R	Primary	--	2633430.96	626599.85	2000	R09M-009F(01242019) 2000	01/24/2019	4.14		1.05	J	14.5		375		51900	
R09M-010F	R09M	1/24/2019	RD	Primary	--	2633529.17	626363.72	2000	R09M-010F(01242019) 2000	01/24/2019	4.26		1.03	J	20.1		415		71900	
R09M-019F	R09M	1/31/2019	F	Primary	--	2633569.18	626442.33	2000	R09M-019F(01312019) 2000	01/31/2019	3.05		< 4		10.6		144		38600	
R10-001F	R10	12/10/2018	U	Primary	--	2632054.11	631348.93	2000	R10-001F(12102018) 2000	12/10/2018	2.43		0.66	J	10.9		1140		20400	
R10-002F	R10	12/10/2018	R	Primary	--	2632120.52	631215.90	2000	R10-002F(12102018) 2000	12/10/2018	2.67		1.18	J	12.8		318	J	28700	J
R10-003F	R10	12/10/2018	D	Primary	--	2632193.57	631087.95	2000	R10-003F(12102018) 2000	12/10/2018	1.84		< 4.00		11.5		61.2		22400	
	R10	12/10/2018	D	Primary	--	2632193.57	631087.95	250	R10-003F(12102018) 250	12/10/2018	1.76		< 4.00		18.4		78.8		28000	
R10-004F	R10	12/10/2018	L	Primary	--	2632235.54	631163.69	2000	R10-004F(12102018) 2000	12/10/2018	6.12		1.52	J	18.0		467		57600	
R103-001F	R103	12/21/2018	U	Primary	--	2634918.44	622119.78	2000	R103-001F(12212018) 2000	12/21/2018	3.84		1.03	J	13.8		365		44300	
R103-002F	R103	12/21/2018	R	Primary	--	2634900.72	622046.83	2000	R103-002F(12212018) 2000	12/21/2018	3.77		1.38	J	12.5		400		38100	
R103-003F	R103	12/21/2018	D	Primary	--	2634957.94	621978.67	2000	R103-003F(12212018) 2000	12/21/2018	3.48		0.81	J	11.8		357		44100	
R103-004F	R103	12/21/2018	L	Primary	--	2634955.93	622080.19	2000	R103-004F(12212018) 2000	12/21/2018	4.18		1.05	J	13.5		426		53600	
R11-001F	R11	12/10/2018	U	Primary	--	2632464.12	633535.13	2000	R11-001F(12102018) 2000	12/10/2018	3.50		2.75	J	12.5		507		34000	
R11-002F	R11	12/10/2018	R	Primary	--	2632361.67	633515.93	2000	R11-002F(12102018) 2000	12/10/2018	2.60		1.70	J	16.3		510		68000	
	R11	12/10/2018	R	Primary	--	2632361.67	633515.93	250	R11-002F(12102018) 250	12/10/2018	2.68		0.89	J	19.6		600		93900	
R11-003F	R11	12/10/2018	R	Primary	--	2632415.87	633497.52	2000	R11-003F(12102018) 2000	12/10/2018	4.21		3.43	J	16.3		1670		31900	
R11-004F	R11	12/10/2018	D	Primary	--	2632403.36	633351.49	2000	R11-004F(12102018) 2000	12/10/2018	2.55	J	1.32	J	9.55		279		26700	
R11-005F	R10	12/10/2018	R	Field Duplicate	R10-002F	2632120.52	631215.90	2000	R11-005F(12102018) 2000	12/10/2018	2.41		0.79	J	17.8		600	J	116000	J
	R10	12/10/2018	R	Field Duplicate	R10-002F	2632120.52	631215.90	250	R11-005F(12102018) 250	12/10/2018	2.37		1.27	J	19.6		736		148000	
R11-006F	R11	3/6/2019	F	Primary	--	2632433.54	633450.23	2000	R11-006F(03062019) 2000	03/06/2019	4.13		1.1		17.2		753		68000	
	R11	3/6/2019	F	Primary	--	2632433.54	633450.23	250	R11-006F(03062019) 250	03/06/2019	5.15		1.04		18.3		830		76500	
R116-001F	R116	12/3/2018	U	Primary	--	2632744.15	641794.76	2000	R116-001F(12032018) 2000	12/03/2018	4.56		0.97	J	14.3		295		40100	
R116-002F	R116	12/3/2018	R	Primary	--	2632758.96	641261.21	2000	R116-002F(12032018) 2000	12/03/2018	5.96		1.06	J	17.2		361		53900	
R116-003F	R116	12/3/2018	L	Primary	--	2632771.06	641481.86	2000	R116-003F(12032018) 2000	12/03/2018	4.46		0.69	J	19.3		585		91500	
	R116	12/3/2018	L	Primary	--	2632771.06	641481.86	250	R116-003F(12032018) 250	12/03/2018	6.26		0.81	J	27.3		766		123000	
R116-004F	R116	12/3/2018	D	Primary	--	2632766.74	641241.30	2000	R116-004F(12032018) 2000	12/03/2018	4.48		1.86	J	19.6		651		70500	
R116-005F	R116	5/3/2019	F	Primary	--	2632730.14	641677.65	2000	R116-005F(05032019) 2000	05/03/2019	7.41		0.65		24.5		400		73700	
R116-006F	R116	5/3/2019	F	Primary	--	2632764.28	641409.93	2000	R116-006F(05032019) 2000	05/03/2019	6.43		1.49		16.4		581		66700	
	R116	5/3/2019	F	Primary	--	2632764.28	641409.93	250	R116-006F(05032019) 250	05/03/2019	8.25		1.96		19.1		721		75400	
R117-001F	R117	12/21/2018	U	Primary	--	2635239.87	620956.06	2000	R117-001F(12212018) 2000	12/21/2018	3.92		2.45	J	16.0		1010		27200	
R117-002F	R117	12/21/2018	R	Primary	--	2635221.13	620910.23	2000	R117-002F(12212018) 2000	12/21/2018	2.36		0.94	J	10.5		3030		17300	
R117-003F	R117	12/21/2018	L	Primary	--	2635268.76	620890.99	2000	R117-003F(12212018) 2000	12/21/2018	3.19		1.58	J	10.5		2150		17900	
R117-004F	R117	12/21/2018	D	Primary	--	2635260.70	620875.62	2000	R117-004F(12212018) 2000	12/21/2018	3.41		2.04	J	12.0		479		26300	
R117-005F	R117	12/21/2018	R	Field Duplicate	R117-002F	2635221.13	620910.23	2000	R117-005F(12212018) 2000	12/21/2018	1.96		1.11	J	7.62		2510		14800	
R118-001F	R118	12/10/2018	U	Primary	--	2632384.08	630795.22	2000	R118-001F(12102018) 2000	12/10/2018	4.56		< 4.00		19.0		393	J	55200	
R118-002F	R118	12/10/2018	R,U	Primary	--	2632342.26	630755.40	2000	R118-002F(12102018) 2000	12/10/2018	5.88		< 4.00		14.7		373		60500	
	R118	12/10/2018	R,U	Primary	--	2632342.26	630755.40	250	R118-002F(12102018) 250	12/10/2018	6.72		0.73	J	18.7		418		82200	
R118-003F	R118	12/10/2018	R,U	Primary	--	2632386.64	630615.21	2000	R118-003F(12102018) 2000	12/10/2018	5.74		1.53	J	26.8		564		66800	
R118-005F	R118	12/10/2018	D	Primary	--	2632245.82	630193.66	2000	R118-005F(12102018) 2000	12/10/2018	4.89		1.82	J	18.5		799		63800	
R118-006F	R118	12/10/2018	R,U	Field Duplicate	R118-002F	2632342.26	630755.40	2000	R118-006F(12102018) 2000	12/10/2018	6.57		0.65	J	14.5		363		57700	
	R118	12/10/2018	R,U	Field Duplicate	R118-002F	2632342.26	630755.40	250	R118-006F(12102018) 250	12/10/2018	6.50		0.60	J	17.7		382		76000	
R118-008F	R118	12/10/2018	R,D	Primary	--	2632281.21	630385.31	2000	R118-008F(12102018) 2000	12/10/2018	14.1		1.24	J	25.1		2240		74000	
R118-009F	R118	4/12/2019	R	Primary	--	2632257.79	630363.23	2000	R118-009F(04122019) 2000	04/12/2019	5.88		2.14		15.5		1710		39500	
R118-010F	R118	4/17/2019	F	Primary	--	2632396.29	630532.87	2000	R118-010F(04172019) 2000	04/17/2019	5.27		0.76		30.3		550		63700	
R118-011F	R118	4/17/2019	F	Primary	--	2632370.95	630702.11	2000	R118-011F(04172019) 2000	04/17/2019	3.14		0.83		11.5		722		33900	
	R118	4/17/2019	F	Primary	--	2632370.95	630702.11	250	R118-011F(04172019) 250	04/17/2019	4.06		0.83		20.2		891		52400	
R118-012F	R118	4/17/2019	F	Primary	--	2632316.29	630277.32	2000	R118-012F(04172019) 2000	04/17/2019	6.41		0.51		17.2		513		60400	
R118-013F	R118	4/17/2019	F	Primary	--	2632255.74	630177.99	2000	R118-013F(04172019) 2000	04/17/2019	3.05		0.28	J	13.8		666		75200	
R118-014F	R118	4/17/2019	F	Primary	--	2632143.87	630071.46	2000	R118-014F(04172019) 2000	04/17/2019	5.89		0.36	J	37.4		498		70500	
	R118	4/17/2019	F	Primary	--	2632143.87	630071.46	250	R118-014F(04172019) 250	04/17/2019	6.01		0.43		31.2		411		68900	
R120-001F	R120	12/11/2018	U	Primary	--	2632151.59	629648.45	2000	R120-001F(12112018) 2000	12/11/2018	5.12		0.89	J	14.4		547		50200	
R120-002F	R120	12/11/2018	R	Primary	--	2632152.82	629518.65	2000	R120-002F(12112018) 2000	12/11/2018	4.07		2.62	J	13.7		1090		38300	
	R120	12/11/2018	R	Primary	--	2632152.82	629518.65	250	R120-002F(12112018) 250	12/11/2018	6.41		2.90	J	15.2		1290		42100	
R120-003F	R120	12/11/2018	DR	Primary	--	2632307.25	629301.63	2000	R120-003F(12112018) 2000	12/11/2018	4.73		1.99	J	16.5		668		52100	

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Analyte	Arsenic		Cadmium		Chromium		Copper		Iron	
										CAS	7440-38-2		7440-43-9		7440-47-3		7440-50-8		7439-89-6	
										Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
										Sample Date	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R120-004F	R120	12/11/2018	DL	Primary	--	2632356.58	629337.10	2000	R120-004F(12112018) 2000	12/11/2018	4.61		1.23	J	13.5		465		48300	
R120-005F	R120	12/11/2018	DL	Field Duplicate	R120-004F	2632356.58	629337.10	2000	R120-005F(12112018) 2000	12/11/2018	4.46		1.68	J	13.0		480		47700	
	R120	12/11/2018	DL	Field Duplicate	R120-004F	2632356.58	629337.10	250	R120-005F(12112018) 250	12/11/2018	5.09		1.66	J	14.9		493		53700	
R120-006F	R120	1/24/2019	F	Primary	--	2632147.13	629592.92	2000	R120-006F(01242019) 2000	01/24/2019	3.19		0.6		12.3		465		33800	
R120-007F	R120	1/24/2019	F	Primary	--	2632239.80	629520.55	2000	R120-007F(01242019) 2000	01/24/2019	5.31		< 4		11.4		354		70900	
R120-009F	R120	1/24/2019	F	Primary	--	2632222.11	629420.29	2000	R120-009F(01242019) 2000	01/24/2019	3.47		2.24		12.4		762		41200	
R12-001F	R12	2/22/2019	U	Primary	--	2632458.45	633129.26	2000	R12-001F(02222019) 2000	02/22/2019	7.21		1.45		14.5		438		54500	
R12-002F	R12	2/22/2019	R65-002F	Primary	--	2632469.10	633106.86	2000	R12-002F(02222019) 2000	02/22/2019	5.04		1.42		18.2		608		56900	
R12-003F	R12	2/22/2019	L	Primary	--	2632444.57	633093.04	2000	R12-003F(02222019) 2000	02/22/2019	3.92		3.18		13.8		455		34000	
	R12	2/22/2019	L	Primary	--	2632444.57	633093.04	250	R12-003F(02222019) 250	02/22/2019	5.21		2.75		14.5		500		42600	
R12-004F	R12	3/5/2019	F	Primary	--	2632454.14	633115.33	2000	R12-004F(03052019) 2000	03/05/2019	3.72		1.35		13.9		597		29000	
R12-005F	R12	3/5/2019	F	Field Duplicate	R12-004F	2632454.14	633115.33	2000	R12-005F(03052019) 2000	03/05/2019	3.17		1.16		14.2		629		28700	
R121-001F	R121	1/14/2019	R	Primary	--	2632235.00	629105.65	2000	R121-001F(01142019) 2000	01/14/2019	3.48		1.73	J	101		390		55700	
	R121	1/14/2019	R	Primary	--	2632235.00	629105.65	250	R121-001F(01142019) 250	01/14/2019	3.65		1.52	J	101		381		66200	
R122-001F	R122	12/12/2018	U	Primary	--	2632384.87	629218.98	2000	R122-001F(12122018) 2000	12/12/2018	5.57		0.75	J	17.8		476		49700	
R122-002F	R122	12/12/2018	R	Primary	--	2632591.23	629003.33	2000	R122-002F(12122018) 2000	12/12/2018	6.08		2.37	J	15.3		523		58200	
	R122	12/12/2018	R	Primary	--	2632591.23	629003.33	250	R122-002F(12122018) 250	12/12/2018	5.11		2.71	J	59.9		601		67200	
R122-003F	R122	12/12/2018	D	Primary	--	2632646.82	629056.57	2000	R122-003F(12122018) 2000	12/12/2018	4.62		0.64	J	14.8		481		52400	
R122-004F	R122	12/12/2018	L	Primary	--	2632541.32	629184.72	2000	R122-004F(12122018) 2000	12/12/2018	5.69		1.21	J	14.6		579		51100	
R122-005F	R122	12/12/2018	U	Field Duplicate	R122-001F	2632384.87	629218.98	2000	R122-005F(12122018) 2000	12/12/2018	4.97		0.72	J	16.0		457		50300	
	R122	12/12/2018	U	Field Duplicate	R122-001F	2632384.87	629218.98	250	R122-005F(12122018) 250	12/12/2018	6.65		1.40	J	54.8		517		71800	
R122-006F	R122	1/22/2019	F	Primary	--	2632525.60	629045.26	2000	R122-006F(01222019) 2000	01/22/2019	2.36		< 4		11.4		182		45900	
	R122	1/22/2019	F	Primary	--	2632525.60	629045.26	250	R122-006F(01222019) 250	01/22/2019	2.69									
R122-007F	R122	1/22/2019	F	Primary	--	2632506.77	629105.06	2000	R122-007F(01222019) 2000	01/22/2019	4.32		< 4		15		440		72800	
R122-008F	R122	1/22/2019	F	Primary	--	2632398.97	629136.40	2000	R122-008F(01222019) 2000	01/22/2019	2.41		< 4		11.2		257		47200	
R122-010F	R122	1/22/2019	F	Primary	--	2632626.11	629084.67	2000	R122-010F(01222019) 2000	01/22/2019	7.27		< 4		12		352		42000	
R14-001F	R14	11/20/2018	U	Primary	--	2636191.84	646438.31	2000	R14-001F(11202018) 2000	11/20/2018	1.69		0.75	J	10.5		210		26100	
	R14	11/20/2018	U	Primary	--	2636191.84	646438.31	250	R14-001F(11202018) 250	11/20/2018	1.77		0.76	J	14.4		260		29900	
R14-002F	R14	11/20/2018	R	Primary	--	2636057.44	646396.75	2000	R14-002F(11202018) 2000	11/20/2018	2.27		2.32	J	8.98		409		27100	
R14-003F	R14	11/20/2018	D	Primary	--	2635971.53	646354.70	2000	R14-003F(11202018) 2000	11/20/2018	2.20		2.03	J	9.36		332		26100	
R14-004F	R14	11/20/2018	L	Primary	--	2636106.96	646380.94	2000	R14-004F(11202018) 2000	11/20/2018	2.05		1.59	J	8.16		177		29200	
	R14	11/20/2018	L	Primary	--	2636106.96	646380.94	250	R14-004F(11202018) 250	11/20/2018	2.61		2.14	J	11.0		290		34900	
R14-005F	R14	11/20/2018	D	Field Duplicate	R14-003F	2635971.53	646354.70	2000	R14-005F(11202018) 2000	11/20/2018	2.21		1.73	J	9.45		290		24800	
R14-006F	R14	11/30/2018	F	Primary	--	2636184.24	646415.65	2000	R14-006F(11302018) 2000	11/30/2018	4.4		1.97		16.4		1140		44900	
	R14	11/30/2018	F	Primary	--	2636184.24	646415.65	250	R14-006F(12012018) 250	12/01/2018	3.5		1.83		12.3		898		40500	
R15-001F	R15	11/20/2018	U	Primary	--	2636893.35	647230.80	2000	R15-001F(11202018) 2000	11/20/2018	3.59		1.47	J	31.3		845		82500	
R15-002F	R15	11/20/2018	R, U	Primary	--	2636784.93	647226.66	2000	R15-002F(11202018) 2000	11/20/2018	3.59		3.96	J	8.16		450		38300	
	R15	11/20/2018	R, U	Primary	--	2636784.93	647226.66	250	R15-002F(11202018) 250	11/20/2018	3.76		3.44	J	11.8		473		58200	
R15-003F	R15	11/20/2018	R	Primary	--	2636717.00	647023.64	2000	R15-003F(11202018) 2000	11/20/2018	3.24		3.46	J	8.20		419		38600	
R15-004F	R15	11/20/2018	R, D	Primary	--	2636549.88	646661.76	2000	R15-004F(11202018) 2000	11/20/2018	3.40		3.86	J	9.56		508		36800	
R15-005F	R15	11/20/2018	D	Primary	--	2636528.08	646557.10	2000	R15-005F(11202018) 2000	11/20/2018	1.86		1.82	J	4.96	J	194		15800	
	R15	11/20/2018	D	Primary	--	2636528.08	646557.10	250	R15-005F(11202018) 250	11/20/2018	1.89		1.66	J	7.84		245		20400	
R15-006F	R15	11/20/2018	L, D	Primary	--	2636638.95	646668.99	2000	R15-006F(11202018) 2000	11/20/2018	4.20		1.18	J	25.0		815		60600	
R15-007F	R15	11/20/2018	L,U	Primary	--	2636773.67	647013.33	2000	R15-007F(11202018) 2000	11/20/2018	2.87		3.48	J	8.35		386		39100	
R15-008F	R15	12/10/2018	F	Primary	--	2636720.47	646889.70	2000	R15-008F(12102018) 2000	12/10/2018	3.12		1.16		15.5		433		55800	
R15-009F	R15	12/10/2018	F	Primary	--	2636888.32	647240.25	2000	R15-009F(12102018) 2000	12/10/2018	3.45		3.64		11.1		466		37200	
R15-010F	R15	12/10/2018	F	Primary	--	2636620.87	646711.33	2000	R15-010F(12102018) 2000	12/10/2018	3.60		2.90		12.4		961		34900	
	R15	12/10/2018	F	Primary	--	2636620.87	646711.33	250	R15-010F(12102018) 250	12/10/2018	5.26		2.96		15.8		1020		48200	
R15-011F	R15	1/9/2019	F	Primary	--	2636752.72	647038.38	2000	R15-011F(01092019) 2000	01/09/2019	3.71		1.48		88		431		52500	
	R15	1/9/2019	F	Primary	--	2636752.72	647038.38	250	R15-011F(01092019) 250	01/09/2019	4.49		2.13		73		639		81000	
R18-001F	R18	11/28/2018	U	Primary	--	2634074.15	645889.09	2000	R18-001F(11282018) 2000	11/28/2018	2.99		2.88	U	10.9		291		29000	
	R18	11/28/2018	U	Primary	--	2634074.15	645889.09	250	R18-001F(11282018) 250	11/28/2018	3.54		3.05	J	12.9		352		58700	
	R18	11/28/2018	U	Primary	--	2634074.15	645889.09	2000	R18-001F(12012018) 2000	12/01/2018	9.05		3.63	J	17.2		763		67500	
R18-002F	R18	11/28/2018	R	Primary	--	2633909.56	645755.85	2000	R18-002F(11282018) 2000	11/28/2018	12.6		3.33	J	153		2180		128000	
R18-003F	R18	11/28/2018	D	Primary	--	2633758.88	645563.91	250	R18-003F(11282018) 250	11/28/2018	4.37		3.76	J	14		460		39700	
R18-004F	R18	11/28/2018	L	Primary	--	2634023.79	645814.44	250	R18-004F(11282018) 250	11/28/2018	4.04		2.48	J	10.4		298		29700	
R18-005F	R18	3/30/2019	U	Primary	--	2634081.46	645957.24	2000	R18-005F(03302019) 2000	03/30/2019	3.85		0.85		17		441		57400	
	R18	3/30/2019	U	Primary	--	2634081.46	645957.24	250	R18-005F(03302019) 250	03/30/2019	9.35		3.73		21.5		962		57100	
R18-008F	R18	3/30/2019	D	Primary	--	2633699.36	645530.13	2000	R18-008F(03302019) 2000	03/30/2019	4.16		4.16		12.4		1260		37700	
R18-009F	R18	3/30/2019	L,D	Primary	--	2633827.62	645656.15	2000	R18-009F(03302019) 2000	03/30/2019	5.5		0.65		20.3		547		72300	
R18-010F	R18	3/30/2019	L,U	Primary	--	2633950.55	645798.00	2000	R18-010F(03302019) 2000	03/30/2019	5.14		2.44		14.9		838		45800	
	R18	3/30/2019	L,U	Primary	--	2633950.55	645798.00	250	R18-010F(03302019) 250	03/30/2019	6.45		3.16		23.8		868		50100	
R19-001F	R19	11/14/2018	U	Primary	--	2640638.03	647317.19	2000	R19-001F(11142018) 2000	11/14/2018	9.04	J	1.85	J	110		924		93700	
R19-002F	R19	11/14/2018	R	Primary	--	2640638.34	647335.73	2000	R19-002F(11142018) 2000	11/14/2018	5.98		7.29		26.7		3050		74200	
R19-003F	R19	11/14/2018	D, R	Primary	--	2640546.53	647456.28	2000	R19-003F(11142018) 2000	11/14/2018	3.26		4.32		10.7		907		25500	
	R19	11/14/2018	D, R	Primary	--	2640546.53	647456.28	250	R19-003F(11142018) 250	11/14/2018	3.83		3.29		11.2		1080		27500	
R19-004F	R19	11/14/2018	D, L	Primary	--	2640480.31	647485.45	2000	R19-004F(11142018) 2000	11/14/2018	1.54		0.55		5.25		189		13400	
R19-005F	R19	11/13/2018	F	Primary	--	2640618.10	647362.71	2000	R19-005F(11132018) 2000	11/13/2018	6.77		1.61		63.3		693		73900	
R19-006F	R19	11/14/2018	L	Primary	--	2640584.95	647387.99	2000	R19-006F(11142018) 2000	11/14/2018	1.04		0.40		4.96		124		12200	
	R19	11/14/2018	L	Primary	--	2640584.95	647387.99	250	R19-006F(11142018) 250	11/14/2018	1.36		0.43		7.40		207		14900	
R19-007F	R19	11/14/2018	L	Field Duplicate	R19-006F	2640584.95	647387.99	2000	R19-007F(11142018) 2000	11/14/2018	1.19		0.41		5.09		113		12300	
R19-008F	R19	5/16/2019	R	Primary	--	2640608.73	647433.46	2000	R19-008F(05162019) 2000	05/16/2019	6.19		4.24		35.3		2720		73800	
R19-009F	R19	5/16/2019	R	Field Duplicate	R19-008F	2640608.73	647433.46	2000	R19-009F(05162019) 2000	05/16/2019	7.48		4.96		40.8		3250		90500	
R19-010F	R19	5/16/2019	R	Primary	--	2640563.64	647469.98	2000	R19-010F(05162019) 2000	05/16/2019	4.71		1.62		23.5		1170		42800	
	R19	5/16/2019	R	Primary	--	2640563.64	647469.98	250	R19-010F(05162019) 250	05/16/2019	3.61		1.17		16.9		906		30700	
R19-011F	R19	5/16/2019	R	Field Duplicate	R19-010F	2640563.64	647469.98	2000	R19-011F(05162019) 2000	05/16/2019	3.87		1.23		20.4		964		37300	
R19-012F	R19	5/16/2019	R	Primary	--	2640537.66	647492.25	2000	R19-012F(05162019) 2000	05/16/2019	12.1		1.97		45.8		6370		75000	
R19-013F	R19	5/16/2019	R	Field Duplicate	R19-012F	2640537.66	647492.25	2000	R19-013F(05162019) 2000	05/16/2019	10.7		2.11		48.8		7050		68800	
	R19	5/16/2019	R	Field Duplicate	R19-012F	2640537.66	647492.25	250	R19-013F(05162019) 250	05/16/2019	12.2		2.21		44.5		6050		75300	
R19-014F	R19	5/16/2019	R	Primary	--	2640505.48	647514.55	2000	R19-014F(05162019) 2000	05/16/2019	11.1		26.4		13.7		2330		61700	
R19-015F	R19	5/16/2019	R	Field Duplicate	R19-014F	2640505.48	647514.55	2000	R19-015F(05162019) 2000	05/16/2019	10.6		23.7		15.9		2130		63500	
R20-001F	R20	11/14/2018	U	Primary	--	2639924.68	647766.61	2000	R20-001F(11142018) 2000	11/14/2018	2.92		1.56		11.4		413		48800	
R20-002F	R20	11/14/2018	R	Primary	--	2639895.10	647800.43	2000	R20-002F(11142018) 2000	11/14/2018	3.53		2.44		10.5		372		39800	
	R20	11/14/2018	R	Primary	--	2639895.10	647800.43	250	R20-002F(11142018) 250	11/14/2018	4.34		2.43		13.3		564		43100	
R20-003F	R20	11/14/2018	D	Primary	--	2639854.82	647816.34	2000	R20-003F(11142018) 2000	11/14/2018	3.28		1.89		11.8		384		42200	
R20-004F	R20	11/14/2018	L	Primary	--	2639887.73	647786.16	2000	R20-004F(11142018) 2000	11/14/2018	3.33	J	1.60		11.9		538		45100	
R20-005F	R20	11/13/2018	F	Primary	--	2639897.82	647789.40	2000	R20-005F(11132018) 2000	11/13/2018	4.96		2.69		32.5		812		117000	
	R20	11/13/2018	F	Primary	--	2639897.82	647789.40	250	R20-005F(11132018) 250	11/13/2018	5.62		0.58		41.6		1060		145000	
R20-006F	R20	11/13/2018	D	Field Duplicate	R20-003F	2639854.82	647816.34	2000	R20-006F(11132018) 2000	11/13/2018	3.54		1.77		12.0		358		42200	
R21-001F	R21	11/12/2018	U	Primary	--	2639758.94	647881.53	2000	R21-001F(11122018) 2000	11/12/2018	3.70		2.70		8.84		788		28400	
R21-002F	R21	11/12/2018	R	Primary	--	2639742.89	647896.07	2000	R21-002F(11122018) 2000	11/12/2018	3.19		2.26		11.8		580		41000	
	R21	11/12/2018	R	Primary	--	2639742.89	647896.07	250	R21-002F(11122018) 250	11/12/2018	3.41		1.97		12.3		827		41000	
R21-003F	R21	11/12/2018	D	Primary	--	2639727.67	647890.64	2000	R21-003F(11122018) 2000	11/12/2018	4.79		2.83		11.8		582		35700	
R21-004F	R21	11/12/2018	L	Primary	--	2639744.85	647876.04	2000	R21-004F(11122018) 2000	11/12/2018	3.11		1.84		10.2		415		34700	

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Analyte	Arsenic		Cadmium		Chromium		Copper		Iron	
										CAS	7440-38-2		7440-43-9		7440-47-3		7440-50-8		7439-89-6	
										Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
										Sample Date	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R21-005F	R21	11/12/2018	F	Primary	--	2639744.65	647886.23	2000	R21-005F(11122018) 2000	11/12/2018	6.28		3.87		63.8		1360		196000	
	R21	11/12/2018	F	Primary	--	2639744.65	647886.23	250	R21-005F(11122018) 250	11/12/2018	6.92		0.72		75.8		1770		238000	
R22-001F	R22	11/12/2018	U	Primary	--	2639707.21	647923.48	2000	R22-001F(11122018) 2000	11/12/2018	2.75		2.63	J	23.4		972		99100	
R22-002F	R22	11/12/2018	R	Primary	--	2639667.84	647923.71	2000	R22-002F(11122018) 2000	11/12/2018	6.70		2.97	J	42.7		1020		106000	
R22-003F	R22	11/12/2018	D	Primary	--	2639638.36	647905.79	2000	R22-003F(11122018) 2000	11/12/2018	3.14		1.22		22.5		1150		115000	
	R22	11/12/2018	D	Primary	--	2639638.36	647905.79	250	R22-003F(11122018) 250	11/12/2018	2.95		1.55		24.3		1370		127000	
R22-004F	R22	11/12/2018	L	Primary	--	2639672.79	647905.54	2000	R22-004F(11122018) 2000	11/12/2018	3.78		0.50		35.2		1030		126000	
R22-005F	R22	11/12/2018	F	Primary	--	2639661.59	647912.44	2000	R22-005F(11122018) 2000	11/12/2018	3.17		0.69		23.0		931		104000	
R23-001F	R23	11/12/2018	U	Primary	--	2639677.29	647863.71	2000	R23-001F(11122018) 2000	11/12/2018	3.52		0.44		20.7		1120		59700	
	R23	11/12/2018	U	Primary	--	2639677.29	647863.71	250	R23-001F(11122018) 250	11/12/2018	3.23		0.45		19.0		1040		56600	
R23-002F	R23	11/12/2018	R	Primary	--	2639642.23	647876.24	2000	R23-002F(11122018) 2000	11/12/2018	3.37		1.24		11.7		541		35200	
R23-003F	R23	11/12/2018	D	Primary	--	2639608.54	647876.61	2000	R23-003F(11122018) 2000	11/12/2018	2.65	J	0.92	J	19.8		872		125000	J
R23-004F	R23	11/12/2018	L	Primary	--	2639647.63	647864.38	2000	R23-004F(11122018) 2000	11/12/2018	3.65		< 4.00		17.3		856		76500	
R23-005F	R23	11/12/2018	F	Primary	--	2639638.28	647871.20	2000	R23-005F(11122018) 2000	11/12/2018	2.76		< 4.00		17.7		709		97200	
	R23	11/12/2018	F	Primary	--	2639638.28	647871.20	250	R23-005F(11122018) 250	11/12/2018	3.17		2.01		20.3		893		111000	
R23-006F	R23	11/12/2018	R	Field Duplicate	R23-002F	2639642.23	647876.24	2000	R23-006F(11122018) 2000	11/12/2018	3.94		1.34		11.0		702		37500	
R24-001F	R24	11/14/2018	U	Primary	--	2639537.01	647836.27	2000	R24-001F(11142018) 2000	11/14/2018	3.65		< 4.00		29.2		887		83700	
R24-002F	R24	11/14/2018	R	Primary	--	2639511.42	647836.46	2000	R24-002F(11142018) 2000	11/14/2018	3.23		1.07	J	9.57		472		38400	
R24-003F	R24	11/14/2018	D	Primary	--	2639473.68	647820.81	2000	R24-003F(11142018) 2000	11/14/2018	2.99		< 4.00		22.7		1020		91900	
	R24	11/14/2018	D	Primary	--	2639473.68	647820.81	250	R24-003F(11142018) 250	11/14/2018	3.42		2.54	J	24.9		1410		105000	
R24-004F	R24	11/14/2018	L	Primary	--	2639512.02	647827.45	2000	R24-004F(11142018) 2000	11/14/2018	6.18		0.79	J	27.7		956		82700	
R24-005F	R24	11/14/2018	F	Primary	--	2639506.24	647829.41	2000	R24-005F(11142018) 2000	11/14/2018	3.16		0.64		18.0		683		94600	
R24-006F	R24	11/14/2018	L	Field Duplicate	R24-004F	2639512.02	647827.45	2000	R24-006F(11142018) 2000	11/14/2018	3.71		0.89	J	25.2		856		69100	
	R24	11/14/2018	L	Field Duplicate	R24-004F	2639512.02	647827.45	250	R24-006F(11142018) 250	11/14/2018	3.55		2.25	J	22.9		1040		56800	
R25-001F	R25	11/16/2018	U	Primary	--	2639491.08	647775.90	2000	R25-001F(11162018) 2000	11/16/2018	4.36		< 4.00		42.1		1090		70700	
R25-002F	R25	11/14/2018	R	Primary	--	2639426.75	647793.76	2000	R25-002F(11142018) 2000	11/14/2018	3.50		1.53	J	11.7		498		42600	
R25-003F	R25	11/14/2018	D	Primary	--	2639348.76	647677.57	2000	R25-003F(11142018) 2000	11/14/2018	2.63		1.21	J	10.2		426		30900	
	R25	11/14/2018	D	Primary	--	2639348.76	647677.57	250	R25-003F(11142018) 250	11/14/2018	2.92		1.77	J	9.77		501		30000	
R25-004F	R25	11/14/2018	L	Primary	--	2639445.41	647666.52	2000	R25-004F(11142018) 2000	11/14/2018	3.36		< 4.00		20.2		1370		61000	
R25-005F	R25	11/14/2018	F,R	Primary	--	2639414.51	647747.86	2000	R25-005F(11142018) 2000	11/14/2018	4.01		< 4.00		20.1		843		118000	
R25-006F	R25	11/14/2018	F,L	Primary	--	2639410.40	647685.73	2000	R25-006F(11142018) 2000	11/14/2018	2.76		< 4.00		23.4		1220		77200	
	R25	11/14/2018	F,L	Primary	--	2639410.40	647685.73	250	R25-006F(11142018) 250	11/14/2018	4.14		1.96		26.6		1460		78400	
R26-001F	R26	11/12/2018	U	Primary	--	2639375.85	647582.08	2000	R26-001F(11122018) 2000	11/12/2018	4.28		< 4.00		21.9		1000		55000	
R26-002F	R26	11/12/2018	R	Primary	--	2639343.23	647529.83	2000	R26-002F(11122018) 2000	11/12/2018	3.85		< 4.00		29.7		946		109000	
R26-003F	R26	11/12/2018	D	Primary	--	2639316.84	647471.26	2000	R26-003F(11122018) 2000	11/12/2018	3.81		1.58	J	23.7		1640		114000	
	R26	11/12/2018	D	Primary	--	2639316.84	647471.26	250	R26-003F(11122018) 250	11/12/2018	3.62		3.06	J	21.2		1410		101000	
R26-004F	R26	11/12/2018	L	Primary	--	2639355.59	647533.36	2000	R26-004F(11122018) 2000	11/12/2018	4.23		< 4.00		27.1		825		64200	
R26-005F	R26	11/12/2018	F	Primary	--	2639344.47	647522.30	2000	R26-005F(11122018) 2000	11/12/2018	3.21		< 4.00		17.7		523		70700	
R26-006F	R26	11/12/2018	L	Field Duplicate	R26-005F	2639414.51	647747.86	2000	R26-006F(11122018) 2000	11/12/2018	3.61		0.83		20.3		746		117000	
	R26	11/12/2018	L	Field Duplicate	R26-005F	2639414.51	647747.86	250	R26-006F(11122018) 250	11/12/2018	3.85		3.21		23.8		1020		139000	
R27-001F	R27	11/12/2018	U	Primary	--	2639227.86	647343.99	2000	R27-001F(11122018) 2000	11/12/2018	3.12		< 4.00		19.0		751		86700	
R27-002F	R27	11/12/2018	R	Primary	--	2639212.34	647330.19	2000	R27-002F(11122018) 2000	11/12/2018	3.04		1.66	J	11.7		965		42300	
R27-003F	R27	11/12/2018	D	Primary	--	2639200.73	647306.45	2000	R27-003F(11122018) 2000	11/12/2018	2.69		1.75	J	11.5		1390		35800	
	R27	11/12/2018	D	Primary	--	2639200.73	647306.45	250	R27-003F(11122018) 250	11/12/2018	2.95		2.39	J	13.6		1180		36500	
R27-004F	R27	11/15/2018	L	Primary	--	2639218.90	647319.75	2000	R27-004F(11152018) 2000	11/15/2018	3.60	J	0.57	J	20.7		1030		173000	
R27-005F	R27	11/15/2018	F	Primary	--	2639213.11	647322.35	2000	R27-005F(11152018) 2000	11/15/2018	3.12		0.88		18.3		1020		111000	
R28-001F	R28	11/12/2018	U	Primary	--	2639268.61	647431.99	2000	R28-001F(11122018) 2000	11/12/2018	3.12		< 4.00		32.1		905		149000	
	R28	11/12/2018	U	Primary	--	2639268.61	647431.99	250	R28-001F(11122018) 250	11/12/2018	3.01		4.59		50.3		1780		224000	
R28-002F	R28	11/12/2018	R	Primary	--	2639211.27	647387.59	2000	R28-002F(11122018) 2000	11/12/2018	4.46		0.70	J	36.1		1430		135000	
R28-003F	R28	11/12/2018	D	Primary	--	2639173.50	647332.38	2000	R28-003F(11122018) 2000	11/12/2018	3.54		0.65	J	21.4		989		90600	
R28-004F	R28	11/12/2018	L	Primary	--	2639233.87	647384.21	2000	R28-004F(11122018) 2000	11/12/2018	4.65		1.03	J	37.5		2260		127000	
	R28	11/12/2018	L	Primary	--	2639233.87	647384.21	250	R28-004F(11122018) 250	11/12/2018	5.54		3.30	J	42.4		2530		119000	
R28-005F	R28	11/14/2018	F	Primary	--	2639223.47	647382.34	2000	R28-005F(11142018) 2000	11/14/2018	4.43		< 4.00		34.7		1260		150000	
R29-001F	R29	11/15/2018	U	Primary	--	2639248.76	647492.75	2000	R29-001F(11152018) 2000	11/15/2018	2.70		< 4.00		25.7		950		130000	
R29-002F	R29	11/12/2018	R	Primary	--	2639214.05	647467.76	2000	R29-002F(11122018) 2000	11/12/2018	2.35		1.61	J	11.8		7800		29900	
	R29	11/12/2018	R	Primary	--	2639214.05	647467.76	250	R29-002F(11122018) 250	11/12/2018	2.87		3.21	J			11400		36900	
R29-003F	R29	11/15/2018	D	Primary	--	2639180.34	647422.92	2000	R29-003F(11152018) 2000	11/15/2018	1.42		< 4.00		12.0		778		53500	
R29-004F	R29	11/15/2018	L	Primary	--	2639225.57	647454.15	2000	R29-004F(11152018) 2000	11/15/2018	3.38		1.02	J	29.0		1390		109000	
R29-005F	R29	11/15/2018	F	Primary	--	2639216.96	647456.98	2000	R29-005F(11152018) 2000	11/15/2018	3.55		< 4.00		47.6		1670		136000	
	R29	11/15/2018	F	Primary	--	2639216.96	647456.98	250	R29-005F(11152018) 250	11/15/2018	3.98		2.87		56.7		2040		151000	
R29-006F	R29	11/15/2018	D	Field Duplicate	R29-003F	2639180.34	647422.92	2000	R29-006F(11152018) 2000	11/15/2018	1.43		< 4.00		11.9		737		50100	
R30-001F	R30	11/16/2018	U	Primary	--	2639126.02	647295.98	2000	R30-001F(11162018) 2000	11/16/2018	3.70		0.94	J	25.5		1180		153000	
R30-002F	R30	11/16/2018	R	Primary	--	2639090.70	647275.28	2000	R30-002F(11162018) 2000	11/16/2018	5.36		0.90	J	45.8		1950		220000	
	R30	11/16/2018	R	Primary	--	2639090.70	647275.28	250	R30-002F(11162018) 250	11/16/2018	6.27		6.09		58.6		2600		272000	
R30-003F	R30	11/16/2018	D	Primary	--	2639050.79	647253.88	2000	R30-003F(11162018) 2000	11/16/2018	3.00		1.89	J	22.4		2460		78500	
R30-004F	R30	11/16/2018	L	Primary	--	2639108.62	647262.84	2000	R30-004F(11162018) 2000	11/16/2018	4.89		< 4.00		26.7		770		138000	
R30-005F	R30	11/16/2018	F	Primary	--	2639096.39	647266.71	2000	R30-005F(11162018) 2000	11/16/2018	3.06		< 4.00		26.3		1200		170000	
	R30	11/16/2018	F	Primary	--	2639096.39	647266.71	250	R30-005F(11162018) 250	11/16/2018	2.80		< 4.00		26.4		1400		182000	
R30-006F	R30	11/16/2018	L	Field Duplicate	R30-004F	2639108.62	647262.84	2000	R30-006F(11162018) 2000	11/16/2018	5.50		< 4.00		28.0		885		152000	
R303-005F	R303	3/12/2019	L	Field Duplicate	R303-004F	2631381.19	636711.10	2000	R303-005F(03122019) 2000	03/12/2019	3.45		0.59		9.29		799		21500	
R303-006F	R303	4/4/2019	F	Primary	--	2631357.46	636709.41	2000	R303-006F(04042019) 2000	04/04/2019	2.14		0.34	J	12		384		28300	
	R303	4/4/2019	F	Primary	--	2631357.46	636709.41	250	R303-006F(04042019) 250	04/04/2019	2.06		0.32	J	13.8		427		32800	
R304-001F	R304	3/12/2019	U	Primary	--	2631426.79	638474.35	2000	R304-001F(03122019) 2000	03/12/2019	3.47		2.27		11.2		1250		24900	
R304-003F	R304	3/12/2019	D	Primary	--	2631272.45	638217.38	2000	R304-003F(03122019) 2000	03/12/2019	5.18		1.25		14.9		676		38000	
R305-002F	R305	3/26/2019	R	Primary	--	2630993.41	637167.40	2000	R305-002F(03262019) 2000	03/26/2019	3.76		1.97		14.2		418		47800	
	R305	3/26/2019	R	Primary	--	2630993.41	637167.40	250	R305-002F(03262019) 250	03/26/2019	5.17		2.45		15.5		453		57200	
R305-003F	R305	3/26/2019	D	Primary	--	2631023.31	637120.99	2000	R305-003F(03262019) 2000	03/26/2019	8.15		5.18		15		1160		46200	
R305-005F	R305	3/29/2019	F	Primary	--	2631004.96	637173.95	2000	R305-005F(03292019) 2000	03/29/2019	2.22		0.59		12.8		282		34900	
	R305	3/29/2019	F	Primary	--	2631004.96	637173.95	250	R305-005F(03292019) 250	03/29/2019	2.51		0.65		17.1		390		43000	
R306-001F	R306	3/28/2019	U	Primary	--	2632019.95	632585.06	2000	R306-001F(03282019) 2000	03/28/2019	2.51		0.63		14.1		887		22600	
R306-003F	R306	3/28/2019	D	Primary	--	2631965.30	632431.74	2000	R306-003F(03282019) 2000	03/28/2019	4.92		4.11		17.3		759		41700	
	R306	3/28/2019	D	Primary	--	2631965.30	632431.74	250	R306-003F(03282019) 250	03/28/2019	5.77		3.55		16.8		722		41700	
R306-004F	R306	3/28/2019	L	Primary	--	2631997.27	632500.78	2000	R306-004F(03282019) 2000	03/28/2019	4.05		2.54		16		639		36400	
R306-005F	R306	4/18/2019	F	Primary	--	0.00	0.00	2000	R306-005F(04182019) 2000	04/18/2019	2.48		1.36		12.8		577		39700	
R307-001F	R307	3/29/2019	U	Primary	--	2632679.36	640983.93	2000	R307-001F(03292019) 2000	03/29/2019	8.03		2.46		14.9		721		57300	
R307-002F	R307	3/29/2019	R	Primary	--	2632676.15	640879.28	2000	R307-002F(03292019) 2000	03/29/2019	7.98		0.7		16.9		504		63100	
	R307	3/29/2019	R	Primary	--	2632676.15	640879.28	250	R307-002F(03292019) 250	03/29/2019	8.92		0.74		19.2		552		74600	
R307-003F	R307	3/29/2019	D	Primary	--	2632719.11	640760.73	2000	R307-003F(03292019) 2000	03/29/2019	6.02		3.54		17.6		745		64500	
R307-004F	R307	3/29/2019	L	Primary	--	2632709.74	640836.62	2000	R307-004F(03292019) 2000	03/29/2019	7.16		1.86		15.2		588		60400	
R307-005F	R307	5/1/2019	F	Primary	--	2632690.44	640856.44	2000	R307-005F(05012019) 2000	05/01/2019	5.52	J	0.99		12.9		848		64800	
	R307	5/1/2019	F	Primary	--	2632690.44	640856.44	250	R307-005F(05012019) 250	05/01/2019	7.83		1.61		18.9		1270		99500	J
R308-005F	R308	5/3/2019	F	Primary	--	2632567.16	641692.23	2000	R308-005F(05032019) 2000	05/03/2019	7.84		0.59		15.6		465		91700	
R309-001F	R309	5/3/2019	F	Primary	--	0.00	0.00	2000	R309-001F(05032019) 2000	05/03/2019	6.29		1.21		22.2		599		79400	
R310-001F	R310	3/30/2019	U	Primary	--	2633182.23	645104.86	2000	R310-001F(03302019) 2000	03/30/2019	3.58		3.33		11.4		290		37800	

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Analyte	Arsenic		Cadmium		Chromium		Copper		Iron	
										CAS	7440-38-2		7440-43-9		7440-47-3		7440-50-8		7439-89-6	
										Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
										Sample Date	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
	R310	3/30/2019	U	Primary	--	2633182.23	645104.86	250	R310-001F(03302019) 250	03/30/2019	4.46		3.2		12.1		358		40300	
R310-002F	R310	3/30/2019	R	Primary	--	2633158.37	645092.85	2000	R310-002F(03302019) 2000	03/30/2019	4.97		4.74		12.6		604		34400	
R310-003F	R310	3/30/2019	D	Primary	--	2633160.39	645060.95	2000	R310-003F(03302019) 2000	03/30/2019	7.61		1.27		12.3		344		49700	
R310-004F	R310	3/30/2019	L	Primary	--	2633176.49	645083.04	2000	R310-004(03302019) 2000	03/30/2019	6.17		1.77		12.7		288		38700	
	R310	3/30/2019	L	Primary	--	2633176.49	645083.04	250	R310-004F(03302019) 250	03/30/2019	9.01		2.25		14.7		469		51300	
R310-005F	R310	5/9/2019	F	Primary	--	2633163.92	645086.19	2000	R310-005F(05092019) 2000	05/09/2019	4.85		4.46		12		515		36100	
R31-001F	R31	11/13/2018	U	Primary	--	2639047.30	647274.60	2000	R31-001F(11132018) 2000	11/13/2018	2.91		0.85	J	16.6		1540		53600	
R31-002F	R31	11/13/2018	R	Primary	--	2639025.35	647279.08	2000	R31-002F(11132018) 2000	11/13/2018	4.25		< 4.00		30.0		1030		98300	
	R31	11/13/2018	R	Primary	--	2639025.35	647279.08	250	R31-002F(11132018) 250	11/13/2018	4.67		< 4.00		34.4		1110		103000	
R31-003F	R31	11/13/2018	D	Primary	--	2639007.99	647263.96	2000	R31-003F(11132018) 2000	11/13/2018	5.07		< 4.00		19.4		1000		55000	
R31-004F	R31	11/13/2018	L	Primary	--	2639033.93	647260.06	2000	R31-004F(11132018) 2000	11/13/2018	3.10		< 4.00		46.5		1130		156000	
R31-005F	R31	11/16/2018	F	Primary	--	2639025.58	647269.23	2000	R31-005F(11162018) 2000	11/16/2018	3.79		< 4.00		48.4		863		118000	
	R31	11/16/2018	F	Primary	--	2639025.58	647269.23	250	R31-005F(11162018) 250	11/16/2018	4.82		< 4.00		69.2		1200		151000	
R31-006F	R31	11/13/2018	F	Field Duplicate	R31-005F	2639025.58	647269.23	2000	R31-006F(11132018) 2000	11/13/2018	4.36		< 4.00		41.7		821		106000	
R32-001F	R32	11/13/2018	U	Primary	--	2638972.96	647295.30	2000	R32-001F(11132018) 2000	11/13/2018	3.34		1.95	J	17.4		869		49600	
R32-002F	R32	11/15/2018	R	Primary	--	2638948.04	647300.84	2000	R32-002F(11152018) 2000	11/15/2018	3.30		0.94	J	18.4		822		49800	
	R32	11/15/2018	R	Primary	--	2638948.04	647300.84	250	R32-002F(11152018) 250	11/15/2018	4.01		0.99	J	19.9		973		49200	
R32-003F	R32	11/15/2018	D	Primary	--	2638929.05	647284.13	2000	R32-003F(11152018) 2000	11/15/2018	2.66		1.41	J	9.74		763		33600	
R32-004F	R32	11/13/2018	L	Primary	--	2638950.77	647278.01	2000	R32-004F(11132018) 2000	11/13/2018	2.80		1.54	J	11.2		740		41000	
R32-005F	R32	11/19/2018	F	Primary	--	2638950.16	647288.73	2000	R32-005F(11192018) 2000	11/19/2018	3.72		1.71		16.0		1030		46600	
	R32	11/19/2018	F	Primary	--	2638950.16	647288.73	250	R32-005F(11192018) 250	11/19/2018	3.74		1.66		17.3		1160		45100	
R33-001F	R33	11/16/2018	U	Primary	--	2638522.55	648168.08	2000	R33-001F(11162018) 2000	11/16/2018	9.02		1.05	J	9.58		445		60700	
R33-002F	R33	11/16/2018	R	Primary	--	2638507.24	648167.75	2000	R33-002F(11162018) 2000	11/16/2018	3.84		2.98	J	9.19		522		42500	
R33-003F	R33	11/16/2018	D	Primary	--	2638508.87	648103.86	2000	R33-003F(11162018) 2000	11/16/2018	5.12		2.88	J	8.72		539		45000	
	R33	11/16/2018	D	Primary	--	2638508.87	648103.86	250	R33-003F(11162018) 250	11/16/2018	8.74		3.33	J	10.1		697		64400	
R33-004F	R33	11/16/2018	L	Primary	--	2638524.78	648110.93	2000	R33-004F(11162018) 2000	11/16/2018	10.8		1.05	J	9.97		404		53800	
R33-005F	R33	11/16/2018	L	Field Duplicate	R33-004F	2638524.78	648110.93	2000	R33-005F(11162018) 2000	11/16/2018	11.1		0.77	J	9.68		457		53200	
R33-006F	R33	12/20/2018	F	Primary	--	2638503.37	648140.35	2000	R33-006F(12202018) 2000	12/20/2018	3.67		6.81		7.16		333		39300	
R34-001F	R34	11/14/2018	U	Primary	--	2638282.08	647178.59	2000	R34-001F(11142018) 2000	11/14/2018	6.60		4.08		19.1		1860		56000	
	R34	11/14/2018	U	Primary	--	2638282.08	647178.59	250	R34-001F(11142018) 250	11/14/2018	9.32		3.20	J	19.8		2070		57400	
R34-002F	R34	11/19/2018	R	Primary	--	2638256.61	647187.82	2000	R34-002F(11192018) 2000	11/19/2018	7.35		0.98	J	16.5		569		65600	
R34-003F	R34	11/14/2018	D	Primary	--	2638238.09	647180.03	2000	R34-003F(11142018) 2000	11/14/2018	5.85		4.47		13.9		743		54200	
R34-004F	R34	11/14/2018	L	Primary	--	2638262.32	647166.84	2000	R34-004F(11142018) 2000	11/14/2018	7.38		2.92	J	16.7		553		55500	
	R34	11/14/2018	L	Primary	--	2638262.32	647166.84	250	R34-004F(11142018) 250	11/14/2018	10.4		2.76	J	16.4		654		61300	
R34-005F	R34	1/14/2019	F	Primary	--	2638259.99	647178.09	2000	R34-005F(01142019) 2000	01/14/2019	5.83		4.47		114		614		78300	
R35-003F	R35	11/15/2018	D	Primary	--	2638244.21	647211.88	2000	R35-003F(11152018) 2000	11/15/2018	7.44		3.34	J	26.2		3540		56000	
R35-007F	R35	11/15/2018	L	Primary	--	2638256.02	647203.26	2000	R35-007F(11152018) 2000	11/15/2018	3.57		3.09	J	13.3		1580		36100	
R35-008F	R35	11/19/2018	R	Primary	--	2638271.71	647233.31	2000	R35-008F(11192018) 2000	11/19/2018	5.63		6.29		18.5		4860		42500	
	R35	11/19/2018	R	Primary	--	2638271.71	647233.31	250	R35-008F(11192018) 250	11/19/2018	6.56		5.91		20.1		5430		41400	
R35-010F	R35	11/19/2018	U	Primary	--	2638317.49	647211.42	2000	R35-010F(11192018) 2000	11/19/2018	8.01		6.38		19.6		4310		52500	
R35-011F	R35	11/19/2018	L	Field Duplicate	R35-007F	2638256.02	647203.26	2000	R35-011F(11192018) 2000	11/19/2018	3.70		3.40	J	14.6		1950		38100	
R35-012F	R35	1/14/2019	F	Primary	--	2638273.77	647212.40	2000	R35-012F(01142019) 2000	01/14/2019	10.6		2.04		76.7		1230		72400	
R36-001F	R36	11/16/2018	U	Primary	--	2638031.60	647177.68	2000	R36-001F(11162018) 2000	11/16/2018	4.09		1.49	J	21.6		1750		52400	
	R36	11/16/2018	U	Primary	--	2638031.60	647177.68	250	R36-001F(11162018) 250	11/16/2018	4.39		1.15	J	21.6		1930		46800	
R36-002F	R36	11/16/2018	R	Primary	--	2638016.83	647185.36	2000	R36-002F(11162018) 2000	11/16/2018	3.17		2.15	J	22.3		965		43000	
R36-003F	R36	11/16/2018	D	Primary	--	2638005.01	647174.01	2000	R36-003F(11162018) 2000	11/16/2018	3.92		2.62	J	16.1		1490		58400	
R36-004F	R36	11/16/2018	L	Primary	--	2638020.59	647164.96	2000	R36-004F(11162018) 2000	11/16/2018	5.83		1.68	J	23.2		2460		52800	
	R36	11/16/2018	L	Primary	--	2638020.59	647164.96	250	R36-004F(11162018) 250	11/16/2018	6.44		1.73	J	24.5		2670		52200	
R36-005F	R36	1/14/2019	F	Primary	--	2638019.51	647174.56	250	R36-005(01142019) 250	01/14/2019	2.5		0.61	J	44		991		30300	
	R36	1/14/2019	F	Primary	--	2638019.51	647174.56	2000	R36-005F(01142019) 2000	01/14/2019	2.6		0.84		61.6		1110		33100	
R37-001F	R37	11/16/2018	U	Primary	--	2637673.91	647238.77	2000	R37-001F(11162018) 2000	11/16/2018	2.47		0.67	J	36.9		447		50400	
R37-002F	R37	11/16/2018	R	Primary	--	2637558.25	647297.79	2000	R37-002F(11162018) 2000	11/16/2018	6.64		0.88	J	15.7		1400		48300	
R37-004F	R37	11/16/2018	D	Primary	--	2637431.69	647259.07	2000	R37-004F(11162018) 2000	11/16/2018	6.82		1.51	J	14.2		1220		56700	
	R37	11/16/2018	D	Primary	--	2637431.69	647259.07	250	R37-004F(11162018) 250	11/16/2018	5.93		1.57	J	15.4		1360		63100	
R37-005F	R37	11/16/2018	L	Primary	--	2637562.45	647201.54	2000	R37-005F(11162018) 2000	11/16/2018	6.04		1.84	J	30.8		2740		48500	
R37-006F	R37	11/16/2018	R, D	Primary	--	2637448.14	647323.81	2000	R37-006F(11162018) 2000	11/16/2018	3.49		2.06	J	12.1		1840		31000	
R37-007F	R37	11/16/2018	L	Field Duplicate	R37-005F	2637562.45	647201.54	2000	R37-007F(11162018) 2000	11/16/2018	6.10		1.66	J	31.3		2550		50400	
	R37	11/16/2018	L	Field Duplicate	R37-005F	2637562.45	647201.54	250	R37-007F(11162018) 250	11/16/2018	7.86		1.77	J	35.5		3030		52100	
R37-008F	R37	12/11/2018	F	Primary	--	2637516.58	647281.46	2000	R37-008F(12112018) 2000	12/11/2018	2.90		1.08		12.5		453		32900	
R37-009F	R37	12/14/2018	F	Primary	--	2637587.96	647241.50	2000	R37-009F(12142018) 2000	12/14/2018	5.41		2.01		17.4		2040		31700	
	R37	12/14/2018	F	Primary	--	2637587.96	647241.50	250	R37-009F(12142018) 250	12/14/2018	6.58		2.73		56.8		3080		40400	
R38-001F	R38	11/19/2018	U	Primary	--	2637231.62	647296.99	2000	R38-001F(11192018) 2000	11/19/2018	3.98		5.79		10.7		661		42900	
R38-002F	R38	11/19/2018	R	Primary	--	2637190.25	647316.85	2000	R38-002F(11192018) 2000	11/19/2018	7.15		2.89	J	12.9		685		68100	
R38-003F	R38	11/19/2018	D	Primary	--	2637059.08	647345.18	2000	R38-003F(11192018) 2000	11/19/2018	5.50		3.73	J	12.2		672		71200	
	R38	11/19/2018	D	Primary	--	2637059.08	647345.18	250	R38-003F(11192018) 250	11/19/2018	7.90		3.98	J	15.0		897		92900	
R38-004F	R38	11/19/2018	L	Primary	--	2637162.27	647316.44	2000	R38-004F(11192018) 2000	11/19/2018	6.06		3.65	J	12.7		630		59400	
R38-005F	R38	11/19/2018	U	Field Duplicate	R38-001F	2637231.62	647296.99	2000	R38-005F(11192018) 2000	11/19/2018	3.76		5.35		10.9		587		41100	
R38-006F	R38	12/3/2018	F	Primary	--	2637163.08	647319.32	2000	R38-006F(12032018) 2000	12/03/2018	5.98		1.14		13.7		466		66700	
R40-001F	R40	11/19/2018	U	Primary	--	2637298.88	647267.47	2000	R40-001F(11192018) 2000	11/19/2018	6.77		4.34		13.0		1140		57500	
	R40	11/19/2018	U	Primary	--	2637298.88	647267.47	250	R40-001F(11192018) 250	11/19/2018	8.43		3.90	J	12.7		849		73000	
R40-002F	R40	11/19/2018	R	Primary	--	2637285.45	647300.84	2000	R40-002F(11192018) 2000	11/19/2018	2.96		3.89	J	9.84		476		40100	
R04-001F	R04	12/10/2018	U	Primary	--	2632159.02	631565.00	2000	R4-001F(12102018) 2000	12/10/2018	2.47	J	1.57	J	10.8		830		25100	
R04-005F	R04	12/10/2018	L,D	Field Duplicate	R04-003F	2632259.66	631460.54	2000	R4-005F(12102018) 2000	12/10/2018	2.82		0.58	J	14.5		384		33600	
R404-001F	R404	5/2/2019	F	Primary	--	0.00	0.00	2000	R404-001F(05022019) 2000	05/02/2019	2.43		1.22		16.2		491		34800	
R41-001F	R41	11/19/2018	U	Primary	--	2637121.76	647375.49	2000	R41-001F(11192018) 2000	11/19/2018	3.57		3.47	J	13.0		602		51400	
R41-002F	R41	11/19/2018	R	Primary	--	2637009.06	647411.15	2000	R41-002F(11192018) 2000	11/19/2018	4.00		3.38	J	16.7		651		66400	
R41-003F	R41	11/19/2018	R,D	Primary	--	2636919.38	647412.29	2000	R41-003F(11192018) 2000	11/19/2018	2.83		3.92	J	11.1		461		40400	
	R41	11/19/2018	R,D	Primary	--	2636919.38	647412.29	250	R41-003F(11192018) 250	11/19/2018	3.67		3.53	J	10.1		489		50500	
R41-004F	R41	11/19/2018	D	Primary	--	2636884.28	647377.65	2000	R41-004F(11192018) 2000	11/19/2018	3.59		4.52		9.71		546		39600	
R41-005F	R41	11/19/2018	L	Primary	--	2636999.53	647395.69	2000	R41-005F(11192018) 2000	11/19/2018	3.28		1.98	J	18.6		635		61900	
R41-006F	R41	11/19/2018	R	Field Duplicate	R41-002F	2637009.06	647411.15	2000	R41-006F(11192018) 2000	11/19/2018	4.03		3.24	J	16.3		619		65200	
	R41	11/19/2018	R	Field Duplicate	R41-002F	2637009.06	647411.15	250	R41-006F(11192018) 250	11/19/2018	5.56		3.36	J	20.3		877		93500	
R41-007F	R41	12/3/2018	F	Primary	--	2637011.66	647402.35	2000	R41-007F(12032018) 2000	12/03/2018	3.15		1.56		12.4		847		64000	
	R41	12/3/2018	F	Primary	--	2637011.66	647402.35	250	R41-007F(12032018) 250	12/03/2018	3.89		2.38		15.3		1020		74000	
R42-001F	R42	11/20/2018	U	Primary	--	2636138.14	646317.22	2000	R42-001F(11202018) 2000	11/20/2018	4.32		5.32		11.8		632		39100	
R42-002F	R42	11/20/2018	R	Primary	--	2636090.83	646300.36	2000	R42-002F(11202018) 2000	11/20/2018	3.85		3.78	J	7.91		475		33300	
R42-003F	R42	11/20/2018	D	Primary	--	2636061.91	646286.39	2000	R42-003F(11202018) 2000	11/20/2018	5.61		1.69	J	12.3		628		38600	
	R42	11/20/2018	D	Primary	--	2636061.91	646286.39	250	R42-003F(11202018) 250	11/20/2018	7.16		1.27	J	14.5		690		51600	
R42-004F	R42	11/20/2018	L	Primary	--	2636137.08	646287.17	2000	R42-004F(11202018) 2000	11/20/2018	4.53		6.42		7.86		935		34100	
R42-005F	R42	12/3/2018	F	Primary	--	2636105.30	646294.27	2000	R42-005F(12032018) 2000	12/03/2018	5.33		1.03		9.74		405		48400	
R44-001F	R44	11/28/2018	U	Primary	--	2634139.55	645841.66	250	R44-001F(11282018) 250	11/28/2018	2.18		4		3.59	J	79.1		12600	
R44-002F	R44	11/28/2018	R	Primary	--	2634126.77	645837.58	250	R44-002F(11282018) 250	11/28/2018	5.26		1.24	J	29.4		453		78200	
R44-003F	R44	11/28/2018	D	Primary	--	2634107.78	645817.07	2000	R44-003F(11282018) 2000	11/28/2018	1.93		1.43	J	11.4		357		26600	
	R44	11/28/2018	D	Primary	--	2634107.78	645817.07	250	R44-003F(11282018) 250	11/28/2018	1.84		0.59	J	6.25		176		17300	

Appendix A. Analytical Data
Table A-1. Chino Excavation Data
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Analyte	Arsenic		Cadmium		Chromium		Copper		Iron	
										CAS	7440-38-2		7440-43-9		7440-47-3		7440-50-8		7439-89-6	
										Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
										Sample Date	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R44-004F	R44	11/28/2018	L	Primary	--	2634131.59	645823.27	250	R44-004F(11282018) 250	11/28/2018	3.56		1.44	J	9.21		408		28000	
R44-005F	R44	11/28/2018	D	Field Duplicate	R44-003F	2634107.78	645817.07	250	R44-005F(11282018) 250	11/28/2018	2.05		0.81	J	7.35		220		21700	
R44-006F	R44	5/7/2019	F	Primary	--	2634127.12	645829.13	2000	R44-006F(05072019) 2000	05/07/2019	3.44		0.62		14.6		283		33900	
R46-001F	R46	11/29/2018	U	Primary	--	2633627.46	645251.53	250	R46-001F(11292018) 250	11/29/2018	5.76		1.44	J	13.5		348		50400	
R46-002F	R46	11/29/2018	R	Primary	--	2633511.78	645219.13	2000	R46-002F(11292018) 2000	11/29/2018	2.73		4.8		7.42		197		33800	
	R46	11/29/2018	R	Primary	--	2633511.78	645219.13	250	R46-002F(11292018) 250	11/29/2018	2.26		1.87	J	2.34	J	66.6		22300	
R46-003F	R46	11/29/2018	D	Primary	--	2633454.67	645199.13	250	R46-003F(11292018) 250	11/29/2018	4.18		1.88	J	6.92		252		28900	
R46-004F	R46	11/29/2018	L	Primary	--	2633570.65	645211.89	250	R46-004F(11292018) 250	11/29/2018	3.58		3.02	J	12.5		299	J	38300	
R46-005F	R46	11/29/2018	L	Field Duplicate	R46-004F	2633570.65	645211.89	2000	R46-005F(11292018) 2000	11/29/2018	4.05		3.36	J	13.1		394		53700	
	R46	11/29/2018	L	Field Duplicate	R46-004F	2633570.65	645211.89	250	R46-005F(11292018) 250	11/29/2018	3.07		1.13	J	5.68	J	147	J	30200	
R46-006F	R46	5/9/2019	F	Primary	--	2633539.03	645215.47	2000	R46-006F(05092019) 2000	05/09/2019	2.61		1.14		14.8		517		31000	
R47-001F	R47	12/1/2018	U	Primary	--	2632822.01	644615.48	250	R47-001F(12012018) 250	12/01/2018	5.72		4.55		12.8		637		47200	
R47-002F	R47	12/1/2018	R	Primary	--	2632773.60	644420.84	250	R47-002F(12012018) 250	12/01/2018	5.29		3.47	J	13.6		494		46800	
R47-003F	R47	12/1/2018	D	Primary	--	2632726.45	644369.79	2000	R47-003F(12012018) 2000	12/01/2018	4.62		0.95	J	31.1		1160		178000	
	R47	12/1/2018	D	Primary	--	2632726.45	644369.79	250	R47-003F(12012018) 250	12/01/2018	4.08		0.75	J	33.3		1280		193000	
R47-004F	R47	12/1/2018	L	Primary	--	2632779.42	644397.42	250	R47-004F(12012018) 250	12/01/2018	5.58		1.51	J	16.4		947		85100	
R47-005F	R47	12/1/2018	R	Field Duplicate	R47-002F	2632773.60	644420.84	250	R47-005F(12012018) 250	12/01/2018	4.72		3.32	J	14.8		421		40500	
R47-006F	R47	5/8/2019	F	Primary	--	2632797.96	644463.16	2000	R47-006F(05082019) 2000	05/08/2019	0.59				19.8		460		69500	
	R47	5/8/2019	F	Primary	--	2632797.96	644463.16	250	R47-006F(05082019) 250	05/08/2019	10.3				24.5		631		122000	
R47-007F	R47	5/8/2019	F	Field Duplicate	R47-006F	2632797.96	644463.16	2000	R47-007F(05082019) 2000	05/08/2019	6.85		0.91		19.8		583		80900	
R48-001F	R48	12/1/2018	U	Primary	--	2632640.99	644343.43	2000	R48-001F(12012018) 2000	12/01/2018	9.05		3.63	J	17.2		763		67500	
	R48	12/1/2018	U	Primary	--	2632640.99	644343.43	250	R48-001F(12012018) 250	12/01/2018	8.12		2.96	J	18.1		590		57300	
R48-002F	R48	12/1/2018	R	Primary	--	2632555.45	644332.87	250	R48-002F(12012018) 250	12/01/2018	4.49		1.37	J	18.9		480		52800	
R48-003F	R48	12/1/2018	D	Primary	--	2632551.51	644278.28	250	R48-003F(12012018) 250	12/01/2018	3.27		2.19	J	13.7		275		37700	
R48-004F	R48	12/1/2018	L	Primary	--	2632610.16	644311.81	2000	R48-004F(12012018) 2000	12/01/2018	3.99		2.59	J	15		436		47600	
	R48	12/1/2018	L	Primary	--	2632610.16	644311.81	250	R48-004F(12012018) 250	12/01/2018	3.73		3.11	J	13.1		326		43700	
R48-005F	R48	5/7/2019	F	Primary	--	2632567.10	644327.80	2000	R48-005F(05072019) 2000	05/07/2019	8.82		0.9		24.4		537		64500	
R50-001F	R50	12/1/2018	U	Primary	--	2632595.69	643576.37	250	R50-001F(12012018) 250	12/01/2018	1.88		0.82	J	11		197		64500	
R50-002F	R50	12/1/2018	R	Primary	--	2632591.53	643556.28	250	R50-002F(12012018) 250	12/01/2018	3.64		3.22	J	12.3		394		39200	
R50-003F	R50	12/1/2018	D	Primary	--	2632593.40	643537.44	2000	R50-003F(12012018) 2000	12/01/2018	3.79		3.34	J	14		432		41300	
	R50	12/1/2018	D	Primary	--	2632593.40	643537.44	250	R50-003F(12012018) 250	12/01/2018	3.71		3.11	J	13.4		422		37500	
R50-004F	R50	12/1/2018	L	Primary	--	2632598.20	643561.09	250	R50-004F(12012018) 250	12/01/2018	3.84		2.42	J	10.9		331		35300	
R50-005F	R50	3/30/2019	U	Primary	--	2632594.89	643660.84	2000	R50-005F(03302019) 2000	03/30/2019	4.46		0.97		16.5		401		70700	
R50-006F	R50	5/6/2019	F	Primary	--	2632594.51	643558.43	2000	R50-006F(05062019) 2000	05/06/2019	1.51		0.78		10		128		31100	
	R50	5/6/2019	F	Primary	--	2632594.51	643558.43	250	R50-006F(05062019) 250	05/06/2019	0.81		1.59		10.4		160		27700	
R51-001F	R51	12/1/2018	U	Primary	--	2632578.49	643453.29	250	R51-001F(12012018) 250	12/01/2018	2.86		2.82	J	12.1		296		34700	
R51-002F	R51	12/1/2018	R	Primary	--	2632575.51	643428.22	2000	R51-002F(12012018) 2000	12/01/2018	4.13		3.59	J	13.8		473		42800	
	R51	12/1/2018	R	Primary	--	2632575.51	643428.22	250	R51-002F(12012018) 250	12/01/2018	3.73		3.28	J	13.3		413		38200	
R51-003F	R51	12/1/2018	D	Primary	--	2632580.39	643405.90	2000	R51-003F(12012018) 2000	12/01/2018	9.5		3.29	J	13.5		627		78800	
	R51	12/1/2018	D	Primary	--	2632580.39	643405.90	250	R51-003F(12012018) 250	12/01/2018	6.99		2.26	J	11.2		536		54600	
R51-004F	R51	12/1/2018	L	Primary	--	2632582.37	643428.69	250	R51-004F(12012018) 250	12/01/2018	6.22		1.75	J	11					
R51-005F	R51	12/1/2018	L	Field Duplicate	R51-004F	2632582.37	643428.69	250	R51-005F(12012018) 250	12/01/2018	4.64		2.63	J	11.6		508		48700	
R51-006F	R51	5/6/2019	F	Primary	--	2632578.24	643428.69	2000	R51-006F(05062019) 2000	05/06/2019	6.65		0.75		31		453		93500	
R52-001F	R52	12/1/2018	U	Primary	--	2632595.37	643088.49	2000	R52-001F(12012018) 2000	12/01/2018	9.51		1.45	J	16		632		81200	
	R52	12/1/2018	U	Primary	--	2632595.37	643088.49	250	R52-001F(12012018) 250	12/01/2018	6.23		1.2	J	13.1		487		58800	
R52-002F	R52	12/1/2018	R	Primary	--	2632573.81	643001.25	250	R52-002F(12012018) 250	12/01/2018	3.53		3.29	J	11.9		447		45000	
R52-003F	R52	12/1/2018	D	Primary	--	2632610.38	642805.27	250	R52-003F(12012018) 250	12/01/2018	6.22		0.59	J	17.1		415		55400	
R52-004F	R52	12/18/2018	L	Primary	--	2632617.54	642974.67	2000	R52-004F(12182018) 2000	12/18/2018	6.11		1.06	J	17.0		390		56500	
	R52	12/18/2018	L	Primary	--	2632617.54	642974.67	250	R52-004F(12182018) 250	12/18/2018	8.90		1.28	J	17.9		454		72900	
R52-005F	R52	12/1/2018	R	Field Duplicate	R52-002F	2632573.81	643001.25	2000	R52-005F(12012018) 2000	12/01/2018	8.85		2.94	J	14.3		453		51500	
	R52	12/1/2018	R	Field Duplicate	R52-002F	2632573.81	643001.25	250	R52-005F(12012018) 250	12/01/2018	3.92		2.18	J	11.6		329		34500	
R52-006F	R52	5/3/2019	F	Primary	--	2632617.00	642924.36	2000	R52-006F(05032019) 2000	05/03/2019	5.42		0.69		20.9		585		80300	
R52A-001F	R52A	3/30/2019	U	Primary	--	2632592.95	643222.87	2000	R52A-001F(03302019) 2000	03/30/2019	4.79		1.37	J			577		56100	
R52A-002F	R52A	3/30/2019	R	Primary	--	2632585.95	643210.89	2000	R52A-002F(03302019) 2000	03/30/2019	4.39		1.17		17.1		547		55300	
	R52A	3/30/2019	R	Primary	--	2632585.95	643210.89	250	R52A-002F(03302019) 250	03/30/2019	6.39		3.67		15		638		56400	
R52A-003F	R52A	3/30/2019	D	Primary	--	2632597.76	643203.21	2000	R52A-003F(03302019) 2000	03/30/2019	5.97		1.8		17		717		51400	
R52A-004F	R52A	3/30/2019	L	Primary	--	2632613.52	643222.77	2000	R52A-004F(03302019) 2000	03/30/2019	4.52		2.18		14.1		512		45200	
R52A-005F	R52A	3/30/2019	U	Field Duplicate	R52A-001F	2632592.95	643222.87	2000	R52A-005F(03302019) 2000	03/30/2019	4.24		3.25	J	14		484		43200	
	R52A	3/30/2019	U	Field Duplicate	R52A-001F	2632592.95	643222.87	250	R52A-005F(03302019) 250	03/30/2019	5.87		3.68		14.4		624		51800	
R55-001F	R55	12/1/2018	U	Primary	--	2632588.10	642193.31	250	R55-001F(12012018) 250	12/01/2018	4.74		1.97	J	13.3		486		42600	
R55-002F	R55	12/1/2018	R	Primary	--	2632570.48	642143.22	250	R55-002F(12012018) 250	12/01/2018	3.99		1.21	J	12.8		439		34800	
R55-003F	R55	12/1/2018	D	Primary	--	2632594.03	642094.37	2000	R55-003F(12012018) 2000	12/01/2018	11.2		1.86	J	14.3		636		64600	
	R55	12/1/2018	D	Primary	--	2632594.03	642094.37	250	R55-003F(12012018) 250	12/01/2018	8.05		1.74	J	15		576		58500	
R55-004F	R55	12/1/2018	L	Primary	--	2632602.04	642147.68	250	R55-004F(12012018) 250	12/01/2018	9.37		1.98	J	13.2		594		52300	
R55-005F	R55	12/1/2018	D	Field Duplicate	R55-003F	2632594.03	642094.37	250	R55-005F(12012018) 250	12/01/2018	5.94		2.2	J	12.8		514		52900	
R55M-001F	R55M	3/29/2019	U	Primary	--	2632546.99	642206.43	2000	R55M-001F(03292019) 2000	03/29/2019	8.42		4.28		12.8		778		50400	
R55M-002F	R55M	3/29/2019	R	Primary	--	2632540.53	642130.53	2000	R55M-002F(03292019) 2000	03/29/2019	8.19	J	0.5	J	12		498		52600	
R55M-003F	R55M	3/29/2019	D	Primary	--	2632553.74	642074.76	2000	R55M-003F(03292019) 2000	03/29/2019	4.5		2.87		14.8		471		43800	
	R55M	3/29/2019	D	Primary	--	2632553.74	642074.76	250	R55M-003F(03292019) 250	03/29/2019	3.32		1.04		16.4		320		34100	
R55M-004F	R55M	3/29/2019	L	Primary	--	2632555.77	642140.49	2000	R55M-004F(03292019) 2000	03/29/2019	4.23		3.07		13.4		455		44600	
R55M-005F	R55M	3/29/2019	R	Field Duplicate	R55M-002F	2632540.53	642130.53	2000	R55M-005F(03292019) 2000	03/29/2019	4	J	1.86	J	14.8		405		34400	
R55M-006F	R55M	5/21/2019	F	Primary	--	2632549.98	642132.68	2000	R55M-006F(05212019) 2000	05/21/2019	5.6		0.75		24.7		580		78500	
	R55M	5/21/2019	F	Primary	--	2632549.98	642132.68	250	R55M-006F(05212019) 250	05/21/2019	7.23		0.97		30		621		90900	
R55M-007F	R55M	5/21/2019	F	Field Duplicate	R55M-006F	2632549.98	642132.68	2000	R55M-007F(05212019) 2000	05/21/2019	5.66		0.78		28.8		596		90000	
R56-001F	R56	12/3/2018	U	Primary	--	2632572.24	642080.70	2000	R56-001F(12032018) 2000	12/03/2018	6.79		1.44	J	15.2		616		67800	
R56-002F	R56	12/3/2018	R	Primary	--	2632542.28	642020.36	2000	R56-002F(12032018) 2000	12/03/2018	3.55		2.07	J	14.8		321		33500	
	R56	12/3/2018	R	Primary	--	2632542.28	642020.36	250	R56-002F(12032018) 250	12/03/2018	4.19		2.62	J	17.4		422		37900	
R56-003F	R56	12/3/2018	D	Primary	--	2632543.24	641893.42	2000	R56-003F(12032018) 2000	12/03/2018	3.55		1.48	J	12.9		561		33600	
R56-004F	R56	12/3/2018	L	Primary	--	2632584.38	641986.10	2000	R56-004F(12032018) 2000	12/03/2018	6.76		3.17	J	14.8		817		60900	
R56-005F	R56	12/3/2018	L	Field Duplicate	R56-004F	2632584.38	641986.10	2000	R56-005F(12032018) 2000	12/03/2018	6.65		3.02	J	14.9		743		56000	
	R56	12/3/2018	L	Field Duplicate	R56-004F	2632584.38	641986.10	250	R56-005F(12032018) 250	12/03/2018	7.77		3.8	J	17.8		942		62200	
R56-006F	R56	5/21/2019	F	Primary	--	2632563.39	641976.83	2000	R56-006F(05212019) 2000	05/21/2019	7.26		0.69		23.9		462		70800	
R56-007F	R56	5/21/2019	F	Field Duplicate	R56-006F	2632563.39	641976.83	2000	R56-007F(05212019) 2000	05/21/2019	5.99		0.96		21.6		475		64200	
	R56	5/21/2019	F	Field Duplicate	R56-006F	2632563.39	641976.83	250	R56-007F(05212019) 250	05/21/2019	8.3		0.78		26.3		561		77400	
R57-001F	R57	12/3/2018	U	Primary	--	2632625.24	641692.48	2000	R57-001F(12032018) 2000	12/03/2018	4.95		2.50	J	13.6		441		51400	
R57-002F	R57	12/3/2018	R	Primary	--	2632648.15	641514.95	2000	R57-002F(12032018) 2000	12/03/2018	4.86		3.51	J	13.4		477		55600	
R57-003F	R57	12/3/2018	D	Primary	--	2632700.60	641307.82	2000	R57-003F(12032018) 2000	12/03/2018	4.80		2.43	J	13.3		490		52800	
	R57	12/3/2018	D	Primary	--	2632700.60	641307.82	250	R57-003F(12032018) 250	12/03/2018	5.90		2.63	J	15.9		492		75700	
R57-004F	R57	12/3/2018	L	Primary	--	2632667.91	641518.40	2000	R57-004F(12032018) 2000	12/03/2018	4.80		3.43	J	11.9		501		57700	
R58-001F	R58	12/4/2018	U	Primary	--	2632796.30	640035.47	2000	R58-001F(12042018) 2000	12/04/2018	5.09		2.39	J	11.4		684		41300	
R58-002F	R58	12/4/2018	R	Primary	--	2632801.89	639955.59	2000	R58-002F(12042018) 2000	12/04/2018	5.15		1.61	J	11.4		670		39600	
	R58	12/4/2018	R	Primary	--	2632801.89	639955.59	250	R58-002F(12042018) 250	12/04/2018	5.87		2.5	J	16.1		917		52300	
R58-003F	R58	12/4/2018	D	Primary	--	2632815.38	639955.28	2000	R58-003F(12042018) 2000	12/04/2018	5.91		1.82	J	12.7		726		49400	
R58-004F	R58	12/4/2018	L	Primary	--	2632824.81	640024.40	2000	R58-004F(12042018) 2000	12/04/2018	3.54		< 4.00		10.4		394		28700	

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Analyte	Arsenic		Cadmium		Chromium		Copper		Iron	
										CAS	7440-38-2		7440-43-9		7440-47-3		7440-50-8		7439-89-6	
										Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
										Sample Date	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R58-005F	R58	5/1/2019	F	Primary	--	0.00	0.00	2000	R58-005F(05012019) 2000	05/01/2019	3.71		3.19		11.2		1090		51100	
	R58	5/1/2019	F	Primary	--	0.00	0.00	250	R58-005F(05012019) 250	05/01/2019	3.46		3.94		13.7		1560		72900	
R59-001F	R59	3/25/2019	U	Primary	--	2631803.85	639023.73	2000	R59-001F(03252019) 2000	03/25/2019			2.83		13.4		548		38200	
	R59	3/25/2019	U	Primary	--	2631803.85	639023.73	250	R59-001F(03252019) 250	03/25/2019	4.8	J	3.26		15		519		46600	
R59-002F	R59	3/25/2019	R	Primary	--	2631704.07	638960.96	2000	R59-002F(03252019) 2000	03/25/2019	7.81		6.73		11.7		1040		33500	
R59-003F	R59	3/25/2019	D	Primary	--	2631617.23	638891.17	2000	R59-003F(03252019) 2000	03/25/2019	5.22		3.36		13		575		38700	
R6/71-002F	R6/71	3/4/2019	F	Primary	--	2632045.26	631734.06	2000	R6/71-002F(03042019) 2000	03/04/2019	2.61		2.09		11.5		1040		35300	
R6/71-003F	R6/71	3/4/2019	F	Field Duplicate	R6/71-002F	2632045.26	631734.06	2000	R6/71-003F(03042019) 2000	03/04/2019	3.46		2.04		12.3		866		35700	
R6/71-004F	R6/71	3/4/2019	F	Primary	--	2632039.94	631801.55	2000	R6/71-004F(03042019) 2000	03/04/2019	3.57		2.05		13		1520		38000	
	R6/71	3/4/2019	F	Primary	--	2632039.94	631801.55	250	R6/71-004F(03042019) 250	03/04/2019	5.84		2.67		15.5		1000		50700	
R6/71-005F	R6/71	3/4/2019	F	Primary	--	2632073.12	632032.95	2000	R6/71-005F(03042019) 2000	03/04/2019	2.62		0.56		13.6		294		52100	
R6/71-006F	R6/71	3/4/2019	F	Primary	--	2632090.88	632095.24	2000	R6/71-006F(03042019) 2000	03/04/2019	1.76		0.53		8.12		102		23800	
R6/71-007F	R6/71	3/4/2019	F	Field Duplicate	R6/71-006F	2632090.88	632095.24	2000	R6/71-007F(03042019) 2000	03/04/2019	1.67		0.45		7.98		123		25500	
	R6/71	3/4/2019	F	Field Duplicate	R6/71-006F	2632090.88	632095.24	250	R6/71-007F(03042019) 250	03/04/2019	1.82		0.56		13.4		152		31200	
R6/71-008F	R6/71	3/12/2019	D	Primary	--	2632073.69	631440.37	2000	R6/71-008F(03122019) 2000	03/12/2019	5.89		1.84		16.8		745		53000	
R6/71-009F	R6/71	3/12/2019	U	Primary	--	2632030.83	631984.61	2000	R6/71-009F(03122019) 2000	03/12/2019	4.5		2.05		13.8		494		42000	
R60-001F	R60	12/4/2018	U	Primary	--	2631847.72	638946.24	2000	R60-001F(12042018) 2000	12/04/2018	3.13		2.75	J	12.4		349	J	36400	
	R60	12/4/2018	U	Primary	--	2631847.72	638946.24	250	R60-001F(12042018) 250	12/04/2018	3.82		2.64	J	14.8		394		49500	
R60-002F	R60	12/4/2018	D	Primary	--	2631775.81	638899.69	2000	R60-002F(12042018) 2000	12/04/2018	3.50		3.08	J	11.5		415		36600	
R60-003F	R60	3/27/2019	F	Primary	--	2631783.02	638903.44	2000	R60-003F(03272019) 2000	03/27/2019	6.15		2.89		15.2		734		39800	
	R60	3/27/2019	F	Primary	--	2631783.02	638903.44	250	R60-003F(03272019) 250	03/27/2019	6.45		1.73		27.1		754		86900	
R06-001F	R06	12/10/2018	U	Primary	--	2632245.29	632564.42	2000	R6-001F(12102018) 2000	12/10/2018	2.86		2.11	J	11.8		693		29300	
	R06	12/10/2018	U	Primary	--	2632245.29	632564.42	250	R6-001F(12102018) 250	12/10/2018	3.14		1.81	J	13.9		732		33000	
R6-002F	R06	12/10/2018	D	Primary	--	2632133.43	632026.80	2000	R6-002F(12102018) 2000	12/10/2018	4.69		2.69	J	14.5		979		38700	
R6-003F	R06	12/10/2018	L,D	Primary	--	2632175.01	632213.42	2000	R6-003F(12102018) 2000	12/10/2018	4.96		1.50	J	7.40		489		24500	
R6-004F	R06	12/10/2018	L,U	Primary	--	2632228.36	632474.38	2000	R6-004F(12102018) 2000	12/10/2018	3.27		2.67	J	12.5		639		34100	
	R06	12/10/2018	L,U	Primary	--	2632228.36	632474.38	250	R6-004F(12102018) 250	12/10/2018	3.67		3.58	J	14.2		699		35800	
R61-001F	R61	3/12/2019	R, U	Primary	--	2631469.99	638769.53	2000	R61-001F(03122019) 2000	03/12/2019	4.61		3.09		15.7		883		35600	
R61-002F	R61	3/12/2019	R, D	Primary	--	2631342.78	638607.07	2000	R61-002F(03122019) 2000	03/12/2019	4		5.02		23.2		809		55300	
R61-003F	R61	3/28/2019	F	Primary	--	2631451.40	638722.06	2000	R61-003F(03282019) 2000	03/28/2019	6.8		2.37		15.1		602		48200	
R62-004F	R62	12/5/2018	L	Primary	--	2631236.96	638157.71	2000	R62-004F(12052018) 2000	12/05/2018	6.31		0.75	J	28.6		666		64800	
R62-005F	R62	3/28/2019	F	Primary	--	2631235.21	638239.13	2000	R62-005F(03282019) 2000	03/28/2019	5		1.72		16.5		635		70900	
R62-006F	R62	3/28/2019	F	Primary	--	2631218.17	638153.56	2000	R62-006F(03282019) 2000	03/28/2019	3.79		0.44		13.2		422		48400	
	R62	3/28/2019	F	Primary	--	2631218.17	638153.56	250	R62-006F(03282019) 250	03/28/2019	5.82		0.79		22		547		93800	
R62-007F	R62	3/28/2019	F	Primary	--	2631133.75	638127.48	2000	R62-007F(03282019) 2000	03/28/2019	2.46		0.52		14.9		400		44500	
R62-008F	R62	3/28/2019	F	Primary	--	2631057.88	637988.98	2000	R62-008F(03282019) 2000	03/28/2019	3.98		0.34		18.4		369		47100	
R63-001F	R63	12/5/2018	U	Primary	--	2630967.20	637512.15	2000	R63-001F(12052018) 2000	12/05/2018	3.26		3.54	J	16.3		491		45900	
	R63	12/5/2018	U	Primary	--	2630967.20	637512.15	250	R63-001F(12052018) 250	12/05/2018	3.81		3.52	J	15.3		550		45600	
R63-002F	R63	12/5/2018	R	Primary	--	2630900.08	637474.76	2000	R63-002F(12052018) 2000	12/05/2018	3.76		3.38	J	15.0		428		38000	
R63-003F	R63	12/5/2018	D	Primary	--	2630929.51	637324.18	2000	R63-003F(12052018) 2000	12/05/2018	3.70		2.26	J	13.6		323		36700	
R63-004F	R63	12/5/2018	L	Primary	--	2630959.05	637329.53	2000	R63-004F(12052018) 2000	12/05/2018	5.54		5.42		18.4		489		56500	
	R63	12/5/2018	L	Primary	--	2630959.05	637329.53	250	R63-004F(12052018) 250	12/05/2018	7.84		1.26	J	18.2		734		91400	
R63-005F	R63	3/25/2019	F	Primary	--	2630920.35	637513.01	2000	R63-005F(03252019) 2000	03/25/2019	8.44		0.33		15.3		513		74500	
R63-006F	R63	3/25/2019	F	Primary	--	2630938.37	637345.22	2000	R63-006F(03252019) 2000	03/25/2019	3.1		0.21		14.6		295		59800	
R64-001F	R64	3/20/2019	R	Primary	--	2630828.13	637474.00	2000	R64-001F(03202019) 2000	03/20/2019			2.12		13		418		38700	
	R64	3/20/2019	R	Primary	--	2630828.13	637474.00	250	R64-001F(03202019) 250	03/20/2019	5.14		2.26		14.2		463		49400	
R64-002F	R64	3/21/2019	F	Primary	--	2630828.26	637513.53	2000	R64-002F(03212019) 2000	03/21/2019	4.98		0.31		20.1		455		66200	
R65-001F	R65	3/20/2019	U	Primary	--	2631084.22	636844.43	2000	R65-001F(03202019) 2000	03/20/2019	3.33		2.53		14.2		405		37800	
R65-002F	R65	3/20/2019	R	Primary	--	2631079.98	636806.22	2000	R65-002F(03202019) 2000	03/20/2019			2.87		13.8		433		37700	
	R65	3/20/2019	R	Primary	--	2631079.98	636806.22	250	R65-002F(03202019) 250	03/20/2019	4.21		2.89		14.9		432		47800	
R65-003F	R65	3/20/2019	D	Primary	--	2631102.04	636765.74	2000	R65-003F(03202019) 2000	03/20/2019	3.69		2.16		12.4		388		38000	
R65-004F	R65	3/26/2019	F	Primary	--	2631106.49	636783.29	2000	R65-004F(03262019) 2000	03/26/2019	5.06		1.86		12.6		485		50200	
	R65	3/26/2019	F	Primary	--	2631106.49	636783.29	250	R65-004F(03262019) 250	03/26/2019	4.32		2.6		14.8		477		47600	
R67-001F	R67	3/18/2019	R	Primary	--	2631783.90	635667.71	2000	R67-001F(03182019) 2000	03/18/2019	5.97		2.42		16		609		39700	
R67-002F	R67	3/16/2019	F	Primary	--	2631811.79	635627.67	2000	R67-002F(03162019) 2000	03/16/2019			0.32		10.6		199		37200	
	R67	3/16/2019	F	Primary	--	2631811.79	635627.67	250	R67-002F(03162019) 250	03/16/2019	3.02		0.35		19		367		78000	
R68-001F	R68	3/18/2019	U	Primary	--	2631812.25	635567.66	2000	R68-001F(03182019) 2000	03/18/2019	7.61		1.08		16		736		44300	
R68-002F	R68	3/18/2019	R	Primary	--	2631782.70	635498.40	2000	R68-002F(03182019) 2000	03/18/2019	9.24		1.56		16.6		755		49300	
R68-003F	R68	3/18/2019	D	Primary	--	2631827.63	635476.56	2000	R68-003F(03182019) 2000	03/18/2019	5.21	J	0.76		19		487		60600	
	R68	3/18/2019	D	Primary	--	2631827.63	635476.56	250	R68-003F(03182019) 250	03/18/2019	6.41		1.1		21.3		540		77600	
R68-004F	R68	3/18/2019	F	Primary	--	2631803.33	635512.04	2000	R68-004F(03182019) 2000	03/18/2019	4.18		3.65		12.1		1240		31800	
R69-001F	R69	3/18/2019	U	Primary	--	2631830.03	635457.94	2000	R69-001F(03182019) 2000	03/18/2019	5.64		0.54		21.3		565		74600	
R69-002F	R69	3/18/2019	R	Primary	--	2631844.51	635411.51	2000	R69-002F(03182019) 2000	03/18/2019	4.81		2.45		14.8		933		47500	
	R69	3/18/2019	R	Primary	--	2631844.51	635411.51	250	R69-002F(03182019) 250	03/18/2019	7.41		3.21		17.3		1100		59200	
R69-003F	R69	3/18/2019	D	Primary	--	2631945.03	635279.75	2000	R69-003F(03182019) 2000	03/18/2019	3.86		0.96		16.7		392		64400	
R69-004F	R69	3/18/2019	F	Primary	--	2631895.40	635358.19	2000	R69-004F(03182019) 2000	03/18/2019	4.69		1.6		14.5		530		50500	
R69-005F	R69	3/18/2019	F	Field Duplicate	R69-004F	2631895.40	635358.19	2000	R69-005F(03182019) 2000	03/18/2019	5.09		1.23		14.7		552		49200	
	R69	3/18/2019	F	Field Duplicate	R69-004F	2631895.40	635358.19	250	R69-005F(03182019) 250	03/18/2019	7.98		1.45		17.6		634		70100	
R75-003F	R75	12/14/2018	D	Primary	--	2633107.05	626939.96	2000	R75-003F(12142018) 2000	12/14/2018	5.30		1.18	J	15.8		524		48300	
	R75	12/14/2018	D	Primary	--	2633107.05	626939.96	250	R75-003F(12142018) 250	12/14/2018	5.36		1.76	J	52.9		618		55700	
R75-004F	R75	12/14/2018	R	Primary	--	2633005.66	627123.35	2000	R75-004F(12142018) 2000	12/14/2018	4.41		1.27	J	13.8		436		52300	
R75M-006F	R75M	1/24/2019	U	Primary	--	2632978.22	627171.72	2000	R75M-006F(01242019) 2000	01/24/2019	5.02		0.65	J	17		436		48300	
R77M-001F	R77M	1/23/2019	D	Primary	--	2633423.21	626283.74	2000	R77M-001F(01232019) 2000	01/23/2019	6.75		0.78	J	18.2		494		47800	
R77M-003F	R77M	1/23/2019	U	Primary	--	2633304.52	626566.22	2000	R77M-003F(01232019) 2000	01/23/2019	4.03		1.56	J	18.2		456		60400	
R77M-004F	R77M	1/23/2019	U	Field Duplicate	R77M-003F	2633304.52	626566.22	2000	R77M-004F(01232019) 2000	01/23/2019	3.69		1.53	J	18.2		445		64000	
R78-001F	R78	12/6/2018	U	Primary	--	2631685.62	636168.90	2000	R78-001F(12062018) 2000	12/06/2018	3.40		1.33	J	10.1		481		30100	
R78-002F	R78	12/6/2018	R	Primary	--	2631681.44	636103.37	2000	R78-002F(12062018) 2000	12/06/2018	3.49		1.06	J	12.1		340		39600	
R78-003F	R78	12/6/2018	D	Primary	--	2631697.67	636053.61	2000	R78-003F(12062018) 2000	12/06/2018	4.36		0.89	J	11.7		481		52500	
	R78	12/6/2018	D	Primary	--	2631697.67	636053.61	250	R78-003F(12062018) 250	12/06/2018	6.71		0.67	J	15.0		585		77800	
R78-004F	R78	12/6/2018	L	Primary	--	2631704.75	636080.80	2000	R78-004F(12062018) 2000	12/06/2018	5.01		0.99	J	12.1		409		39900	
R78-005F	R78	12/6/2018	D	Field Duplicate	R78-003F	2631697.67	636053.61	2000	R78-005F(12062018) 2000	12/06/2018	3.87		0.75	J	12.2		450		42400	
R78-006F	R78	4/5/2019	F	Primary	--	2631681.17	636142.87	2000	R78-006F(04052019) 2000	04/05/2019	5.66		0.33		16.3		527		70400	
R79-001F	R79	11/20/2018	U	Primary	--	2636186.17	646493.82	2000	R79-001F(11202018) 2000	11/20/2018	2.58		1.66	J	9.11		382		29300	
R79-002F	R79	11/20/2018	R	Primary	--	2636121.33	646479.21	2000	R79-002F(11202018) 2000	11/20/2018	1.96		1.77	J	5.96	J	269		22800	
	R79	11/20/2018	R	Primary	--	2636121.33	646479.21	250	R79-002F(11202018) 250	11/20/2018	1.86		1.05	J			266		22200	
R79-003F	R79	11/20/2018	D	Primary	--	2636080.56	646454.49	2000	R79-003F(11202018) 2000	11/20/2018	2.23		2.07	J	7.26		365		25700	
R79-004F	R79	11/20/2018	L	Primary	--	2636139.68	646476.69	2000	R79-004F(11202018) 2000	11/20/2018	2.54		2.70	J			506		25400	
R79-005F	R79	12/3/2018	F	Primary	--	2636166.64	646486.22	2000	R79-005F(12032018) 2000	12/03/2018	2.48		1.31		11.2		295		27900	
	R79	12/3/2018	F	Primary	--	2636166.64	646486.22	250	R79-005F(12032018) 250	12/03/2018	2.65		1.05		15.8		423		35500	
R80-001F	R80	12/3/2018	U	Primary	--	2632948.43	640872.16	2000	R80-001F(12032018) 2000	12/03/2018	5.97		2.16	J			548		52700	
R80-002F	R80	12/3/2018	R	Primary	--	2632951.52	640615.19	2000	R80-002F(12032018) 2000	12/03/2018	10.7		1.28	J	16.2		644		63800	
R80-003F	R80	12/3/2018	R	Primary	--	2632982.72	640431.84	2000	R80-003F(12032018) 2000	12/03/2018	9.46		1.04	J	14.0		680		53200	
	R80	12/3/2018	R	Primary	--	2632982.72	640431.84	250	R80-003F(12032018) 250	12/03/2018	16.4		2.12	J	17.1		976		86800	
R80-004F	R80	12/3/2018	D	Primary	--	2632987.06	640199.43	2000	R80-004F(12032018) 2000	12/03/2018	4.85		1.57	J	13.5		919		40100	

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Analyte	Arsenic		Cadmium		Chromium		Copper		Iron	
										CAS	7440-38-2		7440-43-9		7440-47-3		7440-50-8		7439-89-6	
										Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
										Sample Date	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R80-005F	R80	12/3/2018	U	Field Duplicate	R80-001F	2632948.43	640872.16	2000	R80-005F(12032018) 2000	12/03/2018	6.87		2.11	J	15.6		573		54100	
R80-006F	R80	12/3/2018	L	Primary	--	2633070.64	640672.39	2000	R80-006F(12032018) 2000	12/03/2018	4.51		3.33	J	10.3		805		35600	
	R80	12/3/2018	L	Primary	--	2633070.64	640672.39	250	R80-006F(12032018) 250	12/03/2018	5.91		5.04		14.6		1070		52600	
R80-007F	R80	3/29/2019	D	Primary	--	2632955.52	640062.52	2000	R80-007F(03292019) 2000	03/29/2019	6		1.74		14.2		693		41900	
	R80	3/29/2019	D	Primary	--	2632955.52	640062.52	250	R80-007F(03292019) 250	03/29/2019	10.2		2		17.5		756		55800	
R80-008F	R80	3/29/2019	R,D	Primary	--	2632905.41	640303.20	2000	R80-008F(03292019) 2000	03/29/2019	4.09		2.79		13.7		439		45700	
R80-009F	R80	3/29/2019	R	Primary	--	2632870.76	640517.77	2000	R80-009F(03292019) 2000	03/29/2019	3.23		2.75		13.5		376		43000	
R80-010F	R80	3/29/2019	R,U	Primary	--	2632841.61	640761.61	2000	R80-010F(03292019) 2000	03/29/2019	4.87		2.48		16.6		411		57700	
	R80	3/29/2019	R,U	Primary	--	2632841.61	640761.61	250	R80-010F(03292019) 250	03/29/2019	4.29		3.28		16.4		519		47700	
R80-011F	R80	3/29/2019	U	Primary	--	2632839.32	640969.96	2000	R80-011F(03292019) 2000	03/29/2019	4.9		3.04		14.9		454		59600	
R80-012F	R80	3/29/2019	L,U	Primary	--	2633008.41	640845.01	2000	R80-012F(03292019) 2000	03/29/2019	6.97		1.98		15.7		589		57300	
R80-013F	R80	3/29/2019	L	Primary	--	2632997.53	640560.47	2000	R80-013F(03292019) 2000	03/29/2019	7.69		2.93		13.8		1250		52400	
	R80	3/29/2019	L	Primary	--	2632997.53	640560.47	250	R80-013F(03292019) 250	03/29/2019	10.6		3.85		16.9		1520		64200	
R80-014F	R80	3/29/2019	L,D	Primary	--	2632967.37	640289.51	2000	R80-014F(03292019) 2000	03/29/2019	7.65		1.73		16.1		673		56700	
R80-015F	R80	3/29/2019	L,D	Field Duplicate	R80-014F	2632967.37	640289.51	2000	R80-015F(03292019) 2000	03/29/2019	5.94		1.4		15.6		645		51300	
R80-016F	R80	4/23/2019	F	Primary	--	2632855.45	640892.91	2000	R80-016F(04232019) 2000	04/23/2019	6.28		0.56		20.9		601		69200	
	R80	4/23/2019	F	Primary	--	2632855.45	640892.91	250	R80-016F(04232019) 250	04/23/2019	8.46		2.49		22.8		992		81900	
R80-017F	R80	4/23/2019	F	Primary	--	2632867.75	640817.99	2000	R80-017F(04232019) 2000	04/23/2019	3.68		0.26	J	22.8		454		77900	
R80-018F	R80	4/23/2019	F	Primary	--	2632876.90	640718.28	2000	R80-018F(04232019) 2000	04/23/2019	3.44		0.27	J	14.5		368		68000	
R80-019F	R80	4/24/2019	F	Primary	--	2632882.72	640603.05	2000	R80-019F(04242019) 2000	04/24/2019	2.82		0.16	J	11.7		227		53700	
	R80	4/24/2019	F	Primary	--	2632882.72	640603.05	250	R80-019F(04242019) 250	04/24/2019	3.49		3.15		19.6		1080		86200	
R80-020F	R80	4/24/2019	F	Primary	--	2632936.71	640724.96	2000	R80-020F(04242019) 2000	04/24/2019	3.83		0.13	J	12.6		420		67900	
R80-021F	R80	4/24/2019	F	Primary	--	2632987.34	640824.57	2000	R80-021F(04242019) 2000	04/24/2019	9.76		3.07		18.3		1050		62900	
R80-022F	R80	4/24/2019	F	Primary	--	2633021.03	640759.84	2000	R80-022F(04242019) 2000	04/24/2019	8.11		1.75		19.8		795		59200	
	R80	4/24/2019	F	Primary	--	2633021.03	640759.84	250	R80-022F(04242019) 250	04/24/2019	9.55		2.28		19.1		1200		64900	
R80-023F	R80	4/25/2019	F	Primary	--	2633016.62	640722.56	2000	R80-023F(04252019) 2000	04/25/2019	13.3		0.77		17.9		694		70700	
R80-024F	R80	4/25/2019	F	Primary	--	2632985.11	640591.61	2000	R80-024F(04252019) 2000	04/25/2019	6.69		1.58		15.9		767		64800	
R80-025F	R80	4/25/2019	F	Field Duplicate	R80-024F	2632985.11	640591.61	2000	R80-025F(04252019) 2000	04/25/2019	6.07		2.02		15.1		839		58500	
	R80	4/25/2019	F	Field Duplicate	R80-024F	2632985.11	640591.61	250	R80-025F(04252019) 250	04/25/2019	9.39		3.15		19.6		1080		86200	
R80-026F	R80	4/26/2019	F	Primary	--	2633001.93	640370.52	2000	R80-026F(04262019) 2000	04/26/2019	4.4		10		12		3010		55900	
R81-001F	R81	3/25/2019	U	Primary	--	2631934.30	639120.77	2000	R81-001F(03252019) 2000	03/25/2019	4.21		3.28		14.2		481		41000	
	R81	3/25/2019	U	Primary	--	2631934.30	639120.77	250	R81-001F(03252019) 250	03/25/2019	4.73		3.47		15		480		48900	
R81-002F	R81	3/25/2019	R	Primary	--	2631897.27	639098.86	2000	R81-002F(03252019) 2000	03/25/2019	7.55		4.63		12.9		828		46100	
R81-003F	R81	3/25/2019	D	Primary	--	2631852.07	639069.05	2000	R81-003F(03252019) 2000	03/25/2019	7.63		0.48		14		502		50300	
R81-004F	R81	3/25/2019	L	Primary	--	2631886.08	639079.59	2000	R81-004F(03252019) 2000	03/25/2019	3.97		2.84		12.9		452		38300	
	R81	3/25/2019	L	Primary	--	2631886.08	639079.59	250	R81-004F(03252019) 250	03/25/2019	4.8		3.42		15		528		46100	
R81-005F	R81	3/25/2019	U	Field Duplicate	R81-001F	2631934.30	639120.77	2000	R81-005F(03252019) 2000	03/25/2019	4.19		3.28		14.4		513		39900	
R81-006F	R81	3/27/2019	F	Primary	--	2631886.57	639085.22	2000	R81-006F(03272019) 2000	03/27/2019	5.71		0.63		22.1		487		53600	
	R81	3/27/2019	F	Primary	--	2631886.57	639085.22	250	R81-006F(03272019) 250	03/27/2019	6.68		0.9		20.7		536		58900	
R82-001F	R82	3/20/2019	U	Primary	--	2631397.75	636131.98	2000	R82-001F(03202019) 2000	03/20/2019	4.02		2.07		14		446		33400	
R82-002F	R82	3/20/2019	R	Primary	--	2631465.14	636071.81	2000	R82-002F(03202019) 2000	03/20/2019	5.46		3.12		14.9		746		36900	
	R82	3/20/2019	R	Primary	--	2631465.14	636071.81	250	R82-002F(03202019) 250	03/20/2019	6.8		3.13		16.7		797		42200	
R82-003F	R82	3/20/2019	D	Primary	--	2631522.24	636029.21	2000	R82-003F(03202019) 2000	03/20/2019	6.99		2.35		15.4		626		45700	
R82-004F	R82	3/20/2019	F	Primary	--	2631472.65	636072.10	2000	R82-004F(03202019) 2000	03/20/2019	5		1.66		16.3		639		74200	
R83-001F	R83	12/5/2018	U	Primary	--	2631198.00	636749.10	2000	R83-001F(12052018) 2000	12/05/2018	5.61		1.69	J	16.2		501		59500	
R83-002F	R83	12/5/2018	D	Primary	--	2631434.49	636553.66	2000	R83-002F(12052018) 2000	12/05/2018	3.85		1.58	J	11.0		518		36700	
R83-003F	R83	12/5/2018	L	Primary	--	2631478.12	636444.74	2000	R83-003F(12052018) 2000	12/05/2018	7.63		4.38		11.4		967		41300	
	R83	12/5/2018	L	Primary	--	2631478.12	636444.74	250	R83-003F(12052018) 250	12/05/2018	10.5		5.52		15.3		1260		61000	
R83-004F	R83	12/5/2018	L	Primary	--	2631582.88	636187.28	2000	R83-004F(12052018) 2000	12/05/2018	5.57		1.05	J	12.4		530		56800	
R83-005F	R83	4/2/2019	F	Primary	--	2631246.01	636670.19	2000	R83-005F(04022019) 2000	04/02/2019	2.14		1.26		13.3		1140		43100	
R83-006F	R83	4/2/2019	F	Primary	--	2631286.26	636608.05	2000	R83-006F(04022019) 2000	04/02/2019	3.3		1.97		14.6		1100		51500	
	R83	4/2/2019	F	Primary	--	2631286.26	636608.05	250	R83-006F(04022019) 250	04/02/2019	4.69		2.28		19.1		1200		64900	
R83-007F	R83	4/2/2019	F	Primary	--	2631345.35	636465.57	2000	R83-007F(04022019) 2000	04/02/2019	2.72		1.16		10.8		1240		34400	
R83-008F	R83	4/3/2019	F	Primary	--	2631411.60	636464.53	2000	R83-008F(04032019) 2000	04/03/2019	2.69		1.51		11		1410		28600	
R83-009F	R83	4/3/2019	F	Primary	--	2631434.34	636313.91	2000	R83-009F(04032019) 2000	04/03/2019	3.75		0.88		13.9		878		71200	
	R83	4/3/2019	F	Primary	--	2631434.34	636313.91	250	R83-009F(04032019) 250	04/03/2019	4.83		1.26		19.7		1300		116000	
R83-010F	R83	4/3/2019	F	Primary	--	2631517.90	636217.56	2000	R83-010F(04032019) 2000	04/03/2019	4.17		0.68		15.8		623		71700	
R83-011F	R83	4/3/2019	F	Primary	--	2631406.84	636574.72	2000	R83-011F(04032019) 2000	04/03/2019	2.55		0.25	J	11.3		208		51600	
R84-001F	R84	12/5/2018	U	Primary	--	2632341.03	634743.22	2000	R84-001F(12062018) 2000	12/06/2018	5.94		0.91	J	16.7		445		57000	
R84-002F	R84	12/5/2018	R	Primary	--	2632470.37	634377.95	2000	R84-002F(12062018) 2000	12/06/2018	4.49		1.86	J	11.5		637		32700	
	R84	12/5/2018	R	Primary	--	2632470.37	634377.95	250	R84-002F(12062018) 250	12/06/2018	5.25		2.33	J	15.7		803		46700	
R84-003F	R84	12/5/2018	D	Primary	--	2632427.99	634658.98	2000	R84-003F(12062018) 2000	12/06/2018	7.42		1.21	J	12.3		775		45000	
R84-004F	R84	12/5/2018	L	Primary	--	2632559.17	634586.57	2000	R84-004F(12062018) 2000	12/06/2018	4.77		3.45	J	11.7		1090		41600	
R84-005F	R84	12/5/2018	L	Primary	--	2632383.66	634829.56	2000	R84-005F(12062018) 2000	12/06/2018	5.33		4.38		11.2		1200		43400	
	R84	12/5/2018	L	Primary	--	2632383.66	634829.56	250	R84-005F(12062018) 250	12/06/2018	6.87		5.35		15.3		1400		55500	
R84-006F	R84	12/5/2018	L	Field Duplicate	R84-004F	2632559.17	634586.57	2000	R84-006F(12062018) 2000	12/06/2018	4.54		1.31	J	9.66		736		35100	
R84-007F	R84	3/6/2019	U	Primary	--	2632407.47	634845.16	2000	R84-007F(03062019) 2000	03/06/2019	4.06	J	1.16		16.8		427		60000	
R84-008F	R84	3/6/2019	L	Primary	--	2632494.93	634840.69	2000	R84-008F(03062019) 2000	03/06/2019	5.42		0.44		14.7		454		49200	
R84-009F	R84	3/6/2019	D	Primary	--	2632493.38	634464.75	2000	R84-009F(03062019) 2000	03/06/2019	2.97		0.41		10.7		410		30800	
	R84	3/6/2019	D	Primary	--	2632493.38	634464.75	250	R84-009F(03062019) 250	03/06/2019	3.69		0.45		13.1		483		40200	
R84-010F	R84	3/6/2019	D	Field Duplicate	R84-009F	2632493.38	634464.75	2000	R84-010F(03062019) 2000	03/06/2019	2.97		0.4		10.5		402		30700	
R84-011F	R84	3/15/2019	F	Primary	--	2632509.01	634668.56	2000	R84-011F(03152019) 2000	03/15/2019	2.82		1.5		12.2		909		32300	
	R84	3/15/2019	F	Primary	--	2632509.01	634668.56	250	R84-011F(03152019) 250	03/15/2019	3.13		1.34		12.3		880		33900	
R84-012F	R84	3/15/2019	F	Primary	--	2632490.79	634750.74	2000	R84-012F(03152019) 2000	03/15/2019	4.51		0.45		14.9		429		39600	
R84-013F	R84	3/15/2019	F	Primary	--	2632350.23	634806.04	2000	R84-013F(03152019) 2000	03/15/2019	4.16		0.39		28.9		397		65900	
R84-014F	R84	3/15/2019	F	Primary	--	2632420.47	634709.55	2000	R84-014F(03152019) 2000	03/15/2019	2.33		1.41		9.94		331		22800	
	R84	3/15/2019	F	Primary	--	2632420.47	634709.55	250	R84-014F(03152019) 250	03/15/2019	2.67		1.56		12.1		429		26500	
R84-015F	R84	3/15/2019	F	Field Duplicate	R84-014F	2632420.47	634709.55	2000	R84-015F(03152019) 2000	03/15/2019	2.02		1.57		9.35		295		22400	
R84-016F	R84	3/15/2019	F	Primary	--	2632403.52	634565.95	2000	R84-016F(03152019) 2000	03/15/2019	2.12		1.19		10.1		969		24000	
R84-017F	R84	3/15/2019	F	Primary	--	2632420.04	634461.43	2000	R84-017F(03152019) 2000	03/15/2019	2.55		1.56		12.2		1020		39500	
	R84	3/15/2019	F	Primary	--	2632420.04	634461.43	250	R84-017F(03152019) 250	03/15/2019	3.49		1.66		14.6		1170		47300	
R85-001F	R85	12/6/2018	U	Primary	--	2632141.05	634735.90	2000	R85-001F(12062018) 2000	12/06/2018	5.01		1.42	J	15.4		489		52700	
R85-002F	R85	12/6/2018	R	Primary	--	2632234.76	634490.95	2000	R85-002F(12062018) 2000	12/06/2018	3.49		1.85	J	14.2		482		47200	
R85-003F	R85	12/6/2018	D+D51	Primary	--	2632264.69	634510.71	2000	R85-003F(12062018) 2000	12/06/2018	4.25		1.67	J	13.6		494		52500	
	R85	12/6/2018	D+D51	Primary	--	2632264.69	634510.71	250	R85-003F(12062018) 250	12/06/2018	4.53		1.67	J	16.9		506		62000	
R85-004F	R85	12/6/2018	L	Primary	--	2632249.01	634719.75	2000	R85-004F(12062018) 2000	12/06/2018	5.31		0.88	J	14.2		422		64700	
R85-005F	R85	3/7/2019	F	Primary	--	2632170.55	634726.93	2000	R85-005F(03072019) 2000	03/07/2019	5.75		1.06		14.1		530		58900	
R85-006F	R85	3/7/2019	F	Field Duplicate	R85-005F	2632170.55	634726.93	2000	R85-006F(03072019) 2000	03/07/2019	6.63		1		13.8		527		54600	
	R85	3/7/2019	F	Field Duplicate	R85-005F	2632170.55	634726.93	250	R85-006F(03072019) 250	03/07/2019	10.4		1.39		17.4		644		77400	
R85-007F	R85	3/8/2019	F	Primary	--	2632190.06	634628.22	2000	R85-007F(03082019) 2000	03/08/2019	6.65		1.03		12.7		552		57800	
R85-008F	R85	3/8/2019	F	Primary	--	2632230.32	634550.00	2000	R85-008F(03082019) 2000	03/08/2019	5.6		0.36		12.8		490		57900	
R86-001F	R86	12/6/2018	U	Primary	--	2631905.19	635262.27	2000	R86-001F(12062018) 2000	12/06/2018	5.13		1.4	J	14.8		378		59300	
R86-002F	R86	12/6/2018	R	Primary	--	2631829.87	635215.08	2000	R86-002F(12062018) 2000	12/06/2018	8.64		1.36	J	13.1					
	R86	12/6/2018	R	Primary	--	2631829.87	635215.08	250	R86-002F(12062018) 250	12/06/2018	8.40		1.40	J	15.3		555		55900	

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Analyte	Arsenic		Cadmium		Chromium		Copper		Iron	
										CAS	7440-38-2		7440-43-9		7440-47-3		7440-50-8		7439-89-6	
										Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
										Sample Date	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R86-003F	R86	12/6/2018	R	Primary	--	2631821.86	635120.25	2000	R86-003F(12062018) 2000	12/06/2018	8.15		0.79	J	14.4		637		58500	
R86-004F	R86	12/6/2018	D	Primary	--	2631880.11	634855.35	2000	R86-004F(12062018) 2000	12/06/2018	3.89		1.69	J	12.8		373		45500	
R86-005F	R86	3/20/2019	F	Primary	--	2631947.11	635179.11	2000	R86-005F(03202019) 2000	03/20/2019	4.3		0.38		12.8		390		45000	
	R86	3/20/2019	F	Primary	--	2631947.11	635179.11	250	R86-005F(03202019) 250	03/20/2019	7.68		0.59		18.4		476		85900	
R86-006F	R86	3/20/2019	F	Primary	--	2631981.96	635034.33	2000	R86-006F(03202019) 2000	03/20/2019	2.19		0.49		14		359		40500	
R86-007F	R86	3/20/2019	F	Primary	--	2631953.35	634934.91	2000	R86-007F(03202019) 2000	03/20/2019	4.38		0.32		16		348		42800	
R86-008F	R86	3/20/2019	F	Primary	--	2631937.66	634864.06	2000	R86-008F(03202019) 2000	03/20/2019	4.81		1.68		11.8		457		43400	
	R86	3/20/2019	F	Primary	--	2631937.66	634864.06	250	R86-008F(03202019) 250	03/20/2019	6.68		3.06		16.1		624		79200	
R86-009F	R86	3/20/2019	F	Field Duplicate	R86-008F	2631937.66	634864.06	2000	R86-009F(03202019) 2000	03/20/2019	4.46		1.93		15.3		516		59300	
R86-010F	R86	3/20/2019	F	Primary	--	2631893.63	635011.67	2000	R86-010F(03202019) 2000	03/20/2019	6.68		1.74		15		513		48000	
R86-011F	R86	3/21/2019	F	Primary	--	2631852.53	635089.13	2000	R86-011F(03212019) 2000	03/21/2019	4.23		0.81		19		626		49800	
	R86	3/21/2019	F	Primary	--	2631852.53	635089.13	250	R86-011F(03212019) 250	03/21/2019	6.28		1.13		21		798		61700	
R86-012F	R86	3/22/2019	F	Primary	--	2631867.83	635200.98	2000	R86-012F(03222019) 2000	03/22/2019	3.17		1.41		18.6		610		61700	
R86-013F	R86	3/22/2019	F	Field Duplicate	R86-012F	2631867.83	635200.98	2000	R86-013F(03222019) 2000	03/22/2019	3.57		0.74		18.1		492		58700	
R87-001F	R87	12/6/2018	U	Primary	--	2632087.35	635149.44	2000	R87-001F(12062018) 2000	12/06/2018	5.46		1.74	J	25.2		407		110000	
R87-002F	R87	12/6/2018	L	Primary	--	2632212.34	634890.39	2000	R87-002F(12062018) 2000	12/06/2018	4.55		0.83	J	18.5		477		68400	
	R87	12/6/2018	L	Primary	--	2632212.34	634890.39	250	R87-002F(12062018) 250	12/06/2018	6.59		1.31	J	18.0		534		78700	
R87-003F	R87	12/6/2018	L	Primary	--	2632213.68	634980.09	2000	R87-003F(12062018) 2000	12/06/2018	4.76		0.85	J	20.6		486		81200	
R87-004F	R87	12/6/2018	D	Primary	--	2632163.57	635124.04	2000	R87-004F(12062018) 2000	12/06/2018	6.92		< 4.00		18.9		410		69700	
R87-005F	R87	3/7/2019	L	Primary	--	2632027.28	635390.75	2000	R87-005F(03072019) 2000	03/07/2019	5.75		0.96		18.2		506		57500	
	R87	3/7/2019	L	Primary	--	2632027.28	635390.75	250	R87-005F(03072019) 250	03/07/2019	6.13		1.11		18.1		563		61900	
R87-006F	R87	3/7/2019	U	Primary	--	2632029.59	635313.54	2000	R87-006F(03072019) 2000	03/07/2019	4.79		2.32		14		721		55500	
R87-007F	R87	3/11/2019	F	Primary	--	2632037.47	635311.74	2000	R87-007F(03112019) 2000	03/11/2019	5.24		0.31		20.4		516		75000	
R87-009F	R87	3/11/2019	F	Primary	--	2632100.08	635045.86	2000	R87-009F(03112019) 2000	03/11/2019	5.8		0.6		18.9		444		65100	
R87-010F	R87	3/11/2019	F	Primary	--	2632125.81	634944.86	2000	R87-010F(03112019) 2000	03/11/2019	7.02		0.26		20		427		54600	
R89-001F	R89	12/10/2018	U	Primary	--	2632265.26	631093.38	2000	R89-001F(12102018) 2000	12/10/2018	2.24		< 4.00		21.7		162		36300	
	R89	12/10/2018	U	Primary	--	2632265.26	631093.38	250	R89-001F(12102018) 250	12/10/2018	2.23		< 4.00		17.9		192		29900	
R89-002F	R89	12/10/2018	R	Primary	--	2632327.66	630890.24	2000	R89-002F(12102018) 2000	12/10/2018	8.66		0.74	J	23.2				75800	
R89-003F	R89	12/10/2018	D	Primary	--	2632391.18	630754.15	2000	R89-003F(12102018) 2000	12/10/2018	4.24		1.78	J	19.2		475		50800	
R89-004F	R89	12/10/2018	L	Primary	--	2632421.62	630772.53	2000	R89-004F(12102018) 2000	12/10/2018	3.02		0.79	J	21.7		210		47800	
	R89	12/10/2018	L	Primary	--	2632421.62	630772.53	250	R89-004F(12102018) 250	12/10/2018	3.38		1.19	J	25.5		306		51200	
R89-005F	R89	2/22/2019	F	Primary	--	2632316.48	630992.53	2000	R89-005F(02222019) 2000	02/22/2019	5.39		0.65		20.1		410		62000	
R89-006F	R89	2/22/2019	F	Primary	--	2632376.19	630832.86	2000	R89-006F(02222019) 2000	02/22/2019	5.38		0.77		19.4		501		52700	
	R89	2/22/2019	F	Primary	--	2632376.19	630832.86	250	R89-006F(02222019) 250	02/22/2019	6.89		0.92		19.2		507		62900	
R89A-001F	R89A	2/22/2019	U	Primary	--	2632283.19	630870.02	2000	R89A-001F(02222019) 2000	02/22/2019	5.21		2.09		16		777		42900	
R89A-002F	R89A	2/22/2019	R	Primary	--	2632310.20	630799.60	2000	R89A-002F(02222019) 2000	02/22/2019	6.28		1.34		15.9		700		45300	
R89A-003F	R89A	2/22/2019	D	Primary	--	2632340.38	630757.46	2000	R89A-003F(02222019) 2000	02/22/2019	4.99		0.71		18		487		57100	
	R89A	2/22/2019	D	Primary	--	2632340.38	630757.46	250	R89A-003F(02222019) 250	02/22/2019	5.81		0.86		18.8		516		58000	
R89A-004F	R89A	2/22/2019	L	Primary	--	2632348.57	630788.58	2000	R89A-004F(02222019) 2000	02/22/2019	4.05		1.43		14.7		584		40000	
R89A-005F	R89A	2/22/2019	L	Field Duplicate	R89A-004F	2632348.57	630788.58	2000	R89A-005F(02222019) 2000	02/22/2019	4.2		1.47		15.3		602		40600	
R89A-006F	R89A	3/1/2019	F	Primary	--	2632322.28	630808.97	2000	R89A-006F(03012019) 2000	03/01/2019	4.43		0.56		18		608		86500	
	R89A	3/1/2019	F	Primary	--	2632322.28	630808.97	250	R89A-006F(03012019) 250	03/01/2019	5.89		0.56		18.4		658		94600	
R90-001F	R90	12/11/2018	U,R	Primary	--	2632424.65	629309.58	2000	R90-001F(12112018) 2000	12/11/2018	4.30		2.37	J	20.6		682		94600	
R90-002F	R90	12/11/2018	U,L	Primary	--	2632432.98	629322.00	2000	R90-002F(12112018) 2000	12/11/2018	4.37		0.79	J	17.9		444		57100	
R90-003F	R90	12/11/2018	D,L	Primary	--	2632482.26	629278.63	2000	R90-003F(12112018) 2000	12/11/2018	4.86		1.48	J	16.8		584		58300	
	R90	12/11/2018	D,L	Primary	--	2632482.26	629278.63	250	R90-003F(12112018) 250	12/11/2018	6.54		1.48	J	15.9		684		55800	
R90-004F	R90	12/11/2018	D,R	Primary	--	2632484.43	629258.77	2000	R90-004F(12112018) 2000	12/11/2018	3.83		2.35	J	36.9		551		61700	
R91-001F	R91	12/14/2018	U	Primary	--	2632580.43	628531.05	2000	R91-001F(12142018) 2000	12/14/2018	5.77		1.04	J	16.9		501		49300	
	R91	12/14/2018	U	Primary	--	2632580.43	628531.05	250	R91-001F(12142018) 250	12/14/2018	6.47		1.44	J	60.2		630		63500	
R91-002F	R91	12/14/2018	R	Primary	--	2632506.36	628388.30	2000	R91-002F(12142018) 2000	12/14/2018	3.88	J	1.42	J	12.9					
R91-003F	R91	12/14/2018	D	Primary	--	2632580.65	628406.07	2000	R91-003F(12142018) 2000	12/14/2018	6.02		0.97	J	15.4		390		51300	
	R91	12/14/2018	D	Primary	--	2632580.65	628406.07	250	R91-003F(12142018) 250	12/14/2018	6.65		0.82	J	58.6		434		61900	
R91-004F	R91	12/14/2018	L	Primary	--	2632596.58	628520.53	2000	R91-004F(12142018) 2000	12/14/2018	4.53		1.66	J	12.8		398		55400	
R91-005F	R91	12/14/2018	R	Field Duplicate	R91-002F	2632506.36	628388.30	2000	R91-005F(12142018) 2000	12/14/2018	3.82		1.22	J	13.1		451		39800	
R91-006F	R91	1/15/2019	F	Primary	--	2632569.96	628468.37	2000	R91-006F(01152019) 2000	01/15/2019	4.38		0.67		92		415		57300	
R92-001F	R92	12/14/2018	U	Primary	--	2632559.51	628360.88	2000	R92-001F(12142018) 2000	12/14/2018	4.56		1.04	J	12.6		477		43100	
	R92	12/14/2018	U	Primary	--	2632559.51	628360.88	250	R92-001F(12142018) 250	12/14/2018	6.45		0.87	J	51.8		584		52400	
R92-002F	R92	12/14/2018	R	Primary	--	2632471.72	628306.58	2000	R92-002F(12142018) 2000	12/14/2018	2.93		1.26	J	11.8		1310		26600	
R92-003F	R92	12/14/2018	D	Primary	--	2632476.15	628253.88	2000	R92-003F(12142018) 2000	12/14/2018	5.24		0.71	J	11.4		677		60600	
R92-004F	R92	12/14/2018	L	Primary	--	2632545.08	628296.21	2000	R92-004F(12142018) 2000	12/14/2018	2.62		1.21	J	17.8		250		37800	
R92-005F	R92	1/10/2019	F	Primary	--	2632505.92	628299.26	2000	R92-005F(01102019) 2000	01/10/2019	4.58		0.62		78.4		441		95500	
R93-001F	R93	12/11/2018	U	Primary	--	2632222.45	630114.55	2000	R93-001F(12112018) 2000	12/11/2018	4.84		0.92	J	23.4		651		83600	
R93-002F	R93	12/11/2018	R,U	Primary	--	2632165.25	630065.61	2000	R93-002F(12112018) 2000	12/11/2018	6.61		1.00	J	18.1		475		79200	
	R93	12/11/2018	R,U	Primary	--	2632165.25	630065.61	250	R93-002F(12112018) 250	12/11/2018	7.32		0.58	J	18.1		482		78300	
R93-003F	R93	12/11/2018	R,D	Primary	--	2632074.26	629989.77	2000	R93-003F(12112018) 2000	12/11/2018	6.03		2.00	J	21.9		587		66500	
R93-004F	R93	12/11/2018	D	Primary	--	2632008.46	629897.54	2000	R93-004F(12112018) 2000	12/11/2018	7.16		1.96	J	19.0		727		52600	
R93-005F	R93	12/11/2018	R,D	Field Duplicate	R93-003F	2632074.26	629989.77	2000	R93-005F(12112018) 2000	12/11/2018	5.64		1.35	J	16.5		542		56400	
	R93	12/11/2018	R,D	Field Duplicate	R93-003F	2632074.26	629989.77	250	R93-005F(12112018) 250	12/11/2018	6.29		1.37	J	19.0		574		61800	
R93-006F	R93	4/18/2019	F	Primary	--	2632186.33	630065.26	2000	R93-006F(04182019) 2000	04/18/2019	3.68		0.6		16.9		426		61300	
	R93	4/18/2019	F	Primary	--	2632186.33	630065.26	250	R93-006F(04182019) 250	04/18/2019	5.82		0.84		22.7		498		83800	
R93-007F	R93	4/18/2019	F	Primary	--	2632067.06	629922.13	2000	R93-007F(04182019) 2000	04/18/2019	5.44		0.75		19.3		515		54600	
R93A-001F	R93A	4/18/2019	F	Primary	--	2632193.47	629853.98	2000	R93A-001F(04182019) 2000	04/18/2019	5.78		1.06		25.6		566		67700	
R94-001F	R94	12/11/2018	R	Primary	--	2632161.31	629768.80	2000	R94-001F(12112018) 2000	12/11/2018	4.90		< 4.00		20.3		426		82100	
R94-002F	R94	12/11/2018	U	Primary	--	2632190.19	629813.25	2000	R94-002F(12112018) 2000	12/11/2018	4.21		< 4.00		15.8		433		74400	
R94-003F	R94	12/11/2018	L	Primary	--	2632255.62	629657.19	2000	R94-003F(12112018) 2000	12/11/2018	5.58		4.70		14.7		1090		42500	
	R94	12/11/2018	L	Primary	--	2632255.62	629657.19	250	R94-003F(12112018) 250	12/11/2018	7.10		5.41		18.3		1250		51100	
R94-004F	R94	12/11/2018	D	Primary	--	2632382.72	629398.09	2000	R94-004F(12112018) 2000	12/11/2018	4.64		2.61	J	16.0		762		41700	
R94-005F	R94	1/18/2019	F	Primary	--	2632216.78	629706.27	2000	R94-005F(01182019) 2000	01/18/2019	3.73		2		13.8		850		41400	
R94-006F	R94	1/18/2019	F	Primary	--	2632317.90	629485.10	2000	R94-006F(01182019) 2000	01/18/2019	2.86		0.87		12.2		455		35800	
R94-007F	R94	1/18/2019	F	Field Duplicate	R94-006F	2632317.90	629485.10	2000	R94-007F(01182019) 2000	01/18/2019	3.29		0.6		12.3		460		35400	
	R94	1/18/2019	F	Field Duplicate	R94-006F	2632317.90	629485.10	250	R94-007F(01182019) 250	01/18/2019	3.50		< 4.00		17.2		648		46900	
R95-001F	R95	12/11/2018	U	Primary	--	2632292.12	629972.31	2000	R95-001F(12112018) 2000	12/11/2018	5.67		3.98	J	13.5		726		43800	
R95-002F	R95	12/11/2018	D	Primary	--	2632216.64	629874.00	2000	R95-002F(12112018) 2000	12/11/2018	2.34		1.34	J	10.1		792		26600	
	R95	12/11/2018	D	Primary	--	2632216.64	629874.00	250	R95-002F(12112018) 250	12/11/2018	2.87		2.02	J	14.1		828		35600	
R95-003F	R95	4/17/2019	F	Primary	--	2632240.25	629915.30	2000	R95-003F(04172019) 2000	04/17/2019	2.66		0.72		13.3		309		51900	
R97-001F	R97	12/17/2018	U	Primary	--	2633677.32	626350.01	2000	R97-001F(12172018) 2000	12/17/2018	4.23		1.50	J	16.1		367		45800	
R97-002F	R97	12/17/2018	UL	Primary	--	2633875.06	626196.12	2000	R97-002F(12172018) 2000	12/17/2018	2.59		0.96	J	10.2		390		24900	
R97-003F	R97	12/17/2018	L	Primary	--	2633971.19	626101.92	2000	R97-003F(12172018) 2000	12/17/2018	3.55		1.17	J	10.8		572		31300	
	R97	12/17/2018	L	Primary	--	2633971.19	626101.92	250	R97-003F(12172018) 250	12/17/2018	4.37		1.79	J	17.8		724		49600	
R97-004F	R97	12/17/2018	L	Primary	--	2633993.47	626001.40	2000	R97-004F(12172018) 2000	12/17/2018	4.18		1.4	J	14.5		539		44000	
R97-005F	R97	12/17/2018	L	Primary	--	2634102.09	625911.28	2000	R97-005F(12172018) 2000	12/17/2018	4.89		0.71	J	16.8		564		53200	
	R97	12/17/2018	L	Primary	--	2634102.09	625911.28	250	R97-005F(12172018) 250	12/17/2018	5.13		0.72	J	17.5		571		56500	
R97-006F	R97	12/17/2018	DL	Primary	--	2634137.55	625806.17	2000	R97-006F(12172018) 2000	12/17/2018	3.94		2.07	J	14.7		445		40400	
R97-007F	R97	12/17/2018	U	Field Duplicate	R97-001F	2633677.32	626350.01	2000	R97-007F(12172018) 2000	12/17/2018	3.85		0.84	J	15.4		397		44400	

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Analyte	Arsenic		Cadmium		Chromium		Copper		Iron	
										CAS	7440-38-2		7440-43-9		7440-47-3		7440-50-8		7439-89-6	
										Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
										Sample Date	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R97-008F	R97	4/8/2019	F	Primary	--	2633656.70	626203.17	2000	R97-008F(04082019) 2000	04/08/2019	2.61		0.23		16		235		56400	
	R97	4/8/2019	F	Primary	--	2633656.70	626203.17	250	R97-008F(04082019) 250	04/08/2019	2.7		0.3		20.4		317		81600	
R97-009F	R97	4/8/2019	F	Primary	--	2633728.25	626106.20	2000	R97-009F(04082019) 2000	04/08/2019	3.05		0.26		13.9		172		47300	
R97-010F	R97	4/8/2019	F	Field Duplicate	R97-009F	2633728.25	626106.20	2000	R97-010F(04082019) 2000	04/08/2019	2.39		0.24		16.1		161		54200	
R97-011F	R97	4/8/2019	F	Primary	--	2633866.90	625956.65	2000	R97-011F(04082019) 2000	04/08/2019	2.61		0.38	J	14		204		50900	
	R97	4/8/2019	F	Primary	--	2633866.90	625956.65	250	R97-011F(04082019) 250	04/08/2019	3.21		0.37	J	26.3		285		86000	
R97-012F	R97	4/8/2019	F	Primary	--	2633993.37	625890.03	2000	R97-012F(04082019) 2000	04/08/2019	3.27		0.62		14.6		300		43600	
R97-013F	R97	4/9/2019	F	Primary	--	2633729.96	626262.28	2000	R97-013F(04092019) 2000	04/09/2019	3.9		0.37	J	14.8		289		54300	
R97-014F	R97	4/10/2019	F	Primary	--	2633907.45	626077.91	2000	R97-014F(04102019) 2000	04/10/2019	2.51		0.41		12		298		35800	
	R97	4/10/2019	F	Primary	--	2633907.45	626077.91	250	R97-014F(04102019) 250	04/10/2019	3.34		0.38	J	18		442		56400	
R97-015F	R97	4/10/2019	F	Primary	--	2634013.79	625952.53	2000	R97-015F(04102019) 2000	04/10/2019	2.47		0.37	J	18.8		401		63300	
R97-016F	R97	4/10/2019	F	Primary	--	2633902.91	626022.65	2000	R97-016F(04102019) 2000	04/10/2019	2.59		0.29	J	14.8		283		48100	
R97-017F	R97	4/10/2019	F	Primary	--	2633806.78	626137.82	2000	R97-017F(04102019) 2000	04/10/2019	3.36		0.42		16.8		285		59700	
	R97	4/10/2019	F	Primary	--	2633806.78	626137.82	250	R97-017F(04102019) 250	04/10/2019	3.78		0.41		23.7		446		103000	
R98-001F	R98	12/17/2018	U	Primary	--	2634074.99	625723.35	2000	R98-001F(12172018) 2000	12/17/2018	4.04		1.81	J	11.6		625		34700	
	R98	12/17/2018	U	Primary	--	2634074.99	625723.35	250	R98-001F(12172018) 250	12/17/2018	7.48		2.61	J	14.0		703		53600	
R98-002F	R98	12/17/2018	R	Primary	--	2634170.43	625647.95	2000	R98-002F(12172018) 2000	12/17/2018	4.18		0.88	J	16.7		556		49200	
R98-003F	R98	12/17/2018	R	Primary	--	2634308.94	625517.57	2000	R98-003F(12172018) 2000	12/17/2018	3.16		0.96	J	15.7		365		53600	
R98-004F	R98	12/17/2018	D	Primary	--	2634366.78	625440.16	2000	R98-004F(12172018) 2000	12/17/2018	2.77		0.94	J	13.2		335		44700	
	R98	12/17/2018	D	Primary	--	2634366.78	625440.16	250	R98-004F(12172018) 250	12/17/2018	5.12		1.54	J	18.2		403		69300	
R98-005F	R98	2/20/2019	F	Primary	--	2634164.39	625659.95	2000	R98-005F(02202019) 2000	02/20/2019	3.81		0.28		19.4		341		67500	
R98-006F	R98	2/20/2019	F	Primary	--	2634283.84	625564.77	2000	R98-006F(02202019) 2000	02/20/2019	3.47		0.5		19.6		366		61400	
R98-007F	R98	2/20/2019	F	Primary	--	2634345.26	625514.29	2000	R98-007F(02202019) 2000	02/20/2019	3.91		0.73		17.6		533		59300	
	R98	2/20/2019	F	Primary	--	2634345.26	625514.29	250	R98-007F(02202019) 250	02/20/2019	5.06		0.61		20.6		539		66800	
R98-008F	R98	2/20/2019	F	Primary	--	2634309.02	625586.28	2000	R98-008F(02202019) 2000	02/20/2019	3.83		0.5		15.9		448		63900	
TC East 001F	TC East	2/20/2019	U	Primary	--	2632770.99	628597.65	2000	TC EAST 001F(02202019) 2000	02/20/2019	2.55		0.42		11.6		700	J	25600	J
TC East 002F	TC East	2/20/2019	R	Primary	--	2632739.39	628552.53	2000	TC EAST 002F(02202019) 2000	02/20/2019	3.04		2.13		12.8		1790		35900	
TC East 003F	TC East	2/20/2019	D	Primary	--	2632745.37	628479.07	2000	TC EAST 003F(02202019) 2000	02/20/2019	3.47		1.83		12.9		1370		28800	
TC East 004F	TC East	2/20/2019	D	Field Duplicate	TC East-003F	2632745.37	628479.07	2000	TC EAST 004F(02202019) 2000	02/20/2019	3.51		1.82		12.9		1430		27100	
TC East 005F	TC East	2/20/2019	L	Primary	--	2632776.52	628561.44	2000	TC EAST 005F(02202019) 2000	02/20/2019	4.96		3.99		15.2		2440		30100	
TC East 006F	TC East	2/25/2019	F	Primary	--	2632759.77	628550.43	2000	TC EAST 006F(02252019) 2000	02/25/2019	2.85		3.65		14.5		637		22600	
TC West 001F	TC West	2/20/2019	U	Primary	--	2632470.10	628196.97	2000	TC WEST 001F(02202019) 2000	02/20/2019	6.65		0.51		17.8		517		70600	
TC West 002F	TC West	2/20/2019	R	Primary	--	2632444.45	628137.82	2000	TC WEST 002F(02202019) 2000	02/20/2019	4.51		0.41		13.3		570		41200	
TC West 003F	TC West	2/20/2019	D	Primary	--	2632452.12	628075.68	2000	TC WEST 003F(02202019) 2000	02/20/2019	4.63		0.55		13.6		466		53000	
TC West 004F	TC West	2/20/2019	L	Primary	--	2632471.58	628142.14	2000	TC WEST 004F(02202019) 2000	02/20/2019	4.94		0.84		15.7		444		61600	
TC West 005F	TC West	2/22/2019	F	Primary	--	2632456.91	628145.67	2000	TC WEST 005F(02222019) 2000	02/22/2019	5		0.4		14.1		360		54200	
R01-007F	R01	3/30/2019	R,U	Primary	--	2633309.70	645037.26	2000	R01-007F(03302019) 2000	03/30/2019	6.1		2.76		27.1		684		44200	
R09M-008F	R09M	1/23/2019	U	Primary	--	2633344.00	626824.92	2000	R09M-008F(01232019) 2000	01/23/2019	4.46		0.62	J	25.5		634		88300	
	R09M	1/23/2019	U	Primary	--	2633344.00	626824.92	250	R09M-008F(01232019) 250	01/23/2019	4.82		< 4.00		27.3		632		90000	
R09M-015F	R09M	1/31/2019	F	Primary	--	2633355.15	626840.62	2000	R09M-015F(01312019) 2000	01/31/2019	2.19		< 4		14.5		244		61900	
	R09M	1/31/2019	F	Primary	--	2633355.15	626840.62	250	R09M-015F(01312019) 250	01/31/2019										
R120-008F	R120	1/24/2019	F	Primary	--	2632199.58	629591.03	2000	R120-008F(01242019) 2000	01/24/2019	5.9		< 4		11.9		360		73400	
	R120	1/24/2019	F	Primary	--	2632199.58	629591.03	250	R120-008F(01242019) 250	01/24/2019			< 4.00		14.4		405		87200	
R122-009F	R122	1/22/2019	F	Primary	--	2632485.29	629200.92	2000	R122-009F(01222019) 2000	01/22/2019	3.91		1.06		15.6		418		65000	
	R122	1/22/2019	F	Primary	--	2632485.29	629200.92	250	R122-009F(01222019) 250	01/22/2019			1.56		19.5		545		82100	
R305-004F	R305	3/26/2019	L	Primary	--	2631017.87	637172.30	2000	R305-004F(03262019) 2000	03/26/2019	6.66		2.65		15.4		845		48300	
R90-005F	R90	1/21/2019	F	Primary	--	2632464.30	629274.53	2000	R90-005F(01212019) 2000	01/21/2019	2.8		0.65		11.2		384		45500	
	R90	1/21/2019	F	Primary	--	2632464.30	629274.53	250	R90-005F(01212019) 250	01/21/2019	3.38		< 4.00		13.3		510		55400	
R03A-006F	R03A	2/7/2019	F	Primary	--	2633352.13	626265.48	2000	R03A-006F(02072019) 2000	02/07/2019	3.2		1.76		14.7		285		30800	
	R03A	2/7/2019	F	Primary	--	2633352.13	626265.48	250	R03A-006F(02072019) 250	02/07/2019	3.28		1.4		14.7		294		28600	
R03B-008F	R03B	2/6/2019	F	Primary	--	2633726.48	625820.36	2000	R03B-008F(02062019) 2000	02/06/2019	3.39		0.76		18		917		65200	
R03B-013F	R03B	2/7/2019	F	Primary	--	2633811.67	625943.25	2000	R03B-013F(02072019) 2000	02/07/2019	2.03		0.96		10.2		445		35200	
	R03B	2/7/2019	F	Primary	--	2633611.67	625943.25	250	R03B-013F(02072019) 250	02/07/2019	2.62		1.26		12.6		653		41700	
R303-004F	R303	3/12/2019	R	Primary	--	2631381.19	636711.10	2000	R303-004F(03122019) 2000	03/12/2019	3.63		0.6		9.09		909		20100	
	R303	3/12/2019	R	Primary	--	2631381.19	636711.10	250	R303-004F(03122019) 250	03/12/2019			0.64		8.98		851		23300	
R304-002F	R304	3/12/2019	L	Primary	--	2631312.34	638370.86	2000	R304-002F(03122019) 2000	03/12/2019	4.95		1.9		21.7		533		69200	
	R304	3/12/2019	L	Primary	--	2631312.34	638370.86	250	R304-002F(03122019) 250	03/12/2019			2.74		21.1		539		61300	
R306-002F	R306	3/28/2019	R	Primary	--	2631951.79	632511.22	2000	R306-002F(03282019) 2000	03/28/2019	2.14		1.79		10.5		466		25600	
R77M-002F	R77M	1/23/2019	R	Primary	--	2633379.40	626332.12	2000	R77M-002F(01232019) 2000	01/23/2019	6.61		1.83	J	16.1		781		45200	
	R77M	1/23/2019	R	Primary	--	2633379.40	626332.12	250	R77M-002F(01232019) 250	01/23/2019	7.30		1.86	J	21.3		956		55600	
R87-008F	R87	3/11/2019	F	Primary	--	2632090.92	635183.77	2000	R87-008F(03112019) 2000	03/11/2019	4.5		0.41		19.7		386		54000	
	R87	3/11/2019	F	Primary	--	2632090.92	635183.77	250	R87-008F(03112019) 250	03/11/2019			0.52		22.7		409		67000	
R87-011F	R87	3/12/2019	F	Primary	--	2632161.28	634876.72	2000	R87-011(03122019) 2000	03/12/2019	8.24		0.93		19.6		486		59700	
	R87	3/12/2019	F	Primary	--	2632161.28	634876.72	250	R87-011(03122019) 250	03/12/2019										
R09M-011F	R09M	1/24/2019	D	Primary	--	2633571.47	626282.22	2000	R09M-011F(01242019) 2000	01/24/2019	3.19		1.44	J	16.2		374		51900	
	R09M	1/24/2019	D	Primary	--	2633571.47	626282.22	250	R09M-011F(01242019) 250	01/24/2019			0.99	J	27.6		445		89000	
R09M-014F	R09M	1/24/2019	LU	Primary	--	2633454.15	626705.56	2000	R09M-014F(01242019) 2000	01/24/2019	3.62		1.04	J	18.8		361		51500	
	R09M	1/24/2019	LU	Primary	--	2633454.15	626705.56	250	R09M-014F(01242019) 250	01/24/2019			1.2	J	19.6		402		55500	
R09M-018F	R09M	1/31/2019	F	Primary	--	2633442.48	626692.74	2000	R09M-018F(01312019) 2000	01/31/2019	2.44		< 4		10.9		232		36100	
	R09M	1/31/2019	F	Primary	--	2633442.48	626692.74	250	R09M-018F(01312019) 250	01/31/2019			0.67		16.0		296		53900	
R302-001F	R302	3/11/2019	U	Primary	--	2631493.97	636164.03	2000	R302-001F(03112019) 2000	03/11/2019	3.39		1.88		12.4		750		48900	
	R302	3/11/2019	U	Primary	--	2631493.97	636164.03	250	R302-001F(03112019) 250	03/11/2019			2.31		17		501		60500	
R302-004F	R302	3/11/2019	D	Primary	--	2631688.44	635982.42	2000	R302-004F(03112019) 2000	03/11/2019	3.6		0.98		12.7		462		43300	
	R302	3/11/2019	D	Primary	--	2631688.44	635982.42	250	R302-004F(03112019) 250	03/11/2019			1.21		14.3		496		60500	
R303-001F	R303	3/12/2019	U	Primary	--	2631326.17	636750.67	2000	R303-001F(03122019) 2000	03/12/2019	3.27		3.59		10.6		905		26000	
	R303	3/12/2019	U	Primary	--	2631326.17	636750.67	250	R303-001F(03122019) 250	03/12/2019			3.88		12.2		1080		33400	
R304-005F	R304	3/12/2019	D	Field Duplicate	R304-003F	2631272.45	638217.38	2000	R304-005F(03122019) 2000	03/12/2019	5.14		1.33		15.3		699		38800	
	R304	3/12/2019	D	Field Duplicate	R304-003F	2631272.45	638217.38	250	R304-005F(03122019) 250	03/12/2019			1.21		13.3		632		37000	
R40-005F	R40	12/3/2018	F	Primary	--	2637271.33	647288.12	2000	R40-005F(12032018) 2000	12/03/2018	5.82		1.45		25.7		719		92000	
R04-004F	R04	12/10/2018	L,U	Primary	--	2632218.79	631509.53	2000	R4-004F(12102018) 2000	12/10/2018	3.34		1.25	J	8.57		729		27600	
R6/71-001F	R6/71	3/4/2019	F	Primary	--	2632045.02	631662.65	2000	R6/71-001F(03042019) 2000	03/04/2019	3.43		4.21		11		1560		29500	
	R6/71	3/4/2019	F	Primary	--	2632045.02	631662.65	250	R6/71-001F(03042019) 250	03/04/2019	3.04		5.17		13.3		944		31300	
R01-006F	R01	3/30/2019	U	Primary	--	2633501.27	645139.45	2000	R01-006F(03302019) 2000	03/30/2019	3.55		3.26		11.7		414		34700	
R01-008F	R01	3/30/2019	R	Primary	--	2633129.98	644956.26	2000	R01-008F(03302019) 2000	03/30/2019	3.89		3.74		14.7		581		43100	
	R01	3/30/2019	R	Primary	--	2633129.98	644956.26	250	R01-008F(03302019) 250	03/30/2019	4.23		4		14.7		583		44500	
R01-009F	R01	3/30/2019	R	Field Duplicate	R01-008F	2633129.98	644956.26	2000	R01-009F(03302019) 2000	03/30/2019	3.79		3.53		14.5		533		41200	
R01-010F	R01	3/30/2019	R,D	Primary	--	2632933.80	644818.55	2000	R01-010F(03302019) 2000	03/30/2019	3.32		2.93		12.5		318		46700	
R01-011F	R01	3/30/2019	D	Primary	--	2632907.17	644707.42	2000	R01-011F(03302019) 2000	03/30/2019	4.65		3.07		16.1		578		44300	
	R01	3/30/2019	D	Primary	--	2632907.17	644707.42	250	R01-011F(03302019) 250	03/30/2019	5.4		3.01		14.4		604		50900	
R01-012F	R01	3/30/2019	L,D	Primary	--	2633211.05	644927.44	2000	R01-012F(03302019) 2000	03/30/2019	1.68		0.62		15		373		30900	
R01-013F	R01	3/30/2019	L	Primary	--	2633377.40	645044.83	2000	R01-013F(03302019) 2000	03/30/2019	5.86		3.33		15.6		667		36100	
R01-014F	R01	5/13/2019	F	Primary	--	2633395.10	645102.09	2000	R01-014F(05132019) 2000	05/13/2019	2.13		0.31	J	19.3		350		48200	J
	R01	5/13/2019	F	Primary	--	2633395.10	645102.09	250	R01-014F(05132019) 250	05/13/2019	2.7		0.49		35.9		526		75100	
R01-015F	R01	5/13/2019	F	Primary	--	2633212.47	644977.44	2000	R01-015F(05132019) 2000	05/13/2019	2.41		0.46		21.4		481		67000	

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Analyte	Arsenic		Cadmium		Chromium		Copper		Iron	
										CAS	7440-38-2		7440-43-9		7440-47-3		7440-50-8		7439-89-6	
										Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
										Sample Date	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R01-016F	R01	5/13/2019	F	Primary	--	2633077.42	644912.18	2000	R01-016F(05132019) 2000	05/13/2019	2.23		0.34	J	18.9		423		64800	
R01-017F	R01	5/13/2019	F	Primary	--	2633672.90	645461.81	2000	R01-017F(05132019) 2000	05/13/2019	3.94		0.9		26		969		49100	
	R01	5/13/2019	F	Primary	--	2633672.90	645461.81	250	R01-017F(05132019) 250	05/13/2019	3.84		0.9		29.2		995		52600	
R03B-009F	R03B	2/6/2019	F	Primary	--	2633744.74	625803.59	2000	R03B-009F(02062019) 2000	02/06/2019	2.18		< 4		11.7		298		58200	
R03B-011F	R03B	2/7/2019	F	Primary	--	2633676.64	625882.32	2000	R03B-011F(02072019) 2000	02/07/2019	3.2		0.69		14.9		266		62600	
R03B-012F	R03B	2/7/2019	F	Primary	--	2633489.87	626163.67	2000	R03B-012F(02072019) 2000	02/07/2019	4.18		0.71		13.7		334		50300	
R09M-012F	R09M	1/24/2019	LD	Primary	--	2633578.72	626464.83	2000	R09M-012F(01242019) 2000	01/24/2019	3.73		1.16	J	16.2		412		51600	
R09M-013F	R09M	1/24/2019	L	Primary	--	2633566.26	626564.82	2000	R09M-013F(01242019) 2000	01/24/2019	4.06		1.42	J	20.3		549		79200	
R09M-016F	R09M	1/31/2019	F	Primary	--	2633428.62	626637.45	2000	R09M-016F(01312019) 2000	01/31/2019	2.51		< 4		15.3		302		74100	
R09M-017F	R09M	1/31/2019	F	Primary	--	2633562.60	626359.18	2000	R09M-017F(01312019) 2000	01/31/2019	2.7		< 4		14.4		297		54600	
R10-005F	R10	2/26/2019	F	Primary	--	2632216.00	631180.08	2000	R10-005F(02262019) 2000	02/26/2019	4.99		0.66		18.7		451		61200	
	R10	2/26/2019	F	Primary	--	2632216.00	631180.08	250	R10-005F(02262019) 250	02/26/2019	6.31		0.75		20.5		503		69700	
R10-006F	R10	2/27/2019	F	Primary	--	2632057.46	631364.38	2000	R10-006F(02272019) 2000	02/27/2019	5.13		0.95		21.2		556		61800	
R10-007F	R10	2/27/2019	F	Primary	--	2632095.32	631295.78	2000	R10-007F(02272019) 2000	02/27/2019	7.89		1.06		15.3		534		47100	
R101-001F	R101	2/12/2019	R	Primary	--	2634490.72	624039.27	2000	R101-001F(02122019) 2000	02/12/2019	4.04		1.38	J	14.5		445		53900	
	R101	2/12/2019	R	Primary	--	2634490.72	624039.27	250	R101-001F(02122019) 250	02/12/2019	5.25		1.43	J	16.4		464		71200	
R101-002F	R101	2/12/2019	R	Primary	--	2634466.57	623836.53	2000	R101-002F(02122019) 2000	02/12/2019	3.27		1.19	J	14		395		55700	
R101-003F	R101	2/12/2019	F	Primary	--	2634484.20	623942.03	2000	R101-003F(02122019) 2000	02/12/2019	4.19		0.68		18.9		366		71100	
R101-004F	R101	2/13/2019	F	Primary	--	2634457.44	623753.28	2000	R101-004F(02132019) 2000	02/13/2019	3.19		0.76		20.5		381		56600	
	R101	2/13/2019	F	Primary	--	2634457.44	623753.28	250	R101-004F(02132019) 250	02/13/2019	4.37		1.09		24.4		484		65200	
R102-001F	R102	2/12/2019	R	Primary	--	2634552.43	624395.64	2000	R102-001F(02122019) 2000	02/12/2019	2.87		2.47	J	9.85		794		28800	
R102-002F	R102	2/12/2019	F	Primary	--	2634582.99	624453.95	2000	R102-002F(02122019) 2000	02/12/2019	1.68		0.87		8.41		121		19900	
R102-003F	R102	2/12/2019	F	Primary	--	2634528.42	624293.36	2000	R102-003F(02122019) 2000	02/12/2019	4.67		0.77		12.8		327		56700	
	R102	2/12/2019	F	Primary	--	2634528.42	624293.36	250	R102-003F(02122019) 250	02/12/2019	6.4		1.05		18.5		381		74800	
R120-010F	R120	1/24/2019	F	Primary	--	2632326.07	629343.74	2000	R120-010F(01242019) 2000	01/24/2019	4.9		< 4		14.7		466		56100	
R301-001F	R301	3/11/2019	U	Primary	--	2631861.47	635736.70	2000	R301-001F(03112019) 2000	03/11/2019	< 0.3		0.85		16.5		392		60800	
R301-002F	R301	3/11/2019	R	Primary	--	2631849.04	635699.75	2000	R301-002F(03112019) 2000	03/11/2019	4.71		2.18		13.5		468		42500	
R301-003F	R301	3/11/2019	D	Primary	--	2631893.62	635694.31	2000	R301-003F(03112019) 2000	03/11/2019	3.88		0.58		21.9		411		73900	
R301-004F	R301	3/11/2019	L	Primary	--	2631867.40	635719.42	2000	R301-004F(03112019) 2000	03/11/2019	4.08		0.79		19.4		472		67400	
R301-005F	R301	4/5/2019	F	Primary	--	2631860.43	635705.49	2000	R301-005F(04052019) 2000	04/05/2019	4.35		0.61		16.6		331		53100	
R302-002F	R302	3/11/2019	L	Primary	--	2631550.32	636085.10	2000	R302-002F(03112019) 2000	03/11/2019	3.97		1.75		12.9		447		54900	
R302-003F	R302	3/11/2019	L	Primary	--	2631656.08	636066.67	2000	R302-003F(03112019) 2000	03/11/2019	4.06		2.08		12.2		496		36000	
R302-005F	R302	3/11/2019	L	Field Duplicate	R302-003F	2631656.08	636066.67	2000	R302-005F(03112019) 2000	03/11/2019	4.23		2.02		12.2		501		35300	
R302-006F	R302	4/5/2019	F	Primary	--	2631511.54	636123.88	2000	R302-006F(04052019) 2000	04/05/2019	2.28		0.25	J	12.3		318		66800	
	R302	4/5/2019	F	Primary	--	2631511.54	636123.88	250	R302-006F(04052019) 250	04/05/2019	3.04		0.49		22.2		538		256000	
R303-002F	R303	3/12/2019	L	Primary	--	2631336.45	636672.00	2000	R303-002F(03122019) 2000	03/12/2019	3		2.74		9.92		741		26800	
R303-003F	R303	3/12/2019	D	Primary	--	2631406.52	636642.21	2000	R303-003F(03122019) 2000	03/12/2019	3.16		1.07		9.38		525		26300	
R304-004F	R304	3/12/2019	R	Primary	--	2631353.80	638320.11	2000	R304-004F(03122019) 2000	03/12/2019	7		4.51		12.7		736		35100	
R304-006F	R304	3/28/2019	F	Primary	--	2631389.08	638400.42	2000	R304-006F(03282019) 2000	03/28/2019	2.08		0.36		10.6		338		51600	
	R304	3/28/2019	F	Primary	--	2631389.08	638400.42	250	R304-006F(03282019) 250	03/28/2019	2.86		0.46		16.2		545		63200	
R304-007F	R304	3/28/2019	F	Primary	--	2631296.58	638268.73	2000	R304-007F(03282019) 2000	03/28/2019	2.22		0.59		12.6		370		49700	
R305-001F	R305	3/26/2019	U	Primary	--	2631003.32	637209.93	2000	R305-001F(03262019) 2000	03/26/2019	4.56		3.1		12.9		736		38800	
R40-003F	R40	11/19/2018	D	Primary	--	2637248.84	647305.81	2000	R40-003F(11192018) 2000	11/19/2018	5.30		5.44		11.6		632		50100	
R40-004F	R40	11/19/2018	L	Primary	--	2637265.81	647271.54	2000	R40-004F(11192018) 2000	11/19/2018	5.85		3.72	J	12.7		646		54100	
	R40	11/19/2018	L	Primary	--	2637265.81	647271.54	250	R40-004F(11192018) 250	11/19/2018	7.62		3.25	J	13.6		761		66000	
R04-002F	R04	12/10/2018	D	Primary	--	2632275.90	631339.85	2000	R4-002F(12102018) 2000	12/10/2018	4.64		0.74	J	8.94		367		27300	
R04-003F	R04	12/10/2018	L,D	Primary	--	2632259.66	631460.54	2000	R4-003F(12102018) 2000	12/10/2018	2.94		< 4.00		12.9		366		30900	
	R04	12/10/2018	L,D	Primary	--	2632259.66	631460.54	250	R4-003F(12102018) 250	12/10/2018	2.72		< 4.00		14.2		338		33000	
R59-004F	R59	3/25/2019	L	Primary	--	2631729.67	638941.96	2000	R59-004F(03252019) 2000	03/25/2019			2.62		14.2		363		34700	
	R59	3/25/2019	L	Primary	--	2631729.67	638941.96	250	R59-004F(03252019) 250	03/25/2019	4.04		2.79		14.9		447		48500	
R59-005F	R59	5/2/2019	F	Primary	--	2631739.91	638960.87	2000	R59-005F(05022019) 2000	05/02/2019	2.18		0.15	J	18.8		304		45800	
R62-001F	R62	12/5/2018	U	Primary	--	2631252.05	638304.19	2000	R62-001F(12052018) 2000	12/05/2018	3.35		2.31	J	11.4		378		40600	
R62-002F	R62	12/5/2018	D	Primary	--	2631030.96	637926.13	2000	R62-002F(12052018) 2000	12/05/2018	4.48		3.17	J	13.5		2160		33600	
	R62	12/5/2018	D	Primary	--	2631030.96	637926.13	250	R62-002F(12052018) 250	12/05/2018	5.11		2.35	J	15.8		1850		46900	
R62-003F	R62	12/5/2018	L	Primary	--	2631108.93	637939.51	2000	R62-003F(12052018) 2000	12/05/2018	4.88		1.19	J	19.2		398		65100	

Notes:
1 - Sampling location. relative to removal area. are denoted as follows:
U=Upstream side of removal area
D=Downstream side of removal area
L=Left side of removal area, looking downstream
R=Right side of removal area, looking downstream
F=Floor Sample
2 - State Plane New Mexico West

Appendix A. Analytical Data
Table A-1. Chino Excavation Data
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Lead 7439-92-1 mg/kg		Manganese 7439-96-5 mg/kg		Percent Moisture ARC-Moist %		pH ARC-pH SU		Total Organic Carbon ARC-TOC %		Zinc 7440-66-6 mg/kg	
										Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R01-001F	R01	11/29/2018	U	Primary	--	2633524.26	645153.98	2000	R01-001F(11292018) 2000	162		1470		1.1		7.7	J	0.419	J	1330	
	R01	11/29/2018	U	Primary	--	2633524.26	645153.98	250	R01-001F(11292018) 250	182		1100		1.7		7.8	J	0.896	J	530	
R01-002F	R01	11/29/2018	R	Primary	--	2633361.73	645111.02	250	R01-002F(11292018) 250	148		1510		1.8		7.7	J	1.19	J		
R01-003F	R01	11/29/2018	R, D	Primary	--	2633068.78	644936.12	250	R01-003F(11292018) 250	124		457		1.2		7.8	J	0.223	J	157	
R01-004F	R01	11/29/2018	D	Primary	--	2633020.79	644787.49	2000	R01-004F(11292018) 2000	111		444		1.4		7.8	J	0.401	J	356	
	R01	11/29/2018	D	Primary	--	2633020.79	644787.49	250	R01-004F(11292018) 250	114		259		1.5		7.8	J	0.425	J	82.7	
R01-005F	R01	11/29/2018	L	Primary	--	2633271.08	645038.47	250	R01-005F(11292018) 250	187		639		1.7		7.7	J	0.791	J	162	
R02-001F	R02	12/17/2018	U	Primary	--	2634667.07	623451.11	2000	R02-001F(12172018) 2000	247		961		1.2		5.8	J	0.185	J	699	
R02-002F	R02	12/17/2018	R	Primary	--	2634645.82	623333.32	2000	R02-002F(12172018) 2000	155		1090		1.1		7.6	J	0.312	J	1060	
R02-003F	R02	12/17/2018	D	Primary	--	2634691.99	623143.54	2000	R02-003F(12172018) 2000	144		1330		1.7		7.3	J	0.478	J	796	
	R02	12/17/2018	D	Primary	--	2634691.99	623143.54	250	R02-003F(12172018) 250	149	J	1250		1.7		7.4	J	0.414	J	784	
R02-004F	R02	12/17/2018	L	Primary	--	2634689.08	623257.11	2000	R02-004F(12172018) 2000	201		1100		1.2		7.5	J	0.333	J	1330	
R02-005F	R02	12/17/2018	L	Field Duplicate	R02-004F	2634689.08	623257.11	2000	R02-005F(12172018) 2000	178		1080		1.2		7.2	J	0.315	J	1240	
R02-006F	R02	2/14/2019	F	Primary	--	2634665.26	623386.76	2000	R02-006F(02142019) 2000	56.4		885		1.1		7.6				334	
	R02	2/14/2019	F	Primary	--	2634665.26	623386.76	250	R02-006F(02142019) 250	99.5		984		2		7.7				577	
R02-007F	R02	2/14/2019	F	Primary	--	2634671.13	623320.13	2000	R02-007F(02142019) 2000	172		1060		1		7.6				769	
R02-008F	R02	2/14/2019	F	Primary	--	2634688.85	623216.07	2000	R02-008F(02142019) 2000	95.1		590		2.1		5.3				295	
R02-009F	R02	2/14/2019	F	Primary	--	2634710.39	623162.37	2000	R02-009F(02142019) 2000	82.1		539		1.9		4.6				276	
	R02	2/14/2019	F	Primary	--	2634710.39	623162.37	250	R02-009F(02142019) 250	121		464		2.9		4.7				273	
R03A-001F	R03A	12/18/2018	U	Primary	--	2633335.92	626292.27	2000	R03A-001F(12182018) 2000	94.9		561		1.9		6.7	J	1.25	J	251	
	R03A	12/18/2018	U	Primary	--	2633335.92	626292.27	250	R03A-001F(12182018) 250	104		550		2.1		6.6	J	1.33	J	215	
R03A-002F	R03A	12/18/2018	R	Primary	--	2633338.93	626249.93	2000	R03A-002F(12182018) 2000	80.4		1000		2.2		7.8	J	1.15	J	176	
R03A-003F	R03A	12/18/2018	D	Primary	--	2633371.70	626257.83	2000	R03A-003F(12182018) 2000	338		695		3.0		4.1	J	0.337	J	1000	
R03A-004F	R03A	12/18/2018	L	Primary	--	2633369.01	626285.68	2000	R03A-004F(12182018) 2000	51.2		1200		2.4		6.3	J	0.347	J		
	R03A	12/18/2018	L	Primary	--	2633369.01	626285.68	250	R03A-004F(12182018) 250	48.7		1120		2.2		6.5	J	0.425	J	1300	
R03A-005F	R03A	12/18/2018	D	Field Duplicate	R03A-003F	2633371.70	626257.83	2000	R03A-005F(12182018) 2000	361		796		3.3		4.2	J	0.611	J	1090	
R03B-001F	R03B	12/18/2018	U	Primary	--	2633431.27	626207.53	2000	R03B-001F(12182018) 2000	47.5		831		2.8		7.3	J	0.783	J	246	
R03B-002F	R03B	12/18/2018	R	Primary	--	2633606.72	625953.69	2000	R03B-002F(12182018) 2000	111		940		1.0		8	J	0.527	J	565	
	R03B	12/18/2018	R	Primary	--	2633606.72	625953.69	250	R03B-002F(12182018) 250	94.2		910		1.8		7.9	J	0.462	J	571	
R03B-003F	R03B	12/18/2018	R	Primary	--	2633830.09	625625.39	2000	R03B-003F(12182018) 2000	73.9		1120		2.1		7.9	J	1.12	J	416	
R03B-004F	R03B	12/18/2018	D	Primary	--	2633934.29	625598.02	2000	R03B-004F(12182018) 2000	105		995		0.9		8.1	J	0.669	J	721	
R03B-005F	R03B	12/18/2018	L	Primary	--	2633812.73	625776.72	2000	R03B-005F(12182018) 2000	145		1060		0.9		7.9	J	< 0.15	UJ	829	
	R03B	12/18/2018	L	Primary	--	2633812.73	625776.72	250	R03B-005F(12182018) 250	222		1270		0.9		7.6	J	0.467	J	1030	
R03B-006F	R03B	12/18/2018	LU	Primary	--	2633645.12	626027.54	2000	R03B-006F(12182018) 2000	187		637		1.1		5.7	J	< 0.15	UJ	324	
R03B-007F	R03B	12/18/2018	R	Field Duplicate	R03B-002F	2633606.72	625953.69	2000	R03B-007F(12182018) 2000	76.6		842		1.1		7.9	J	0.504	J	452	
R03B-010F	R03B	2/6/2019	F	Primary	--	2633917.01	625609.08	2000	R03B-010F(02062019) 2000	118		345		1.6		4.2				235	
	R03B	2/6/2019	F	Primary	--	2633917.01	625609.08	250	R03B-010F(02062019) 250	208		302		2.2		4.1				225	
R03B-014F	R03B	2/7/2019	F	Field Duplicate	R03B-013F	2633611.67	625943.25	2000	R03B-014F(02072019) 2000	72.2		650		1.4		6.4				276	
R04-006F	R04	2/26/2019	F	Primary	--	2632241.79	631403.12	2000	R04-006F(02262019) 2000	72		856		1.4		7.4				333	
R04-007F	R04	2/26/2019	F	Primary	--	2632216.09	631469.65	2000	R04-007F(02262019) 2000	74.2		664		2.5		6				279	
R09M-009F	R09M	1/24/2019	R	Primary	--	2633430.96	626599.85	2000	R09M-009F(01242019) 2000	155		869		0.8		7	J	< 0.15		500	
R09M-010F	R09M	1/24/2019	RD	Primary	--	2633529.17	626363.72	2000	R09M-010F(01242019) 2000	123		822		0.8		6.2	J	< 0.15		526	
R09M-019F	R09M	1/31/2019	F	Primary	--	2633569.18	626442.33	2000	R09M-019F(01312019) 2000	95.1		426		2.6		4.8		< 0.15		202	
R10-001F	R10	12/10/2018	U	Primary	--	2632054.11	631348.93	2000	R10-001F(12102018) 2000	73.4		825		1.8		8.1	J	1.17	J	223	
R10-002F	R10	12/10/2018	R	Primary	--	2632120.52	631215.90	2000	R10-002F(12102018) 2000	157	J	942		2.0		7.8	J	0.908	J	352	
R10-003F	R10	12/10/2018	D	Primary	--	2632193.57	631087.95	2000	R10-003F(12102018) 2000	24.0		1680		1.0		8.2	J	< 0.150	UJ	74.8	
	R10	12/10/2018	D	Primary	--	2632193.57	631087.95	250	R10-003F(12102018) 250	15.8		769		1.3		8	J	< 0.15	UJ	77.7	
R10-004F	R10	12/10/2018	L	Primary	--	2632235.54	631163.69	2000	R10-004F(12102018) 2000	255		702		1.1		5.9	J	< 0.15	UJ	411	
R103-001F	R103	12/21/2018	U	Primary	--	2634918.44	622119.78	2000	R103-001F(12212018) 2000	141		781		1.6		7	J	0.182	J	447	
R103-002F	R103	12/21/2018	R	Primary	--	2634900.72	622046.83	2000	R103-002F(12212018) 2000	123		877		1.7		7.4	J	0.596	J	503	
R103-003F	R103	12/21/2018	D	Primary	--	2634957.94	621978.67	2000	R103-003F(12212018) 2000	114		833		1.1		6.5	J	0.256	J	404	
R103-004F	R103	12/21/2018	L	Primary	--	2634955.93	622080.19	2000	R103-004F(12212018) 2000	142		893		1.0		6.8	J	< 0.15	UJ	521	
R11-001F	R11	12/10/2018	U	Primary	--	2632464.12	633535.13	2000	R11-001F(12102018) 2000	126		1160		1.3		7.6	J	1.92	J	862	
R11-002F	R11	12/10/2018	R	Primary	--	2632361.67	633515.93	2000	R11-002F(12102018) 2000	65.7		728		2.8		5.9	J	1.20	J	209	
	R11	12/10/2018	R	Primary	--	2632361.67	633515.93	250	R11-002F(12102018) 250	72.2		683		3.3		5.9	J	0.928	J	212	
R11-003F	R11	12/10/2018	R	Primary	--	2632415.87	633497.52	2000	R11-003F(12102018) 2000	152		1050		3.2		7.3	J	1.21	J	961	
R11-004F	R11	12/10/2018	D	Primary	--	2632403.36	633351.49	2000	R11-004F(12102018) 2000	83.2		1060		2.1		7	J	0.555	J	381	J
R11-005F	R10	12/10/2018	R	Field Duplicate	R10-002F	2632120.52	631215.90	2000	R11-005F(12102018) 2000	85.5	J	690		3.1		5.3	J	0.996	J	228	
	R10	12/10/2018	R	Field Duplicate	R10-002F	2632120.52	631215.90	250	R11-005F(12102018) 250	114		593		3.6		5.1	J	1.12	J	225	
R11-006F	R11	3/6/2019	F	Primary	--	2632433.54	633450.23	2000	R11-006F(03062019) 2000	176		776		3		4.6				565	
	R11	3/6/2019	F	Primary	--	2632433.54	633450.23	250	R11-006F(03062019) 250	215		722		3.5		4.7				560	
R116-001F	R116	12/3/2018	U	Primary	--	2632744.15	641794.76	2000	R116-001F(12032018) 2000	150		831		1.7		7.9	J	0.846	J	424	
R116-002F	R116	12/3/2018	R	Primary	--	2632758.96	641261.21	2000	R116-002F(12032018) 2000	182		890		1.8		7.5	J	0.295	J	500	
R116-003F	R116	12/3/2018	L	Primary	--	2632771.06	641481.86	2000	R116-003F(12032018) 2000	243		733		1.5		5.6	J	0.479	J	336	
	R116	12/3/2018	L	Primary	--	2632771.06	641481.86	250	R116-003F(12032018) 250	379		601		2.5		5.3	J	0.455	J	402	
R116-004F	R116	12/3/2018	D	Primary	--	2632766.74	641241.30	2000	R116-004F(12032018) 2000	255		948		1.5		6.9	J	0.233	J	776	
R116-005F	R116	5/3/2019	F	Primary	--	2632730.14	641677.65	2000	R116-005F(05032019) 2000	358		892		1.8		5.4				397	
R116-006F	R116	5/3/2019	F	Primary	--	2632764.28	641409.93	2000	R116-006F(05032019) 2000	301		1230		1.6		6.5	J			736	
	R116	5/3/2019	F	Primary	--	2632764.28	641409.93	250	R116-006F(05032019) 250	356		1430		1.6		6.7	J			928	
R117-001F	R117	12/21/2018	U	Primary	--	2635239.87	620956.06	2000	R117-001F(12212018) 2000	109		1110		4.2		7.5	J	2.18	J	659	
R117-002F	R117	12/21/2018	R	Primary	--	2635221.13	620910.23	2000	R117-002F(12212018) 2000	23.5		404		1.9		7.8	J	0.478	J	86.4	
R117-003F	R117	12/21/2018	L	Primary	--	2635268.76	620890.99	2000	R117-003F(12212018) 2000	27.6		407		4.3		7.9	J	1.07	J	103	
R117-004F	R117	12/21/2018	D	Primary	--	2635260.70	620875.62	2000	R117-004F(12212018) 2000	103		1070		3.4		7.5	J	0.887	J	569	
R117-005F	R117	12/21/2018	R	Field Duplicate	R117-002F	2635221.13	620910.23	2000	R117-005F(12212018) 2000	16.9		286		1.4		8.0	J	0.214	J	60.0	
R118-001F	R118	12/10/2018	U	Primary	--	2632384.08	630795.22	2000	R118-001F(12102018) 2000	223		684		1.4		6.7	J	< 0.15	UJ	325	
R118-002F	R118	12/10/2018	R,U	Primary	--	2632342.26	630755.40	2000	R118-002F(12102018) 2000	196		856		1.2		6.1	J	< 0.15	UJ	313	
	R118	12/10/2018	R,U	Primary	--	2632342.26	630755.40	250	R118-002F(12102018) 250	285		1070		1.0		6.4	J	< 0.15	UJ	364	
R118-003F	R118	12/10/2018	R,U	Primary	--	2632386.64	630615.21	2000	R118-003F(12102018) 2000	261		1010		2.7		4.1	J	0.234	J	717	
R118-005F	R118	12/10/2018	D	Primary	--	2632245.82	630193.66	2000	R118-005F(12102018) 2000	218		987		1.4		6.4	J	0.473	J	707	
R118-006F	R118	12/10/2018	R,U	Field Duplicate	R118-002F	2632342.26	630755.40	2000	R118-006F(12102018) 2000	205		688		1.1		5.9	J	< 0.150	UJ	306	
	R118	12/10/2018	R,U	Field Duplicate	R118-002F	2632342.26	630755.40	250	R118-006F(12102018) 250	280		950		1.0		6.0	J	< 0.150	UJ	356	
R118-008F	R118	12/10/2018	R,D	Primary	--	2632281.21	630385.31	2000	R118-008F(12102018) 2000	479		564		1.5		4.7	J	0.245	J	475	
R118-009F	R118	4/12/2019	R	Primary	--	2632257.79	630363.23	2000	R118-009F(04122019) 2000	276		903		1.1		6.9				875	
R118-010F	R118	4/17/2019	F	Primary	--	2632396.29	630532.87	2000	R118-010F(04172019) 2000	323		679		1.6		4.1	J			515	
R118-011F	R118	4/17/2019	F	Primary	--	2632370.95	630702.11	2000	R118-011F(04172019) 2000	127		950		1.5		5.4	J			392	
	R118	4/17/2019	F	Primary	--	2632370.95	630702.11	250	R118-011F(04172019) 250	164		645		1.9		5.4	J			465	
R118-012F	R118	4/17/2019	F	Primary	--	2632316.29	630277.32	2000	R118-012F(04172019) 2000	359		631		1.4		5	J			370	
R118-013F	R118	4/17/2019	F	Primary	--	2632255.74	630177.99	2000	R118-013F(04172019) 2000	182		493		1.4		4.6	J			264	
R118-014F	R118	4/17/2019	F	Primary	--	2632143.87	630071.46	2000	R118-014F(04172019) 2000	238		622		2.8		4.5	J			348	
	R118	4/17/2019	F	Primary	--	2632143.87	630071.46	250	R118-014F(04172019) 250	249		717		1.5		4.6	J			341	
R120-001F	R120	12/11/2018	U	Primary	--	2632151.59	629648.45	2000	R120-001F(12112018) 2000	199		825		1.2		5.5	J	< 0.150	UJ	344	
R120-002F	R120	12/11/2018	R	Primary	--	2632152.82	629518.65	2000	R120-002F(12112018) 2000	149		1090		1.1		7.7	J	0.552	J	833	
	R120	12/11/2018	R	Primary	--	2632152.82	629518.65	250	R120-002F(12112018) 250	194		1130		1.0		7.6	J	0.527	J	1020	
R120-003F	R120	12/11/2018	DR	Primary	--	2632307.25	629301.63	2000	R120-003F(12112018) 2000	199		962		1.1		7.3	J	0.306	J	575	

Appendix A. Analytical Data
Table A-1. Chino Excavation Data
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Lead 7439-92-1 mg/kg		Manganese 7439-96-5 mg/kg		Percent Moisture ARC-Moist %		pH ARC-pH SU		Total Organic Carbon ARC-TOC %		Zinc 7440-66-6 mg/kg	
										Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R120-004F	R120	12/11/2018	DL	Primary	--	2632356.58	629337.10	2000	R120-004F(12112018) 2000	212		909		1.2		7.6	J	0.204	J	595	
R120-005F	R120	12/11/2018	DL	Field Duplicate	R120-004F	2632356.58	629337.10	2000	R120-005F(12112018) 2000	194		939		1.2		7.4	J	0.193	J	570	
	R120	12/11/2018	DL	Field Duplicate	R120-004F	2632356.58	629337.10	250	R120-005F(12112018) 250	220		1080		1.2		7.5	J	0.275	J	651	
R120-006F	R120	1/24/2019	F	Primary	--	2632147.13	629592.92	2000	R120-006F(01242019) 2000	150		442		2		4.7		0.452		667	
R120-007F	R120	1/24/2019	F	Primary	--	2632239.80	629520.55	2000	R120-007F(01242019) 2000	243		435		0.8		4.7		< 0.15		231	
R120-009F	R120	1/24/2019	F	Primary	--	2632222.11	629420.29	2000	R120-009F(01242019) 2000	146		1110		1.2		6.7		0.179		913	
R12-001F	R12	2/22/2019	U	Primary	--	2632458.45	633129.26	2000	R12-001F(02222019) 2000	238		813		2.1		5.4	J			629	
R12-002F	R12	2/22/2019	R65-002F	Primary	--	2632469.10	633106.86	2000	R12-002F(02222019) 2000	191		1050		2.3		5.4	J			727	
R12-003F	R12	2/22/2019	L	Primary	--	2632444.57	633093.04	2000	R12-003F(02222019) 2000	126		1510		2.6		6.4	J			998	
	R12	2/22/2019	L	Primary	--	2632444.57	633093.04	250	R12-003F(02222019) 250	184		1200		2.6		6.9	J			945	
R12-004F	R12	3/5/2019	F	Primary	--	2632454.14	633115.33	2000	R12-004F(03052019) 2000	115		1640		3		5				760	
R12-005F	R12	3/5/2019	F	Field Duplicate	R12-004F	2632454.14	633115.33	2000	R12-005F(03052019) 2000	94.3		1750		4.9		4.7				720	
R121-001F	R121	1/14/2019	R	Primary	--	2632235.00	629105.65	2000	R121-001F(01142019) 2000	103		1230		0.9		7.6	J	< 0.15		678	
	R121	1/14/2019	R	Primary	--	2632235.00	629105.65	250	R121-001F(01142019) 250	122		1150		0.9		7.7	J	< 0.15		620	
R122-001F	R122	12/12/2018	U	Primary	--	2632384.87	629218.98	2000	R122-001F(12122018) 2000	226		760		1.5		5.1	J	< 0.150	UJ	331	
R122-002F	R122	12/12/2018	R	Primary	--	2632591.23	629003.33	2000	R122-002F(12122018) 2000	220		572		1.2		5.2	J	< 0.150	UJ	374	
	R122	12/12/2018	R	Primary	--	2632591.23	629003.33	250	R122-002F(12122018) 250	191		873		1.2		5.1	J	0.215	J	502	
R122-003F	R122	12/12/2018	D	Primary	--	2632646.82	629056.57	2000	R122-003F(12122018) 2000	179		656		1.4		5.1	J	< 0.150	UJ	318	
R122-004F	R122	12/12/2018	L	Primary	--	2632541.32	629184.72	2000	R122-004F(12122018) 2000	224		742		1.0		6.0	J	< 0.150	UJ	433	
R122-005F	R122	12/12/2018	U	Field Duplicate	R122-001F	2632384.87	629218.98	2000	R122-005F(12122018) 2000	218		567		1.3		5.2	J	< 0.150	UJ	320	
	R122	12/12/2018	U	Field Duplicate	R122-001F	2632384.87	629218.98	250	R122-005F(12122018) 250	266		917		1.2		5.2	J	< 0.150	UJ	415	
R122-006F	R122	1/22/2019	F	Primary	--	2632525.60	629045.26	2000	R122-006F(01222019) 2000	69.5		247		2.2		4.5		< 0.15		158	
	R122	1/22/2019	F	Primary	--	2632525.60	629045.26	250	R122-006F(01222019) 250	88.2				3.3		4.5					
R122-007F	R122	1/22/2019	F	Primary	--	2632506.77	629105.06	2000	R122-007F(01222019) 2000	204		423		1.3		4.5		< 0.15		313	
R122-008F	R122	1/22/2019	F	Primary	--	2632398.97	629136.40	2000	R122-008F(01222019) 2000	95.8		262		2		4.9		< 0.15		188	
R122-010F	R122	1/22/2019	F	Primary	--	2632626.11	629084.67	2000	R122-010F(01222019) 2000	301		398		1.2		4.5		< 0.15		285	
R14-001F	R14	11/20/2018	U	Primary	--	2636191.84	646438.31	2000	R14-001F(11202018) 2000	54.0		351		1.7		7.9	J	0.977	J	278	
	R14	11/20/2018	U	Primary	--	2636191.84	646438.31	250	R14-001F(11202018) 250	53.2		345		2.2		7.9	J	0.451	J	307	
R14-002F	R14	11/20/2018	R	Primary	--	2636057.44	646396.75	2000	R14-002F(11202018) 2000	102		1210		1.9		7.8	J	0.941	J	694	
R14-003F	R14	11/20/2018	D	Primary	--	2635971.53	646354.70	2000	R14-003F(11202018) 2000	98.8		1210		1.6		7.8	J	0.984	J	634	
R14-004F	R14	11/20/2018	L	Primary	--	2636106.96	646380.94	2000	R14-004F(11202018) 2000	60.3		2140		1.2		7.8	J	0.419	J	356	
	R14	11/20/2018	L	Primary	--	2636106.96	646380.94	250	R14-004F(11202018) 250	71.4		3370		1.8		7.8	J	0.69	J	467	
R14-005F	R14	11/20/2018	D	Field Duplicate	R14-003F	2635971.53	646354.70	2000	R14-005F(11202018) 2000	89.9		1240		1.5		7.8	J	0.778	J	552	
R14-006F	R14	11/30/2018	F	Primary	--	2636184.24	646415.65	2000	R14-006F(11302018) 2000	238		1520		2.3		6.9		0.686		782	
	R14	11/30/2018	F	Primary	--	2636184.24	646415.65	250	R14-006F(12012018) 250	192		1150		1.7		6.9		0.567		626	
R15-001F	R15	11/20/2018	U	Primary	--	2636893.35	647230.80	2000	R15-001F(11202018) 2000	185		276		3.9		4.1	J	0.485	J	487	
R15-002F	R15	11/20/2018	R, U	Primary	--	2636784.93	647226.66	2000	R15-002F(11202018) 2000	145		1670		1.1		7.5	J	0.577	J	1270	
	R15	11/20/2018	R, U	Primary	--	2636784.93	647226.66	250	R15-002F(11202018) 250	170		1610		1.2		7.7	J	0.333	J	1330	
R15-003F	R15	11/20/2018	R	Primary	--	2636717.00	647023.64	2000	R15-003F(11202018) 2000	134		1520		0.8		7.6	J	0.274	J	1320	
R15-004F	R15	11/20/2018	R, D	Primary	--	2636549.88	646661.76	2000	R15-004F(11202018) 2000	165		1720		1.3		7.5	J	0.421	J	1470	
R15-005F	R15	11/20/2018	D	Primary	--	2636528.08	646557.10	2000	R15-005F(11202018) 2000	81.8		875		3.5		7.8	J	0.923	J	443	
	R15	11/20/2018	D	Primary	--	2636528.08	646557.10	250	R15-005F(11202018) 250	74.0		884		3.8		7.8	J	0.926	J	548	
R15-006F	R15	11/20/2018	L, D	Primary	--	2636638.95	646668.99	2000	R15-006F(11202018) 2000	179		690		1.6		6.1	J	0.177	J	480	
R15-007F	R15	11/20/2018	L,U	Primary	--	2636773.67	647013.33	2000	R15-007F(11202018) 2000	146		1650		0.7		7.6	J	< 0.15	UJ	1360	
R15-008F	R15	12/10/2018	F	Primary	--	2636720.47	646889.70	2000	R15-008F(12102018) 2000	146		659		2.1		5.7		< 0.150		394	
R15-009F	R15	12/10/2018	F	Primary	--	2636888.32	647240.25	2000	R15-009F(12102018) 2000	148		1350		1.7		7.3		0.590		1130	
R15-010F	R15	12/10/2018	F	Primary	--	2636620.87	646711.33	2000	R15-010F(12102018) 2000	158		1230		1.7		6.8		0.375		942	
	R15	12/10/2018	F	Primary	--	2636620.87	646711.33	250	R15-010F(12102018) 250	170		1200		2.0		6.7		0.355		1080	
R15-011F	R15	1/9/2019	F	Primary	--	2636752.72	647038.38	2000	R15-011F(01092019) 2000	125		944		1.9		6.8		< 0.15		549	
	R15	1/9/2019	F	Primary	--	2636752.72	647038.38	250	R15-011F(01092019) 250	256		1040		3.5		6.7		0.237		795	
R18-001F	R18	11/28/2018	U	Primary	--	2634074.15	645889.09	2000	R18-001F(11282018) 2000	158		1300		0.6		7.8	J	< 0.15	UJ	1060	
	R18	11/28/2018	U	Primary	--	2634074.15	645889.09	250	R18-001F(11282018) 250	180		1570		0.9		7.8	J	0.152	J	1180	
	R18	11/28/2018	U	Primary	--	2634074.15	645889.09	2000	R18-001F(12012018) 2000	426		1840		1.4		7.2	J	0.444	J	1500	
R18-002F	R18	11/28/2018	R	Primary	--	2633909.56	645755.85	2000	R18-002F(11282018) 2000	663		2450		1.5		7.5	J	0.347	J	1140	
R18-003F	R18	11/28/2018	D	Primary	--	2633758.88	645563.91	250	R18-003F(11282018) 250	185		1420		1.6		7.7	J	1.2	J	1260	
R18-004F	R18	11/28/2018	L	Primary	--	2634023.79	645814.44	250	R18-004F(11282018) 250	176		1520		1.5		7.7	J	4.2	J	879	
R18-005F	R18	3/30/2019	U	Primary	--	2634081.46	645957.24	2000	R18-005F(03302019) 2000	189		1150		0.5		7.6	J	0.844		485	
	R18	3/30/2019	U	Primary	--	2634081.46	645957.24	250	R18-005F(03302019) 250	417		1560		1.9		7.7	J			1550	
R18-008F	R18	3/30/2019	D	Primary	--	2633699.36	645530.13	2000	R18-008F(03302019) 2000	252		1490		0.5		6.9	J	0.378		1680	
R18-009F	R18	3/30/2019	L,D	Primary	--	2633827.62	645656.15	2000	R18-009F(03302019) 2000	274		722		0.8		7.8	J	0.467		476	
R18-010F	R18	3/30/2019	L,U	Primary	--	2633950.55	645798.00	2000	R18-010F(03302019) 2000	208		1330		0.4		7.6	J	0.32	J	985	
	R18	3/30/2019	L,U	Primary	--	2633950.55	645798.00	250	R18-010F(03302019) 250	324		1600		1.4		7.5	J			1270	
R19-001F	R19	11/14/2018	U	Primary	--	2640638.03	647317.19	2000	R19-001F(11142018) 2000	414	J	1400		4.1		4.8	J	0.729	J	217	J
R19-002F	R19	11/14/2018	R	Primary	--	2640638.34	647335.73	2000	R19-002F(11142018) 2000	528		1440		5.6		7.2	J	0.771	J	2440	
R19-003F	R19	11/14/2018	D, R	Primary	--	2640546.53	647456.28	2000	R19-003F(11142018) 2000	294		1620		3.4		6.5	J	1.13	J	1490	
	R19	11/14/2018	D, R	Primary	--	2640546.53	647456.28	250	R19-003F(11142018) 250	306		1470		3.9		5.9	J	1.17	J	1230	
R19-004F	R19	11/14/2018	D, L	Primary	--	2640480.31	647485.45	2000	R19-004F(11142018) 2000	72.5		673		1.7		7.1	J	0.755	J	111	
R19-005F	R19	11/13/2018	F	Primary	--	2640618.10	647362.71	2000	R19-005F(11132018) 2000	424		324		4.1		4.9		0.181		318	
R19-006F	R19	11/14/2018	L	Primary	--	2640584.95	647387.99	2000	R19-006F(11142018) 2000	40.9	J	539		1.0		7.5	J	< 0.150	UJ	107	
	R19	11/14/2018	L	Primary	--	2640584.95	647387.99	250	R19-006F(11142018) 250	52.2		623		1.8		7.5	J	0.318	J	112	
R19-007F	R19	11/14/2018	L	Field Duplicate	R19-006F	2640584.95	647387.99	2000	R19-007F(11142018) 2000	90.9	J	582		1.1		7.5	J	< 0.150	UJ	113	
R19-008F	R19	5/16/2019	R	Primary	--	2640608.73	647433.46	2000	R19-008F(05162019) 2000	365		1490		4.2		7.2	J			1440	
R19-009F	R19	5/16/2019	R	Field Duplicate	R19-008F	2640608.73	647433.46	2000	R19-009F(05162019) 2000	368		1440		3.5		7.3	J			1730	
R19-010F	R19	5/16/2019	R	Primary	--	2640563.64	647469.98	2000	R19-010F(05162019) 2000	155		916		4.8		6.1	J			584	
	R19	5/16/2019	R	Primary	--	2640563.64	647469.98	250	R19-010F(05162019) 250	132		853		4.7		5.2	J			409	
R19-011F	R19	5/16/2019	R	Field Duplicate	R19-010F	2640563.64	647469.98	2000	R19-011F(05162019) 2000	132		766		5.2		5.7	J			475	
R19-012F	R19	5/16/2019	R	Primary	--	2640537.66	647492.25	2000	R19-012F(05162019) 2000	654		1010		3.5		6.3	J			925	
R19-013F	R19	5/16/2019	R	Field Duplicate	R19-012F	2640537.66	647492.25	2000	R19-013F(05162019) 2000	718		1180		3.5		6.3	J			974	
	R19	5/16/2019	R	Field Duplicate	R19-012F	2640537.66	647492.25	250	R19-013F(05162019) 250	759		1270		3.6		6.1	J			1140	
R19-014F	R19	5/16/2019	R	Primary	--	2640505.48	647514.55	2000	R19-014F(05162019) 2000	1670		4010		1.8		6.7	J			9960	
R19-015F	R19	5/16/2019	R	Field Duplicate	R19-014F	2640505.48	647514.55	2000	R19-015F(05162019) 2000	1120		3550		2		6.5	J			8770	
R20-001F	R20	11/14/2018	U	Primary	--	2639924.68	647766.61	2000	R20-001F(11142018) 2000	662		1230		2.2		4.7	J	0.236	J	1120	
R20-002F	R20	11/14/2018	R	Primary	--	2639895.10	647800.43	2000	R20-002F(11142018) 2000	363		1240		1.6		7.0	J	< 0.150	UJ	477	
	R20	11/14/2018	R	Primary	--	2639895.10	647800.43	250	R20-002F(11142018) 250	321		1320		2.3		7.1	J	0.375	J	529	
R20-003F	R20	11/14/2018	D	Primary	--	2639854.82	647816.34	2000	R20-003F(11142018) 2000	225		1040		1.4		6.1	J	< 0.15	UJ	485	
R20-004F	R20	11/14/2018	L	Primary	--	2639887.73	647786.16	2000	R20-004F(11142018) 2000	312		1200		1.5		4.6	J	< 0.150	UJ	678	
R20-005F	R20	11/13/2018	F	Primary	--	2639897.82	647789.40	2000	R20-005F(11132018) 2000	142		292		2.0		4.7		< 0.150		208	
	R20	11/13/2018	F	Primary	--	2639897.82	647789.40	250	R20-005F(11132018) 250	190		297		2.7		4.7		0.389		199	
R20-006F	R20	11/13/2018	D	Field Duplicate	R20-003F	2639854.82	647816.34	2000	R20-006F(11132018) 2000	200		883		1.4		6.2	J	< 0.150	UJ	556	
R21-001F	R21	11/12/2018	U	Primary	--	2639758.94	647881.53	2000	R21-001F(11122018) 2000	148		962		1.7		7.7	J	< 0.150	UJ	432	
R21-002F	R21	11/12/2018	R	Primary	--	2639742.89	647896.07	2000	R21-002F(11122018) 2000	151		843		1.7		7.1	J	0.364	J	413	
	R21	11/12/2018	R	Primary	--	2639742.89	647896.07	250	R21-002F(11122018) 250	182		975		2.8		7.3	J	0.631	J	475	
R21-003F	R21	11/12/2018	D	Primary	--	2639727.67	647890.64	2000	R21-003F(11122018) 2000	161		991		2.2		7.4	J	0.719	J	544	
R21-004F	R21	11/12/2018	L	Primary	--	2639744.85	647876.04	2000	R21-004F(11122018) 2000	93.9		831		2.1		7.4	J	< 0.15	UJ	278	

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Lead 7439-92-1 mg/kg		Manganese 7439-96-5 mg/kg		Percent Moisture ARC-Moist %		pH ARC-pH SU		Total Organic Carbon ARC-TOC %		Zinc 7440-66-6 mg/kg	
										Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R21-005F	R21	11/12/2018	F	Primary	--	2639744.65	647886.23	2000	R21-005F(11122018) 2000	165		248		2.7		4.8		0.491		159	
	R21	11/12/2018	F	Primary	--	2639744.65	647886.23	250	R21-005F(11122018) 250	198		274		3.2		4.9		0.288		157	
R22-001F	R22	11/12/2018	U	Primary	--	2639707.21	647923.48	2000	R22-001F(11122018) 2000	153		400		2.0		5.6	J	0.190	J	209	
R22-002F	R22	11/12/2018	R	Primary	--	2639667.84	647923.71	2000	R22-002F(11122018) 2000	136		631		2.4		5.8	J	0.268	J	324	
R22-003F	R22	11/12/2018	D	Primary	--	2639638.36	647905.79	2000	R22-003F(11122018) 2000	341		1220		1.8		5.5	J	0.179	J	455	
	R22	11/12/2018	D	Primary	--	2639638.36	647905.79	250	R22-003F(11122018) 250	210		1400		2.2		5.8	J	0.299	J	516	
R22-004F	R22	11/12/2018	L	Primary	--	2639672.79	647905.54	2000	R22-004F(11122018) 2000	175		327		2.4		5.6	J	0.260	J	187	
R22-005F	R22	11/12/2018	F	Primary	--	2639661.59	647912.44	2000	R22-005F(11122018) 2000	94.8		489		1.7		4.9		< 0.150		226	
R23-001F	R23	11/12/2018	U	Primary	--	2639677.29	647863.71	2000	R23-001F(11122018) 2000	158		504		1.5		4.6	J	0.481	J	215	
	R23	11/12/2018	U	Primary	--	2639677.29	647863.71	250	R23-001F(11122018) 250	150		429		1.5		5.3	J	0.771	J	211	
R23-002F	R23	11/12/2018	R	Primary	--	2639642.23	647876.24	2000	R23-002F(11122018) 2000	128		754		1.5		6.8	J	0.248	J	294	
R23-003F	R23	11/12/2018	D	Primary	--	2639608.54	647876.61	2000	R23-003F(11122018) 2000	128	J	593		1.7		5.8	J	0.162	J	336	J
R23-004F	R23	11/12/2018	L	Primary	--	2639647.63	647864.38	2000	R23-004F(11122018) 2000	107		568		1.3		5.0	J	0.263	J	292	
R23-005F	R23	11/12/2018	F	Primary	--	2639638.28	647871.20	2000	R23-005F(11122018) 2000	134		235		1.8		4.7		0.236		134	
	R23	11/12/2018	F	Primary	--	2639638.28	647871.20	250	R23-005F(11122018) 250	179		220		2.8		4.7		0.292		129	
R23-006F	R23	11/12/2018	R	Field Duplicate	R23-002F	2639642.23	647876.24	2000	R23-006F(11122018) 2000	132		934		1.9		7.1	J	0.374	J	346	
R24-001F	R24	11/14/2018	U	Primary	--	2639537.01	647836.27	2000	R24-001F(11142018) 2000	141		356		1.5		5.4	J	< 0.150	UJ	188	
R24-002F	R24	11/14/2018	R	Primary	--	2639511.42	647836.46	2000	R24-002F(11142018) 2000	139		1260		1.0		7.4	J	< 0.150	UJ	481	
R24-003F	R24	11/14/2018	D	Primary	--	2639473.68	647820.81	2000	R24-003F(11142018) 2000	112		376		2.0		6.0	J	0.342	J	218	
	R24	11/14/2018	D	Primary	--	2639473.68	647820.81	250	R24-003F(11142018) 250	154		495		3.3		6.1	J	0.313	J	262	
R24-004F	R24	11/14/2018	L	Primary	--	2639512.02	647827.45	2000	R24-004F(11142018) 2000	142		589		1.6		6.5	J	0.19	J	352	
R24-005F	R24	11/14/2018	F	Primary	--	2639506.24	647829.41	2000	R24-005F(11142018) 2000	101		404		1.6		5.8		< 0.150		246	
R24-006F	R24	11/14/2018	L	Field Duplicate	R24-004F	2639512.02	647827.45	2000	R24-006F(11142018) 2000	168		471		1.5		6.5	J	0.160	J	306	
	R24	11/14/2018	L	Field Duplicate	R24-004F	2639512.02	647827.45	250	R24-006F(11142018) 250	198		684		2.4		6.5	J	0.301	J	382	
R25-001F	R25	11/16/2018	U	Primary	--	2639491.08	647775.90	2000	R25-001F(11162018) 2000	104		459		1.6		5.9	J	0.246	J	252	
R25-002F	R25	11/14/2018	R	Primary	--	2639426.75	647793.76	2000	R25-002F(11142018) 2000	119		934		1.5		7.2	J	0.456	J	350	
R25-003F	R25	11/14/2018	D	Primary	--	2639348.76	647677.57	2000	R25-003F(11142018) 2000	107		1030		1.6		7.4	J	0.397	J	376	
	R25	11/14/2018	D	Primary	--	2639348.76	647677.57	250	R25-003F(11142018) 250	153		1130		1.8		7.5	J	0.288	J	400	
R25-004F	R25	11/14/2018	L	Primary	--	2639445.41	647666.52	2000	R25-004F(11142018) 2000	142		579		1.1		6.1	J	< 0.150	UJ	241	
R25-005F	R25	11/14/2018	F,R	Primary	--	2639414.51	647747.86	2000	R25-005F(11142018) 2000	153		332		1.7		4.8		< 0.150		183	
R25-006F	R25	11/14/2018	F,L	Primary	--	2639410.40	647685.73	2000	R25-006F(11142018) 2000	94.1		595		1.6		5.2		0.160		205	
	R25	11/14/2018	F,L	Primary	--	2639410.40	647685.73	250	R25-006F(11142018) 250	138		584		2.6		5.3		0.270		213	
R26-001F	R26	11/12/2018	U	Primary	--	2639375.85	647582.08	2000	R26-001F(11122018) 2000	247		628		1.2		5.7	J	0.214	J	243	
R26-002F	R26	11/12/2018	R	Primary	--	2639343.23	647529.83	2000	R26-002F(11122018) 2000	158		228		1.7		4.6	J	< 0.150	UJ	144	
R26-003F	R26	11/12/2018	D	Primary	--	2639316.84	647471.26	2000	R26-003F(11122018) 2000	188		736		1.6		5.4	J	< 0.150	UJ	418	
	R26	11/12/2018	D	Primary	--	2639316.84	647471.26	250	R26-003F(11122018) 250	298		918		2.3		5.6	J	0.260	J	459	
R26-004F	R26	11/12/2018	L	Primary	--	2639355.59	647533.36	2000	R26-004F(11122018) 2000	358		730		1.4		5.5	J	0.162	J	254	
R26-005F	R26	11/12/2018	F	Primary	--	2639344.47	647522.30	2000	R26-005F(11122018) 2000	211		283		2.0		4.4		< 0.150		184	
R26-006F	R26	11/12/2018	L	Field Duplicate	R26-005F	2639414.51	647747.86	2000	R26-006F(11122018) 2000	209		370		2.0		4.7		0.288		180	
	R26	11/12/2018	L	Field Duplicate	R26-005F	2639414.51	647747.86	250	R26-006F(11122018) 250	208		519		2.6		5.0		0.271		241	
R27-001F	R27	11/12/2018	U	Primary	--	2639227.86	647343.99	2000	R27-001F(11122018) 2000	251		765		1.6		4.6	J	0.168	J	282	
R27-002F	R27	11/12/2018	R	Primary	--	2639212.34	647330.19	2000	R27-002F(11122018) 2000	220		1150		1.5		7.2	J	< 0.150	UJ	406	
R27-003F	R27	11/12/2018	D	Primary	--	2639200.73	647306.45	2000	R27-003F(11122018) 2000	146		1020		1.8		7.2	J	< 0.150	UJ	417	
	R27	11/12/2018	D	Primary	--	2639200.73	647306.45	250	R27-003F(11122018) 250	193		1050		1.7		7.3	J	0.238	J	439	
R27-004F	R27	11/15/2018	L	Primary	--	2639218.90	647319.75	2000	R27-004F(11152018) 2000	110		178		2.3		4.5	J	< 0.150	UJ	118	
R27-005F	R27	11/15/2018	F	Primary	--	2639213.11	647322.35	2000	R27-005F(11152018) 2000	162		688		2.0		5.2		< 0.150		247	
R28-001F	R28	11/12/2018	U	Primary	--	2639268.61	647431.99	2000	R28-001F(11122018) 2000	75.4		160		2.1		4.3	J	< 0.15	UJ	113	
	R28	11/12/2018	U	Primary	--	2639268.61	647431.99	250	R28-001F(11122018) 250	125		458		3.6		4.6	J	0.157	J	235	
R28-002F	R28	11/12/2018	R	Primary	--	2639211.27	647387.59	2000	R28-002F(11122018) 2000	156		450		2.0		4.4	J	< 0.150	UJ	203	
R28-003F	R28	11/12/2018	D	Primary	--	2639173.50	647332.38	2000	R28-003F(11122018) 2000	170		820		1.7		5.5	J	< 0.150	UJ	318	
R28-004F	R28	11/12/2018	L	Primary	--	2639233.87	647384.21	2000	R28-004F(11122018) 2000	213		357		2.2		4.9	J	< 0.150	UJ	207	
	R28	11/12/2018	L	Primary	--	2639233.87	647384.21	250	R28-004F(11122018) 250	262		544		2.7		5.3	J	0.177	J	271	
R28-005F	R28	11/14/2018	F	Primary	--	2639223.47	647382.34	2000	R28-005F(11142018) 2000	131		218		2.0		4.5		< 0.150		142	
R29-001F	R29	11/15/2018	U	Primary	--	2639248.76	647492.75	2000	R29-001F(11152018) 2000	157		214		2.3		4.2	J	< 0.150	UJ	138	
R29-002F	R29	11/12/2018	R	Primary	--	2639214.05	647467.76	2000	R29-002F(11122018) 2000	133		884		1.5		5.1	J	0.221	J	299	
	R29	11/12/2018	R	Primary	--	2639214.05	647467.76	250	R29-002F(11122018) 250	148		987		2.1		5.2	J	0.54	J	396	
R29-003F	R29	11/15/2018	D	Primary	--	2639180.34	647422.92	2000	R29-003F(11152018) 2000	68.3		146		1.9		4.1	J	< 0.15	UJ	92.3	
R29-004F	R29	11/15/2018	L	Primary	--	2639225.57	647454.15	2000	R29-004F(11152018) 2000	157		3410		1.7		5.5	J	< 0.150	UJ	333	
R29-005F	R29	11/15/2018	F	Primary	--	2639216.96	647456.98	2000	R29-005F(11152018) 2000	146		234		2.4		4.0		< 0.150		126	
	R29	11/15/2018	F	Primary	--	2639216.96	647456.98	250	R29-005F(11152018) 250	238		205		2.9		4.2		0.188		146	
R29-006F	R29	11/15/2018	D	Field Duplicate	R29-003F	2639180.34	647422.92	2000	R29-006F(11152018) 2000	74.3		140		2.0		4.1	J	0.311	J	86.8	
R30-001F	R30	11/16/2018	U	Primary	--	2639126.02	647295.98	2000	R30-001F(11162018) 2000	95.8		630		1.9		5.0	J	0.228	J	296	
R30-002F	R30	11/16/2018	R	Primary	--	2639090.70	647275.28	2000	R30-002F(11162018) 2000	137		285		3.0		4.7	J	0.199	J	208	
	R30	11/16/2018	R	Primary	--	2639090.70	647275.28	250	R30-002F(11162018) 250	160		446		4.0		4.8	J	0.179	J	311	
R30-003F	R30	11/16/2018	D	Primary	--	2639050.79	647253.88	2000	R30-003F(11162018) 2000	149		778		1.8		7.1	J	0.151	J	384	
R30-004F	R30	11/16/2018	L	Primary	--	2639108.62	647262.84	2000	R30-004F(11162018) 2000	142		161		2.8		4.3	J	< 0.15	UJ	126	
R30-005F	R30	11/16/2018	F	Primary	--	2639096.39	647266.71	2000	R30-005F(11162018) 2000	114		220		3.2		5.2		0.209		150	
	R30	11/16/2018	F	Primary	--	2639096.39	647266.71	250	R30-005F(11162018) 250	139		304		3.1		5.1		0.327		184	
R30-006F	R30	11/16/2018	L	Field Duplicate	R30-004F	2639108.62	647262.84	2000	R30-006F(11162018) 2000	131		141		2.9		4.2	J	< 0.150	UJ	104	
R303-005F	R303	3/12/2019	L	Field Duplicate	R303-004F	2631381.19	636711.10	2000	R303-005F(03122019) 2000	107		662		4.3		4.9	J			469	
R303-006F	R303	4/4/2019	F	Primary	--	2631357.46	636709.41	2000	R303-006F(04042019) 2000	59.1		633		2.5		4.4	J			314	
	R303	4/4/2019	F	Primary	--	2631357.46	636709.41	250	R303-006F(04042019) 250	56.5		603		1.9		4.4	J			334	
R304-001F	R304	3/12/2019	U	Primary	--	2631426.79	638474.35	2000	R304-001F(03122019) 2000	123		1570		2.7		5.3	J			1090	
R304-003F	R304	3/12/2019	D	Primary	--	2631272.45	638217.38	2000	R304-003F(03122019) 2000	333		938		2.8		4.9	J			732	
R305-002F	R305	3/26/2019	R	Primary	--	2630993.41	637167.40	2000	R305-002F(03262019) 2000	151		1150		1.1		7.8	J	0.191		917	
	R305	3/26/2019	R	Primary	--	2630993.41	637167.40	250	R305-002F(03262019) 250	215		1420		1.7		7.7	J			1040	
R305-003F	R305	3/26/2019	D	Primary	--	2631023.31	637120.99	2000	R305-003F(03262019) 2000	371		1510		1.9		5.7	J	0.717		1970	
R305-005F	R305	3/29/2019	F	Primary	--	2631004.96	637173.95	2000	R305-005F(03292019) 2000	58.4		487		2.4		4.5		0.393		377	
	R305	3/29/2019	F	Primary	--	2631004.96	637173.95	250	R305-005F(03292019) 250	75.1		482		3.2		4.5				462	
R306-001F	R306	3/28/2019	U	Primary	--	2632019.95	632585.06	2000	R306-001F(03282019) 2000	53.8		1710		5.4		4.5	J	0.419		454	
R306-003F	R306	3/28/2019	D	Primary	--	2631965.30	632431.74	2000	R306-003F(03282019) 2000	170		1060		3.4		5.9	J	0.693		1440	
	R306	3/28/2019	D	Primary	--	2631965.30	632431.74	250	R306-003F(03282019) 250	209		874		3.6		5.9	J			1350	
R306-004F	R306	3/28/2019	L	Primary	--	2631997.27	632500.78	2000	R306-004F(03282019) 2000	156		1170		2.8		7	J	0.753		972	
R306-005F	R306	4/18/2019	F	Primary	--	0.00	0.00	2000	R306-005F(04182019) 2000	103		885		2.3		6.6	J			483	
R307-001F	R307	3/29/2019	U	Primary	--	2632679.36	640983.93	2000	R307-001F(03292019) 2000	304		1430		1.3		6.5	J	0.264		1160	
R307-002F	R307	3/29/2019	R	Primary	--	2632676.15	640879.28	2000	R307-002F(03292019) 2000	266		847		1.3		6.4	J	0.276		479	
	R307	3/29/2019	R	Primary	--	2632676.15	640879.28	250	R307-002F(03292019) 250	317		886		1.7		6.4	J			522	
R307-003F	R307	3/29/2019	D	Primary	--	2632719.11	640760.73	2000	R307-003F(03292019) 2000	258		1690		1.6		7.6	J	0.188		1480	
R307-004F	R307	3/29/2019	L	Primary	--	2632709.74	640836.62	2000	R307-004F(03292019) 2000	251		1280		1		7.4	J	0.231	J	883	
R307-005F	R307	5/1/2019	F	Primary	--	2632690.44	640856.44	2000	R307-005F(05012019) 2000	273		945		1.6		5.7	J			531	
	R307	5/1/2019	F	Primary	--	2632690.44	640856.44	250	R307-005F(05012019) 250	476		1410	J	1.5		5.8	J			706	
R308-005F	R308	5/3/2019	F	Primary	--	2632567.16	641692.23	2000	R308-005F(05032019) 2000	259		1140		1.4		4.8				426	
R309-001F	R309	5/3/2019	F	Primary	--	0.00	0.00	2000	R309-001F(05032019) 2000	290		908		1.8		5.8				598	
R310-001F	R310	3/30/2019	U	Primary	--	2633182.23	645104.86	2000	R310-001F(03302019) 2000	340		2220		1.7		6.6	J	0.477	J	1260	

Appendix A. Analytical Data
Table A-1. Chino Excavation Data
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Lead 7439-92-1 mg/kg		Manganese 7439-96-5 mg/kg		Percent Moisture ARC-Moist %		pH ARC-pH SU		Total Organic Carbon ARC-TOC %		Zinc 7440-66-6 mg/kg	
										Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
	R310	3/30/2019	U	Primary	--	2633182.23	645104.86	250	R310-001F(03302019) 250	355		1600		2.2		6.6	J			1180	
R310-002F	R310	3/30/2019	R	Primary	--	2633158.37	645092.85	2000	R310-002F(03302019) 2000	264		1970		2		6.1	J	4.26		1300	
R310-003F	R310	3/30/2019	D	Primary	--	2633160.39	645060.95	2000	R310-003F(03302019) 2000	442		1260		1.1		6.3	J	0.252		761	
R310-004F	R310	3/30/2019	L	Primary	--	2633176.49	645083.04	2000	R310-004(03302019) 2000	499		1280		1.1		7	J	0.22		1530	
	R310	3/30/2019	L	Primary	--	2633176.49	645083.04	250	R310-004F(03302019) 250	766		1450		1.7		6.6	J			1140	
R310-005F	R310	5/9/2019	F	Primary	--	2633163.92	645086.19	2000	R310-005F(05092019) 2000	308		2650		2.8		5.8				1700	
R31-001F	R31	11/13/2018	U	Primary	--	2639047.30	647274.60	2000	R31-001F(11132018) 2000	171		825		2.1		7	J	0.209	J	333	
R31-002F	R31	11/13/2018	R	Primary	--	2639025.35	647279.08	2000	R31-002F(11132018) 2000	1970		337		2.5		4.5	J	0.304	J	225	
	R31	11/13/2018	R	Primary	--	2639025.35	647279.08	250	R31-002F(11132018) 250	254		338		2.8		4.5	J	0.261	J	238	
R31-003F	R31	11/13/2018	D	Primary	--	2639007.99	647263.96	2000	R31-003F(11132018) 2000	134		417		1.7		5.5	J	0.151	J	235	
R31-004F	R31	11/13/2018	L	Primary	--	2639033.93	647260.06	2000	R31-004F(11132018) 2000	115		268		3.6		5.3	J	< 0.150	UJ	190	
R31-005F	R31	11/16/2018	F	Primary	--	2639025.58	647269.23	2000	R31-005F(11162018) 2000	186		229		2.5		4.1		< 0.150		160	
	R31	11/16/2018	F	Primary	--	2639025.58	647269.23	250	R31-005F(11162018) 250	283		195		3.7		4.1		0.322		147	
R31-006F	R31	11/13/2018	F	Field Duplicate	R31-005F	2639025.58	647269.23	2000	R31-006F(11132018) 2000	159		245		2.2		4.2		0.454		150	
R32-001F	R32	11/13/2018	U	Primary	--	2638972.96	647295.30	2000	R32-001F(11132018) 2000	219		1630		2.2		6.3	J	0.208	J	804	
R32-002F	R32	11/15/2018	R	Primary	--	2638948.04	647300.84	2000	R32-002F(11152018) 2000	193		1040		2.0		5.7	J	0.664	J	540	
	R32	11/15/2018	R	Primary	--	2638948.04	647300.84	250	R32-002F(11152018) 250	267		871		2.7		5.6	J	0.384	J	514	
R32-003F	R32	11/15/2018	D	Primary	--	2638929.05	647284.13	2000	R32-003F(11152018) 2000	157		1180		2.2		6.8	J	< 0.150	UJ	463	
R32-004F	R32	11/13/2018	L	Primary	--	2638950.77	647278.01	2000	R32-004F(11132018) 2000	828		1080		1.9		6.7	J	0.273	J	444	
R32-005F	R32	11/19/2018	F	Primary	--	2638950.16	647288.73	2000	R32-005F(11192018) 2000	343		1070		2.8		6.9		0.476		772	
	R32	11/19/2018	F	Primary	--	2638950.16	647288.73	250	R32-005F(11192018) 250	384		1080		3.1		6.4		0.601		792	
R33-001F	R33	11/16/2018	U	Primary	--	2638522.55	648168.08	2000	R33-001F(11162018) 2000	271		755		1.9		7.5	J	0.534	J		
R33-002F	R33	11/16/2018	R	Primary	--	2638507.24	648167.75	2000	R33-002F(11162018) 2000	140		2160		0.9		7.6	J	0.365	J	1510	
R33-003F	R33	11/16/2018	D	Primary	--	2638508.87	648103.86	2000	R33-003F(11162018) 2000	154		2200		0.9		7.3	J	< 0.15	UJ	1650	
	R33	11/16/2018	D	Primary	--	2638508.87	648103.86	250	R33-003F(11162018) 250	308		1290		1.4		6.9	J	< 0.15	UJ	1230	
R33-004F	R33	11/16/2018	L	Primary	--	2638524.78	648110.93	2000	R33-004F(11162018) 2000	392		752		2.2		4.6	J	0.548	J	536	
R33-005F	R33	11/16/2018	L	Field Duplicate	R33-004F	2638524.78	648110.93	2000	R33-005F(11162018) 2000	450		780		2.2		4.5	J	0.493	J	554	
R33-006F	R33	12/20/2018	F	Primary	--	2638503.37	648140.35	2000	R33-006F(12202018) 2000	138		2220		1.0		7.4		< 0.150		2900	
R34-001F	R34	11/14/2018	U	Primary	--	2638282.08	647178.59	2000	R34-001F(11142018) 2000	299		1370		1.6		6.8	J	0.957	J	1220	
	R34	11/14/2018	U	Primary	--	2638282.08	647178.59	250	R34-001F(11142018) 250	407		1180		1.6		6.6	J	0.774	J	1310	
R34-002F	R34	11/19/2018	R	Primary	--	2638256.61	647187.82	2000	R34-002F(11192018) 2000	640		1040		2.5		5.6	J	0.174	J	586	
R34-003F	R34	11/14/2018	D	Primary	--	2638238.09	647180.03	2000	R34-003F(11142018) 2000	267		1610		1.5		7	J	0.564	J	1540	
R34-004F	R34	11/14/2018	L	Primary	--	2638262.32	647166.84	2000	R34-004F(11142018) 2000	393		1520		2.2		6.3	J	0.153	J	1160	
	R34	11/14/2018	L	Primary	--	2638262.32	647166.84	250	R34-004F(11142018) 250	549		1450		2.6		6.1	J	0.254	J	1270	
R34-005F	R34	1/14/2019	F	Primary	--	2638259.99	647178.09	2000	R34-005F(01142019) 2000	271		1640		1.7		6.2		0.192		1630	
R35-003F	R35	11/15/2018	D	Primary	--	2638244.21	647211.88	2000	R35-003F(11152018) 2000	356		799		2.9		6.7	J	0.358	J	1120	
R35-007F	R35	11/15/2018	L	Primary	--	2638256.02	647203.26	2000	R35-007F(11152018) 2000	159		1150		1.4		7.9	J	0.576	J	898	
R35-008F	R35	11/19/2018	R	Primary	--	2638271.71	647233.31	2000	R35-008F(11192018) 2000	269		1030		2.7		7.7	J	3.68	J	1300	
	R35	11/19/2018	R	Primary	--	2638271.71	647233.31	250	R35-008F(11192018) 250	346		962		2.4		7.6	J	2.83	J	1600	
R35-010F	R35	11/19/2018	U	Primary	--	2638317.49	647211.42	2000	R35-010F(11192018) 2000	458		1700		1.5		7.2	J	1.16	J	1990	
R35-011F	R35	11/19/2018	L	Field Duplicate	R35-007F	2638256.02	647203.26	2000	R35-011F(11192018) 2000	173		1130		1.3		7.7	J	0.593	J	909	
R35-012F	R35	1/14/2019	F	Primary	--	2638273.77	647212.40	2000	R35-012F(01142019) 2000	951		1100		3.3		4.7		0.644		1390	
R36-001F	R36	11/16/2018	U	Primary	--	2638031.60	647177.68	2000	R36-001F(11162018) 2000	194		609		2.5		4.9	J	0.558	J	541	
	R36	11/16/2018	U	Primary	--	2638031.60	647177.68	250	R36-001F(11162018) 250	230		539		2.3		5.2	J	0.469	J	584	
R36-002F	R36	11/16/2018	R	Primary	--	2638016.83	647185.36	2000	R36-002F(11162018) 2000	145		1030		2.6		6.0	J	0.696	J	782	
R36-003F	R36	11/16/2018	D	Primary	--	2638005.01	647174.01	2000	R36-003F(11162018) 2000	205		1020		1.8		7.3	J	0.571	J	816	
R36-004F	R36	11/16/2018	L	Primary	--	2638020.59	647164.96	2000	R36-004F(11162018) 2000	323		705		3.0		5.1	J	0.546	J	616	
	R36	11/16/2018	L	Primary	--	2638020.59	647164.96	250	R36-004F(11162018) 250	346		645		3.0		4.9	J	0.514	J	675	
R36-005F	R36	1/14/2019	F	Primary	--	2638019.51	647174.56	250	R36-005(01142019) 250	43.6		331		2.6		4.6	J	0.918		357	
	R36	1/14/2019	F	Primary	--	2638019.51	647174.56	2000	R36-005F(01142019) 2000	46.4		437		3.3		4.6		0.828		416	
R37-001F	R37	11/16/2018	U	Primary	--	2637673.91	647238.77	2000	R37-001F(11162018) 2000	55.7		267		3.2		4.3	J	0.289	J	271	
R37-002F	R37	11/16/2018	R	Primary	--	2637558.25	647297.79	2000	R37-002F(11162018) 2000	270		565		1.5		4.4	J	0.379	J	444	
R37-004F	R37	11/16/2018	D	Primary	--	2637431.69	647259.07	2000	R37-004F(11162018) 2000	418		971		1.0		7.2	J	0.325	J	592	
	R37	11/16/2018	D	Primary	--	2637431.69	647259.07	250	R37-004F(11162018) 250	237		1140		1.0		7	J	< 0.15	UJ	769	
R37-005F	R37	11/16/2018	L	Primary	--	2637562.45	647201.54	2000	R37-005F(11162018) 2000	259		694		1.8		5.8	J	0.344	J	698	
R37-006F	R37	11/16/2018	R, D	Primary	--	2637448.14	647323.81	2000	R37-006F(11162018) 2000	890		852		1.1		7.1	J	0.729	J	654	
R37-007F	R37	11/16/2018	L	Field Duplicate	R37-005F	2637562.45	647201.54	2000	R37-007F(11162018) 2000	226		673		1.3		5.9	J	0.199	J	683	
	R37	11/16/2018	L	Field Duplicate	R37-005F	2637562.45	647201.54	250	R37-007F(11162018) 250	252		753		2.2		5.7	J	0.417	J	795	
R37-008F	R37	12/11/2018	F	Primary	--	2637516.58	647281.46	2000	R37-008F(12112018) 2000	68.0		924		1.3		7.5		0.253		560	
R37-009F	R37	12/14/2018	F	Primary	--	2637587.96	647241.50	2000	R37-009F(12142018) 2000	119		993		1.9		6.8		0.463		587	
	R37	12/14/2018	F	Primary	--	2637587.96	647241.50	250	R37-009F(12142018) 250	162		1020		2.5		6.8		0.450		828	
R38-001F	R38	11/19/2018	U	Primary	--	2637231.62	647296.99	2000	R38-001F(11192018) 2000	181		1820		1.6		7.5	J	0.84	J	1980	
R38-002F	R38	11/19/2018	R	Primary	--	2637190.25	647316.85	2000	R38-002F(11192018) 2000	240		1240		1.9		6.5	J	0.245	J	965	
R38-003F	R38	11/19/2018	D	Primary	--	2637059.08	647345.18	2000	R38-003F(11192018) 2000	248		1530		1.4		6.9	J	< 0.150	UJ	926	
	R38	11/19/2018	D	Primary	--	2637059.08	647345.18	250	R38-003F(11192018) 250	356		1330		1.7		6.8	J	0.459	J	1310	
R38-004F	R38	11/19/2018	L	Primary	--	2637162.27	647316.44	2000	R38-004F(11192018) 2000	249		1400		1.3		6.7	J	< 0.150	UJ	1140	
R38-005F	R38	11/19/2018	U	Field Duplicate	R38-001F	2637231.62	647296.99	2000	R38-005F(11192018) 2000	162		1820		1.4		7.6	J	0.618	J	1890	
R38-006F	R38	12/3/2018	F	Primary	--	2637163.08	647319.32	2000	R38-006F(12032018) 2000	275		820		1.8		5.5		< 0.150		589	
R40-001F	R40	11/19/2018	U	Primary	--	2637298.88	647267.47	2000	R40-001F(11192018) 2000	215		1410		1.3		6.7	J	0.656	J	1210	
	R40	11/19/2018	U	Primary	--	2637298.88	647267.47	250	R40-001F(11192018) 250	252		1730		1.4		6.8	J	0.448	J	1460	
R40-002F	R40	11/19/2018	R	Primary	--	2637285.45	647300.84	2000	R40-002F(11192018) 2000	211		2120		1.0		7.7	J	0.225	J	1370	
R04-001F	R04	12/10/2018	U	Primary	--	2632159.02	631565.00	2000	R4-001F(12102018) 2000	85.6		886		0.8		7.9	J	0.450	J	474	
R04-005F	R04	12/10/2018	L,D	Field Duplicate	R04-003F	2632259.66	631460.54	2000	R4-005F(12102018) 2000	68.6		321		3.5		4.1	J	0.410	J	295	
R404-001F	R404	5/2/2019	F	Primary	--	0.00	0.00	2000	R404-001F(05022019) 2000	81.8		1000		1.4		7.6				587	
R41-001F	R41	11/19/2018	U	Primary	--	2637121.76	647375.49	2000	R41-001F(11192018) 2000	194		1470		1.6		7.3	J	0.244	J	1170	
R41-002F	R41	11/19/2018	R	Primary	--	2637009.06	647411.15	2000	R41-002F(11192018) 2000	222		1210		1.3		6.9	J	< 0.150	UJ	1010	
R41-003F	R41	11/19/2018	R,D	Primary	--	2636919.38	647412.29	2000	R41-003F(11192018) 2000	140		1730		1.0		7.9	J	< 0.150	UJ	1360	
	R41	11/19/2018	R,D	Primary	--	2636919.38	647412.29	250	R41-003F(11192018) 250	173		1660		1.5		7.9	J	0.229	J	1370	
R41-004F	R41	11/19/2018	D	Primary	--	2636884.28	647377.65	2000	R41-004F(11192018) 2000	207		1740		1.4		7.8	J	0.64	J	1700	
R41-005F	R41	11/19/2018	L	Primary	--	2636999.53	647395.69	2000	R41-005F(11192018) 2000	211		864		1.6		6.7	J	< 0.15	UJ	478	
R41-006F	R41	11/19/2018	R	Field Duplicate	R41-002F	2637009.06	647411.15	2000	R41-006F(11192018) 2000	210		1150		1.3		7	J	0.282	J	896	
	R41	11/19/2018	R	Field Duplicate	R41-002F	2637009.06	647411.15	250	R41-006F(11192018) 250	297		1700		1.7		7.2	J	0.401	J	1440	
R41-007F	R41	12/3/2018	F	Primary	--	2637011.66	647402.35	2000	R41-007F(12032018) 2000	232		1010		1.7		6.9		0.179		743	
	R41	12/3/2018	F	Primary	--	2637011.66	647402.35	250	R41-007F(12032018) 250	189		1220		2.1		7.0		0.373		930	
R42-001F	R42	11/20/2018	U	Primary	--	2636138.14	646317.22	2000	R42-001F(11202018) 2000	159		1690		2.2		7.5	J	1.16	J	1790	
R42-002F	R42	11/20/2018	R	Primary	--	2636090.83	646300.36	2000	R42-002F(11202018) 2000	146		1540		2.3		7.3	J	0.387	J	1300	
R42-003F	R42	11/20/2018	D	Primary	--	2636061.91	646286.39	2000	R42-003F(11202018) 2000	240		1560		2.2		5.9	J	0.151	J	658	
	R42	11/20/2018	D	Primary	--	2636061.91	646286.39	250	R42-003F(11202018) 250	295		1680		2.2		5.6	J	0.154	J	722	
R42-004F	R42	11/20/2018	L	Primary	--	2636137.08	646287.17	2000	R42-004F(11202018) 2000	227		1920		1.6		6.5	J	0.244	J	2680	
R42-005F	R42	12/3/2018	F	Primary	--	2636105.30	646294.27	2000	R42-005F(12032018) 2000	165		1070		2.6		6.6		0.353		594	
R44-001F	R44	11/28/2018	U	Primary	--	2634139.55	645841.66	250	R44-001F(11282018) 250	48.3		405		1.9		7.7	J	1.03	J	59.3	
R44-002F	R44	11/28/2018	R	Primary	--	2634126.77	645837.58	250	R44-002F(11282018) 250	226		763		2.6		6.1	J	0.15	UJ	252	
R44-003F	R44	11/28/2018	D	Primary	--	2634107.78	645817.07	2000	R44-003F(11282018) 2000	49.1		828		2.2		6.7	J	0.774	J	605	
	R44	11/28/2018	D	Primary	--	2634107.78	645817.07	250	R44-003F(11282018) 250	47.4		555	J	1.5		6.7	J	0.224	J	277	

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Lead 7439-92-1 mg/kg		Manganese 7439-96-5 mg/kg		Percent Moisture ARC-Moist %		pH ARC-pH SU		Total Organic Carbon ARC-TOC %		Zinc 7440-66-6 mg/kg	
										Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R44-004F	R44	11/28/2018	L	Primary	--	2634131.59	645823.27	250	R44-004F(11282018) 250	90.8		984		1.5		5.9	J	1.93	J	226	
R44-005F	R44	11/28/2018	D	Field Duplicate	R44-003F	2634107.78	645817.07	250	R44-005F(11282018) 250	49.5		835	J	1.7		6	J	0.733	J	271	
R44-006F	R44	5/7/2019	F	Primary	--	2634127.12	645829.13	2000	R44-006F(05072019) 2000	89		715		1.8		6.8				309	
R46-001F	R46	11/29/2018	U	Primary	--	2633627.46	645251.53	250	R46-001F(11292018) 250	294		865		1.5		7.2	J	0.206	J	387	
R46-002F	R46	11/29/2018	R	Primary	--	2633511.78	645219.13	2000	R46-002F(11292018) 2000	566		2730		1.2		7.8	J	0.332	J	1770	
	R46	11/29/2018	R	Primary	--	2633511.78	645219.13	250	R46-002F(11292018) 250	646		2340		1.4		8	J	0.332	J	888	
R46-003F	R46	11/29/2018	D	Primary	--	2633454.67	645199.13	250	R46-003F(11292018) 250	242		1190		1.6		7.7	J	0.924	J	691	
R46-004F	R46	11/29/2018	L	Primary	--	2633570.65	645211.89	250	R46-004F(11292018) 250	183		1440		1		7.9	J	0.213	J	1260	J
R46-005F	R46	11/29/2018	L	Field Duplicate	R46-004F	2633570.65	645211.89	2000	R46-005F(11292018) 2000	229		1560		0.7		7.9	J	0.235	J	1280	
	R46	11/29/2018	L	Field Duplicate	R46-004F	2633570.65	645211.89	250	R46-005F(11292018) 250	190		1010		1		7.9	J	0.175	J	307	J
R46-006F	R46	5/9/2019	F	Primary	--	2633539.03	645215.47	2000	R46-006F(05092019) 2000	145		592		2.8		6.2				851	
R47-001F	R47	12/1/2018	U	Primary	--	2632822.01	644615.48	250	R47-001F(12012018) 250	292		1840		1.7		7.4	J	1.19	J	1730	
R47-002F	R47	12/1/2018	R	Primary	--	2632773.60	644420.84	250	R47-002F(12012018) 250	340		1390		1.5		7.6	J	0.662	J	1240	
R47-003F	R47	12/1/2018	D	Primary	--	2632726.45	644369.79	2000	R47-003F(12012018) 2000	469		456		5.2		5.2	J	0.619	J	462	
	R47	12/1/2018	D	Primary	--	2632726.45	644369.79	250	R47-003F(12012018) 250	285		281		3.3		4.6	J	0.268	J	280	
R47-004F	R47	12/1/2018	L	Primary	--	2632779.42	644397.42	250	R47-004F(12012018) 250	333		938		1.1		6.9	J	0.244	J	679	
R47-005F	R47	12/1/2018	R	Field Duplicate	R47-002F	2632773.60	644420.84	250	R47-005F(12012018) 250	296		1390		1.6		7.7	J	1.02	J	1160	
R47-006F	R47	5/8/2019	F	Primary	--	2632797.96	644463.16	2000	R47-006F(05082019) 2000	298		969		1.7		5.5				403	
	R47	5/8/2019	F	Primary	--	2632797.96	644463.16	250	R47-006F(05082019) 250	447		1490		1.6		5.3				411	
R47-007F	R47	5/8/2019	F	Field Duplicate	R47-006F	2632797.96	644463.16	2000	R47-007F(05082019) 2000	264		1140		1.8		5.3	J			540	
R48-001F	R48	12/1/2018	U	Primary	--	2632640.99	644343.43	2000	R48-001F(12012018) 2000	426		1840		1.4		7.2	J	0.444	J	1500	
	R48	12/1/2018	U	Primary	--	2632640.99	644343.43	250	R48-001F(12012018) 250	339		1490		1.3		7.3	J	0.558	J	1170	
R48-002F	R48	12/1/2018	R	Primary	--	2632555.45	644332.87	250	R48-002F(12012018) 250	224		815		1		7	J	0.855	J	673	
R48-003F	R48	12/1/2018	D	Primary	--	2632551.51	644278.28	250	R48-003F(12012018) 250	187		1250		1		7.6	J	0.15	UJ	1060	
R48-004F	R48	12/1/2018	L	Primary	--	2632610.16	644311.81	2000	R48-004F(12012018) 2000	249		1420		1.1		7.5	J	0.235	J	1100	
	R48	12/1/2018	L	Primary	--	2632610.16	644311.81	250	R48-004F(12012018) 250	221		1410		1		7.5	J	0.176	J	1160	
R48-005F	R48	5/7/2019	F	Primary	--	2632567.10	644327.80	2000	R48-005F(05072019) 2000	400		1000		1.9		4.2				517	
R50-001F	R50	12/1/2018	U	Primary	--	2632595.69	643576.37	250	R50-001F(12012018) 250	288		623		3.3		5	J	0.15	UJ	538	
R50-002F	R50	12/1/2018	R	Primary	--	2632591.53	643556.28	250	R50-002F(12012018) 250	281		1540		1.1		7.8	J	0.515	J	1190	
R50-003F	R50	12/1/2018	D	Primary	--	2632593.40	643537.44	2000	R50-003F(12012018) 2000	167		1520		1.3		7.8	J			1320	
	R50	12/1/2018	D	Primary	--	2632593.40	643537.44	250	R50-003F(12012018) 250	158		1450		1.8		7.7	J	1.04	J	1260	
R50-004F	R50	12/1/2018	L	Primary	--	2632598.20	643561.09	250	R50-004F(12012018) 250	190		1520		2.2		7.5	J	0.176	J	1030	
R50-005F	R50	3/30/2019	U	Primary	--	2632594.89	643660.84	2000	R50-005F(03302019) 2000	149		983		0.3		6.9	J	0.329		505	
R50-006F	R50	5/6/2019	F	Primary	--	2632594.51	643558.43	2000	R50-006F(05062019) 2000	199		1170		4.3		4.2	J			539	
	R50	5/6/2019	F	Primary	--	2632594.51	643558.43	250	R50-006F(05062019) 250	201		1190		5.3		4.2	J			534	
R51-001F	R51	12/1/2018	U	Primary	--	2632578.49	643453.29	250	R51-001F(12012018) 250	217		1340		1.1		7.8	J	0.223	J	1080	
R51-002F	R51	12/1/2018	R	Primary	--	2632575.51	643428.22	2000	R51-002F(12012018) 2000	204		1580		1.4		7.8	J	0.552	J	1420	
	R51	12/1/2018	R	Primary	--	2632575.51	643428.22	250	R51-002F(12012018) 250	203		1440		2		7.7	J	0.471	J	1270	
R51-003F	R51	12/1/2018	D	Primary	--	2632580.39	643405.90	2000	R51-003F(12012018) 2000	362		1840		1.2		7.2	J	0.181	J	1270	
	R51	12/1/2018	D	Primary	--	2632580.39	643405.90	250	R51-003F(12012018) 250	266		1530		1.3		7.2	J	0.181	J	1000	
R51-004F	R51	12/1/2018	L	Primary	--	2632582.37	643428.69	250	R51-004F(12012018) 250	234		1240		1.4		7.5	J	0.208	J	744	
R51-005F	R51	12/1/2018	L	Field Duplicate	R51-004F	2632582.37	643428.69	250	R51-005F(12012018) 250	208		1770		1.5		7.5	J	0.233	J	875	
R51-006F	R51	5/6/2019	F	Primary	--	2632578.24	643428.69	2000	R51-006F(05062019) 2000	360		918		1.7		5.3	J			418	
R52-001F	R52	12/1/2018	U	Primary	--	2632595.37	643088.49	2000	R52-001F(12012018) 2000	329		1460		1.5		6.8	J	0.168	J	789	
	R52	12/1/2018	U	Primary	--	2632595.37	643088.49	250	R52-001F(12012018) 250	317		1240		1.6		6.8	J	0.242	J	699	
R52-002F	R52	12/1/2018	R	Primary	--	2632573.81	643001.25	250	R52-002F(12012018) 250	162		1850		1.4		7.7	J	0.274	J	1190	
R52-003F	R52	12/1/2018	D	Primary	--	2632610.38	642805.27	250	R52-003F(12012018) 250	221		737		1.8		6.3	J	0.193	J	372	
R52-004F	R52	12/18/2018	L	Primary	--	2632617.54	642974.67	2000	R52-004F(12182018) 2000	239		996		1.2		6.8	J	< 0.15	UJ	572	
	R52	12/18/2018	L	Primary	--	2632617.54	642974.67	250	R52-004F(12182018) 250	312		1340		1.3		6.7	J	< 0.15	UJ	708	
R52-005F	R52	12/1/2018	R	Field Duplicate	R52-002F	2632573.81	643001.25	2000	R52-005F(12012018) 2000	311		1510		1.5		7.4	J	0.389	J	1140	
	R52	12/1/2018	R	Field Duplicate	R52-002F	2632573.81	643001.25	250	R52-005F(12012018) 250	158		1250		1.3		7.7	J	0.265	J	954	
R52-006F	R52	5/3/2019	F	Primary	--	2632617.00	642924.36	2000	R52-006F(05032019) 2000	268		724		2.1		4.8				435	
R52A-001F	R52A	3/30/2019	U	Primary	--	2632592.95	643222.87	2000	R52A-001F(03302019) 2000	205		1040		0.6		7	J	0.296		673	J
R52A-002F	R52A	3/30/2019	R	Primary	--	2632585.95	643210.89	2000	R52A-002F(03302019) 2000	163		1280		0.6		7.6	J	0.434		706	
	R52A	3/30/2019	R	Primary	--	2632585.95	643210.89	250	R52A-002F(03302019) 250	231		1650		1.3		7.4	J			1430	
R52A-003F	R52A	3/30/2019	D	Primary	--	2632597.76	643203.21	2000	R52A-003F(03302019) 2000	229		1040		0.6		6.8	J	0.456		791	
R52A-004F	R52A	3/30/2019	L	Primary	--	2632613.52	643222.77	2000	R52A-004F(03302019) 2000	192		1200		0.4		5.1	J	0.262	J	923	
R52A-005F	R52A	3/30/2019	U	Field Duplicate	R52A-001F	2632592.95	643222.87	2000	R52A-005F(03302019) 2000	195		1440		0.7		7.4	J	0.488		1240	J
	R52A	3/30/2019	U	Field Duplicate	R52A-001F	2632592.95	643222.87	250	R52A-005F(03302019) 250	231		1630		1.3		7.5	J			1420	
R55-001F	R55	12/1/2018	U	Primary	--	2632588.10	642193.31	250	R55-001F(12012018) 250	170		997		2.2		7.3	J	0.154	J	862	
R55-002F	R55	12/1/2018	R	Primary	--	2632570.48	642143.22	250	R55-002F(12012018) 250	139		877		2.1		7.6	J	0.755	J	531	
R55-003F	R55	12/1/2018	D	Primary	--	2632594.03	642094.37	2000	R55-003F(12012018) 2000	387		977		2		7	J	0.27	J	916	
	R55	12/1/2018	D	Primary	--	2632594.03	642094.37	250	R55-003F(12012018) 250	307		1010		2.2		6.9	J	0.24	J	814	
R55-004F	R55	12/1/2018	L	Primary	--	2632602.04	642147.68	250	R55-004F(12012018) 250	319		1000		2.3		6.9	J	0.257	J	924	
R55-005F	R55	12/1/2018	D	Field Duplicate	R55-003F	2632594.03	642094.37	250	R55-005F(12012018) 250	253		1330		1.2		7.2	J	0.15	UJ	1070	
R55M-001F	R55M	3/29/2019	U	Primary	--	2632546.99	642206.43	2000	R55M-001F(03292019) 2000	288		1450		1.2		7.5	J	0.815		1650	
R55M-002F	R55M	3/29/2019	R	Primary	--	2632540.53	642130.53	2000	R55M-002F(03292019) 2000	287	J	779		1.3		7.3	J	0.599		565	
R55M-003F	R55M	3/29/2019	D	Primary	--	2632553.74	642074.76	2000	R55M-003F(03292019) 2000	181		1410		0.6		7.9	J	0.696	J	1130	
	R55M	3/29/2019	D	Primary	--	2632553.74	642074.76	250	R55M-003F(03292019) 250	130		830		1.7		7.8	J			404	
R55M-004F	R55M	3/29/2019	L	Primary	--	2632555.77	642140.49	2000	R55M-004F(03292019) 2000	176		1500		0.8		7.3	J	1.04	J	1230	
R55M-005F	R55M	3/29/2019	R	Field Duplicate	R55M-002F	2632540.53	642130.53	2000	R55M-005F(03292019) 2000	115	J	970		0.9		7.4	J	0.706		761	
R55M-006F	R55M	5/21/2019	F	Primary	--	2632549.98	642132.68	2000	R55M-006F(05212019) 2000	295		772		2.1		5.4				499	
	R55M	5/21/2019	F	Primary	--	2632549.98	642132.68	250	R55M-006F(05212019) 250	406		1130		3.4		5.3				509	
R55M-007F	R55M	5/21/2019	F	Field Duplicate	R55M-006F	2632549.98	642132.68	2000	R55M-007F(05212019) 2000	275		957		2.2		5.1				467	
R56-001F	R56	12/3/2018	U	Primary	--	2632572.24	642080.70	2000	R56-001F(12032018) 2000	231		1650		1.1		6.8	J	0.321	J	884	
R56-002F	R56	12/3/2018	R	Primary	--	2632542.28	642020.36	2000	R56-002F(12032018) 2000	126		968		1.2		7.7	J	0.999	J	771	
	R56	12/3/2018	R	Primary	--	2632542.28	642020.36	250	R56-002F(12032018) 250	173		1300		1.7		7.9	J	1.22	J	1100	
R56-003F	R56	12/3/2018	D	Primary	--	2632543.24	641893.42	2000	R56-003F(12032018) 2000	113		1330		1.4		7.7	J	0.702	J	678	
R56-004F	R56	12/3/2018	L	Primary	--	2632584.38	641986.10	2000	R56-004F(12032018) 2000	255		1780		1.0		7.3	J	0.650	J	1390	
R56-005F	R56	12/3/2018	L	Field Duplicate	R56-004F	2632584.38	641986.10	2000	R56-005F(12032018) 2000	249		1630		1.0		7.3	J	0.685	J	1270	
	R56	12/3/2018	L	Field Duplicate	R56-004F	2632584.38	641986.10	250	R56-005F(12032018) 250	314		1680		1.5		7.4	J	0.743	J	1680	
R56-006F	R56	5/21/2019	F	Primary	--	2632563.39	641976.83	2000	R56-006F(05212019) 2000	265		1080	J	1.5		5.1	J			499	
R56-007F	R56	5/21/2019	F	Field Duplicate	R56-006F	2632563.39	641976.83	2000	R56-007F(05212019) 2000	254		1950	J	1.4		4.9	J			534	
	R56	5/21/2019	F	Field Duplicate	R56-006F	2632563.39	641976.83	250	R56-007F(05212019) 250	351		794		2.5		4.7	J			573	
R57-001F	R57	12/3/2018	U	Primary	--	2632625.24	641692.48	2000	R57-001F(12032018) 2000	145		1410		0.7		7.8	J	0.17	J	1100	
R57-002F	R57	12/3/2018	R	Primary	--	2632648.15	641514.95	2000	R57-002F(12032018) 2000	223		1540		0.7		7.8	J	0.454	J	1300	
R57-003F	R57	12/3/2018	D	Primary	--	2632700.60	641307.82	2000	R57-003F(12032018) 2000	187		1410		0.7		7.6	J	0.189	J	959	
	R57	12/3/2018	D	Primary	--	2632700.60	641307.82	250	R57-003F(12032018) 250	231		1630		1.1		7.7	J	0.240	J	1160	
R57-004F	R57	12/3/2018	L	Primary	--	2632667.91	641518.40	2000	R57-004F(12032018) 2000	174		1600		0.7		7.8	J	0.151	J	1280	
R58-001F	R58	12/4/2018	U	Primary	--	2632796.30	640035.47	2000	R58-001F(12042018) 2000	168		1030		2.2		7.5	J	0.943	J	850	
R58-002F	R58	12/4/2018	R	Primary	--	2632801.89	639955.59	2000	R58-002F(12042018) 2000	169		1400		0.7		7.6	J	0.151	J	864	
	R58	12/4/2018	R	Primary	--	2632801.89	639955.59	250	R58-002F(12042018) 250	244		1570		1.5		7.6	J	0.286	J	1080	
R58-003F	R58	12/4/2018	D	Primary	--	2632815.38	639955.28	2000	R58-003F(12042018) 2000	217		1340		0.8		7.8	J	< 0.150	UJ	827	
R58-004F	R58	12/4/2018	L	Primary	--	2632824.81	640024.40	2000	R58-004F(12042018) 2000	134		2770		2.1		7	J	0.192	J	473	

Appendix A. Analytical Data
Table A-1. Chino Excavation Data
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Lead 7439-92-1 mg/kg		Manganese 7439-96-5 mg/kg		Percent Moisture ARC-Moist %		pH ARC-pH SU		Total Organic Carbon ARC-TOC %		Zinc 7440-66-6 mg/kg	
										Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R58-005F	R58	5/1/2019	F	Primary	--	0.00	0.00	2000	R58-005F(05012019) 2000	137		2460		3.4		5.7				1100	
	R58	5/1/2019	F	Primary	--	0.00	0.00	250	R58-005F(05012019) 250	137		3050		4.3		5.2				1410	
R59-001F	R59	3/25/2019	U	Primary	--	2631803.85	639023.73	2000	R59-001F(03252019) 2000			2350		1.1						1240	
	R59	3/25/2019	U	Primary	--	2631803.85	639023.73	250	R59-001F(03252019) 250	215		1470		1.7		7.8	J			1210	
R59-002F	R59	3/25/2019	R	Primary	--	2631704.07	638960.96	2000	R59-002F(03252019) 2000	267		1570		2.3		7.5	J			2160	
R59-003F	R59	3/25/2019	D	Primary	--	2631617.23	638891.17	2000	R59-003F(03252019) 2000	226		1370		1.7		7.5	J			1290	
R6/71-002F	R6/71	3/4/2019	F	Primary	--	2632045.26	631734.06	2000	R6/71-002F(03042019) 2000	94.4		1290		0.9		7.5				885	
R6/71-003F	R6/71	3/4/2019	F	Field Duplicate	R6/71-002F	2632045.26	631734.06	2000	R6/71-003F(03042019) 2000	215		1270		0.9		7.5				1020	
R6/71-004F	R6/71	3/4/2019	F	Primary	--	2632039.94	631801.55	2000	R6/71-004F(03042019) 2000	148		1250		1.1		6.7				849	
	R6/71	3/4/2019	F	Primary	--	2632039.94	631801.55	250	R6/71-004F(03042019) 250	245		1260		1.7		6.8				1170	
R6/71-005F	R6/71	3/4/2019	F	Primary	--	2632073.12	632032.95	2000	R6/71-005F(03042019) 2000	75.4		574		1.6		5.6				361	
R6/71-006F	R6/71	3/4/2019	F	Primary	--	2632090.88	632095.24	2000	R6/71-006F(03042019) 2000	44.5		887		1.2		7.7				288	
R6/71-007F	R6/71	3/4/2019	F	Field Duplicate	R6/71-006F	2632090.88	632095.24	2000	R6/71-007F(03042019) 2000	37.5		816		0.9		7.7				215	
	R6/71	3/4/2019	F	Field Duplicate	R6/71-006F	2632090.88	632095.24	250	R6/71-007F(03042019) 250	57		728		1.8		7.7				238	
R6/71-008F	R6/71	3/12/2019	D	Primary	--	2632073.69	631440.37	2000	R6/71-008F(03122019) 2000	245		1050		1.5		7.1	J			775	
R6/71-009F	R6/71	3/12/2019	U	Primary	--	2632030.83	631984.61	2000	R6/71-009F(03122019) 2000	194		1070		1.4		7.7	J			835	
R60-001F	R60	12/4/2018	U	Primary	--	2631847.72	638946.24	2000	R60-001F(12042018) 2000	171		1780		1.2		7.5	J	0.435	J	901	
	R60	12/4/2018	U	Primary	--	2631847.72	638946.24	250	R60-001F(12042018) 250	226		1460		1.8		7.7	J	0.951	J	979	
R60-002F	R60	12/4/2018	D	Primary	--	2631775.81	638899.69	2000	R60-002F(12042018) 2000	177		1300		1.5		7.7	J	0.345	J	1100	
R60-003F	R60	3/27/2019	F	Primary	--	2631783.02	638903.44	2000	R60-003F(03272019) 2000	180		1170		0.6		5.2		0.163		1170	
	R60	3/27/2019	F	Primary	--	2631783.02	638903.44	250	R60-003F(03272019) 250	552		825		2.5		5.2				854	
R06-001F	R06	12/10/2018	U	Primary	--	2632245.29	632564.42	2000	R6-001F(12102018) 2000	107		908		1.2		7.6	J	0.452	J	628	
	R06	12/10/2018	U	Primary	--	2632245.29	632564.42	250	R6-001F(12102018) 250	128		1030		1.5		7.6	J	0.599	J	663	
R6-002F	R06	12/10/2018	D	Primary	--	2632133.43	632026.80	2000	R6-002F(12102018) 2000	190		928		1.1		7.3	J	0.669	J	994	
R6-003F	R06	12/10/2018	L,D	Primary	--	2632175.01	632213.42	2000	R6-003F(12102018) 2000	186		747		1.3		6.7	J	1.05	J	474	
R6-004F	R06	12/10/2018	L,U	Primary	--	2632228.36	632474.38	2000	R6-004F(12102018) 2000	118		998		1.3		7.6	J	0.648	J	826	
	R06	12/10/2018	L,U	Primary	--	2632228.36	632474.38	250	R6-004F(12102018) 250	130		1100		1.6		7.6	J	0.679	J	1120	
R61-001F	R61	3/12/2019	R, U	Primary	--	2631469.99	638769.53	2000	R61-001F(03122019) 2000	179		1190		2.5		7.7	J			1110	
R61-002F	R61	3/12/2019	R, D	Primary	--	2631342.78	638607.07	2000	R61-002F(03122019) 2000	178		1260		2.4		7.2	J			1620	
R61-003F	R61	3/28/2019	F	Primary	--	2631451.40	638722.06	2000	R61-003F(03282019) 2000	350		1200		1		6.9		0.696		1040	
R62-004F	R62	12/5/2018	L	Primary	--	2631236.96	638157.71	2000	R62-004F(12052018) 2000	267		651		1.5		4.9	J	0.279	J	402	
R62-005F	R62	3/28/2019	F	Primary	--	2631235.21	638239.13	2000	R62-005F(03282019) 2000	196		930		1.2		5.2		< 0.15		795	
R62-006F	R62	3/28/2019	F	Primary	--	2631218.17	638153.56	2000	R62-006F(03282019) 2000	141		876		0.3		5.4		< 0.15		456	
	R62	3/28/2019	F	Primary	--	2631218.17	638153.56	250	R62-006F(03282019) 250	302		824		1.6		5.7				413	
R62-007F	R62	3/28/2019	F	Primary	--	2631133.75	638127.48	2000	R62-007F(03282019) 2000	81.4		869		0.5		7.1		0.195		383	
R62-008F	R62	3/28/2019	F	Primary	--	2631057.88	637988.98	2000	R62-008F(03282019) 2000	135		732		1.2		7		< 0.15		354	
R63-001F	R63	12/5/2018	U	Primary	--	2630967.20	637512.15	2000	R63-001F(12052018) 2000	168		1340		1.2		7.9	J	0.177	J	1070	
	R63	12/5/2018	U	Primary	--	2630967.20	637512.15	250	R63-001F(12052018) 250	223		1610		14.0		7.8	J	0.882	J	1410	
R63-002F	R63	12/5/2018	R	Primary	--	2630900.08	637474.76	2000	R63-002F(12052018) 2000	202		1720		1.6		7.4	J	0.947	J	1010	
R63-003F	R63	12/5/2018	D	Primary	--	2630929.51	637324.18	2000	R63-003F(12052018) 2000	182		1080		1.1		7.7	J	0.233	J	836	
R63-004F	R63	12/5/2018	L	Primary	--	2630959.05	637329.53	2000	R63-004F(12052018) 2000	187		1010		0.9		6.6	J	< 0.150	UJ	553	
	R63	12/5/2018	L	Primary	--	2630959.05	637329.53	250	R63-004F(12052018) 250	275		1430		1.2		6.5	J	< 0.15	UJ	708	
R63-005F	R63	3/25/2019	F	Primary	--	2630920.35	637513.01	2000	R63-005F(03252019) 2000	351		520		1.5		5.2				298	
R63-006F	R63	3/25/2019	F	Primary	--	2630938.37	637345.22	2000	R63-006F(03252019) 2000	148		344		1.3		5.1				233	
R64-001F	R64	3/20/2019	R	Primary	--	2630828.13	637474.00	2000	R64-001F(03202019) 2000			1100		1.2						900	
	R64	3/20/2019	R	Primary	--	2630828.13	637474.00	250	R64-001F(03202019) 250	228		1270		1.5		7.3	J			981	
R64-002F	R64	3/21/2019	F	Primary	--	2630828.26	637513.53	2000	R64-002F(03212019) 2000	196		578		2.1		5.1				376	
R65-001F	R65	3/20/2019	U	Primary	--	2631084.22	636844.43	2000	R65-001F(03202019) 2000	137		1250		0.8		7.6	J			931	
R65-002F	R65	3/20/2019	R	Primary	--	2631079.98	636806.22	2000	R65-002F(03202019) 2000			1460		1.5						1060	
	R65	3/20/2019	R	Primary	--	2631079.98	636806.22	250	R65-002F(03202019) 250	215		1480		1.6		7.9	J			1090	
R65-003F	R65	3/20/2019	D	Primary	--	2631102.04	636765.74	2000	R65-003F(03202019) 2000	178		1110		1		7.7	J			926	
R65-004F	R65	3/26/2019	F	Primary	--	2631106.49	636783.29	2000	R65-004F(03262019) 2000	174		1230		0.9		7.6		0.347		795	
	R65	3/26/2019	F	Primary	--	2631106.49	636783.29	250	R65-004F(03262019) 250	190		1400		1.3		7.7				1080	
R67-001F	R67	3/18/2019	R	Primary	--	2631783.90	635667.71	2000	R67-001F(03182019) 2000	200		1280		2		6.6	J			904	
R67-002F	R67	3/16/2019	F	Primary	--	2631811.79	635627.67	2000	R67-002F(03162019) 2000			599		1.8						251	
	R67	3/16/2019	F	Primary	--	2631811.79	635627.67	250	R67-002F(03162019) 250	180		370		3.6		4.5				225	
R68-001F	R68	3/18/2019	U	Primary	--	2631812.25	635567.66	2000	R68-001F(03182019) 2000	342		1200		2.5		4.5	J			841	
R68-002F	R68	3/18/2019	R	Primary	--	2631782.70	635498.40	2000	R68-002F(03182019) 2000	455		922		1.9		6.9	J			861	
R68-003F	R68	3/18/2019	D	Primary	--	2631827.63	635476.56	2000	R68-003F(03182019) 2000	209		1090		1.4		6.2	J			473	
	R68	3/18/2019	D	Primary	--	2631827.63	635476.56	250	R68-003F(03182019) 250	278		1140		1.6		6.3	J			562	
R68-004F	R68	3/18/2019	F	Primary	--	2631803.33	635512.04	2000	R68-004F(03182019) 2000	196		1450		1.3		7.1				1460	
R69-001F	R69	3/18/2019	U	Primary	--	2631830.03	635457.94	2000	R69-001F(03182019) 2000	252		739		2		5.3	J			442	
R69-002F	R69	3/18/2019	R	Primary	--	2631844.51	635411.51	2000	R69-002F(03182019) 2000	184		1360		1.3		7.2	J			1070	
	R69	3/18/2019	R	Primary	--	2631844.51	635411.51	250	R69-002F(03182019) 250	277		1450		1.5		7.2	J			1150	
R69-003F	R69	3/18/2019	D	Primary	--	2631945.03	635279.75	2000	R69-003F(03182019) 2000	126		844		0.9		7.1	J			481	
R69-004F	R69	3/18/2019	F	Primary	--	2631895.40	635358.19	2000	R69-004F(03182019) 2000	180		970		1.2		6.8				721	
R69-005F	R69	3/18/2019	F	Field Duplicate	R69-004F	2631895.40	635358.19	2000	R69-005F(03182019) 2000	208		908		1.3		6.7				636	
	R69	3/18/2019	F	Field Duplicate	R69-004F	2631895.40	635358.19	250	R69-005F(03182019) 250	262		1180		1.5		6.5				694	
R75-003F	R75	12/14/2018	D	Primary	--	2633107.05	626939.96	2000	R75-003F(12142018) 2000	201		988		1.4		5.6	J	0.326	UJ	596	
	R75	12/14/2018	D	Primary	--	2633107.05	626939.96	250	R75-003F(12142018) 250	220		1240		1.7		5.8	J	0.293	J	807	
R75-004F	R75	12/14/2018	R	Primary	--	2633005.66	627123.35	2000	R75-004F(12142018) 2000	147		789		0.9		6.4	J	< 0.150	UJ	501	
R75M-006F	R75M	1/24/2019	U	Primary	--	2632978.22	627171.72	2000	R75M-006F(01242019) 2000	205		936		1.3		5.4	J	0.225		440	
R77M-001F	R77M	1/23/2019	D	Primary	--	2633423.21	626283.74	2000	R77M-001F(01232019) 2000	415		567		1.3		4.5	J	0.245		470	
R77M-003F	R77M	1/23/2019	U	Primary	--	2633304.52	626566.22	2000	R77M-003F(01232019) 2000	148		1040		1.1		7.2	J	0.47		644	
R77M-004F	R77M	1/23/2019	U	Field Duplicate	R77M-003F	2633304.52	626566.22	2000	R77M-004F(01232019) 2000	141		983		1.2		7.1	J	0.394		623	
R78-001F	R78	12/6/2018	U	Primary	--	2631685.62	636168.90	2000	R78-001F(12062018) 2000	164		1110		1.5		7.7	J	0.206	J	445	
R78-002F	R78	12/6/2018	R	Primary	--	2631681.44	636103.37	2000	R78-002F(12062018) 2000	128		1040		1.9		7.6	J	0.216	J	404	
R78-003F	R78	12/6/2018	D	Primary	--	2631697.67	636053.61	2000	R78-003F(12062018) 2000	201		1050		1.6		5.5	J	< 0.150	UJ	419	
	R78	12/6/2018	D	Primary	--	2631697.67	636053.61	250	R78-003F(12062018) 250	282		1590		2.2		5.2	J	< 0.15	UJ	512	
R78-004F	R78	12/6/2018	L	Primary	--	2631704.75	636080.80	2000	R78-004F(12062018) 2000	194		973		1.4		7.7	J	0.204	J	440	
R78-005F	R78	12/6/2018	D	Field Duplicate	R78-003F	2631697.67	636053.61	2000	R78-005F(12062018) 2000	183		1050		1.6		5.2	J	< 0.15	UJ	383	
R78-006F	R78	4/5/2019	F	Primary	--	2631681.17	636142.87	2000	R78-006F(04052019) 2000	222		772		1.3		5.5				334	
R79-001F	R79	11/20/2018	U	Primary	--	2636186.17	646493.82	2000	R79-001F(11202018) 2000	174		1460		1.6		7.4	J	1.2	J	476	
R79-002F	R79	11/20/2018	R	Primary	--	2636121.33	646479.21	2000	R79-002F(11202018) 2000	161		1570		1.4		7.6	J	0.376	J	420	
	R79	11/20/2018	R	Primary	--	2636121.33	646479.21	250	R79-002F(11202018) 250	122		1280		1.3		7.4	J	0.373	J	374	
R79-003F	R79	11/20/2018	D	Primary	--	2636080.56	646454.49	2000	R79-003F(11202018) 2000	141		1430		1.4		7.5	J	0.684	J	564	
R79-004F	R79	11/20/2018	L	Primary	--	2636139.68	646476.69	2000	R79-004F(11202018) 2000	174		1620		1.8		7.5	J	0.524	J	743	
R79-005F	R79	12/3/2018	F	Primary	--	2636166.64	646486.22	2000	R79-005F(12032018) 2000	112		1220		1.5		7.6		0.840		352	
	R79	12/3/2018	F	Primary	--	2636166.64	646486.22	250	R79-005F(12032018) 250	95.6		1530		2.4		7.5		1.12		419	
R80-001F	R80	12/3/2018	U	Primary	--	2632948.43	640872.16	2000	R80-001F(12032018) 2000	222		1150		0.9		7	J	0.313	J	947	
R80-002F	R80	12/3/2018	R	Primary	--	2632951.52	640615.19	2000	R80-002F(12032018) 2000	438		939		1.1		5.6	J	0.242	J	610	
R80-003F	R80	12/3/2018	R	Primary	--	2632982.72	640431.84	2000	R80-003F(12032018) 2000	300		1460		1.1		6.8	J	0.277	J	720	
	R80	12/3/2018	R	Primary	--	2632982.72	640431.84	250	R80-003F(12032018) 250	481		2000		1.5		6.9	J	0.334	J	1040	
R80-004F	R80	12/3/2018	D	Primary	--	2632987.06	640199.43	2000	R80-004F(12032018) 2000	191		1260		1.3		7.1	J	0.157	J	750	

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Lead 7439-92-1 mg/kg		Manganese 7439-96-5 mg/kg		Percent Moisture ARC-Moist %		pH ARC-pH SU		Total Organic Carbon ARC-TOC %		Zinc 7440-66-6 mg/kg	
										Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R80-005F	R80	12/3/2018	U	Field Duplicate	R80-001F	2632948.43	640872.16	2000	R80-005F(12032018) 2000	247		1320		1.1		6.9	J	0.232	J	964	
R80-006F	R80	12/3/2018	L	Primary	--	2633070.64	640672.39	2000	R80-006F(12032018) 2000	160		1090		1.0		7.8	J	0.286	J	1480	
	R80	12/3/2018	L	Primary	--	2633070.64	640672.39	250	R80-006F(12032018) 250	230		1510		1.3		7.8	J	0.22	J	2080	
R80-007F	R80	3/29/2019	D	Primary	--	2632955.52	640062.52	2000	R80-007F(03292019) 2000	263		1500		1.8		6.8	J	1.08	J	939	
	R80	3/29/2019	D	Primary	--	2632955.52	640062.52	250	R80-007F(03292019) 250	331		1560		2		6.9	J			1030	
R80-008F	R80	3/29/2019	R,D	Primary	--	2632905.41	640303.20	2000	R80-008F(03292019) 2000	182		1650		1.1		7.7	J	0.173	J	1200	
R80-009F	R80	3/29/2019	R	Primary	--	2632870.76	640517.77	2000	R80-009F(03292019) 2000	151		1320		1		7.7	J	< 0.15		1110	
R80-010F	R80	3/29/2019	R,U	Primary	--	2632841.61	640761.61	2000	R80-010F(03292019) 2000	155		1300		1.2		7.7	J	0.267	J	1070	
	R80	3/29/2019	R,U	Primary	--	2632841.61	640761.61	250	R80-010F(03292019) 250	203		1590		2		7.8	J			1320	
R80-011F	R80	3/29/2019	U	Primary	--	2632839.32	640969.96	2000	R80-011F(03292019) 2000	188		1540		1.2		7.8	J	0.224	J	1270	
R80-012F	R80	3/29/2019	L,U	Primary	--	2633008.41	640845.01	2000	R80-012F(03292019) 2000	271		1270		1.3		7.1	J	0.421	J	931	
R80-013F	R80	3/29/2019	L	Primary	--	2632997.53	640560.47	2000	R80-013F(03292019) 2000	312		1460		1		7.2	J	0.155		1340	
	R80	3/29/2019	L	Primary	--	2632997.53	640560.47	250	R80-013F(03292019) 250	344		1570		1.4		7.2	J			1530	
R80-014F	R80	3/29/2019	L,D	Primary	--	2632967.37	640289.51	2000	R80-014F(03292019) 2000	263		1870		2.2		6.9	J	0.25		882	
R80-015F	R80	3/29/2019	L,D	Field Duplicate	R80-014F	2632967.37	640289.51	2000	R80-015F(03292019) 2000	387		1270		2		6.9	J	0.285	J	817	
R80-016F	R80	4/23/2019	F	Primary	--	2632855.45	640892.91	2000	R80-016F(04232019) 2000	292		795		1.4		5.9	J			600	
	R80	4/23/2019	F	Primary	--	2632855.45	640892.91	250	R80-016F(04232019) 250	417		1630		2.2		6	J			1180	
R80-017F	R80	4/23/2019	F	Primary	--	2632867.75	640817.99	2000	R80-017F(04232019) 2000	199		489		2.6		5.6	J			297	
R80-018F	R80	4/23/2019	F	Primary	--	2632876.90	640718.28	2000	R80-018F(04232019) 2000	185		459		2		5.8	J			324	
R80-019F	R80	4/24/2019	F	Primary	--	2632882.72	640603.05	2000	R80-019F(04242019) 2000	133		386		1.3		5.2	J			249	
	R80	4/24/2019	F	Primary	--	2632882.72	640603.05	250	R80-019F(04242019) 250	174		1600		3.4		5.1	J			1220	
R80-020F	R80	4/24/2019	F	Primary	--	2632936.71	640724.96	2000	R80-020F(04242019) 2000	278		629		1.5		5.2	J			270	
R80-021F	R80	4/24/2019	F	Primary	--	2632987.34	640824.57	2000	R80-021F(04242019) 2000	351		1630		1.1		6.9	J			1340	
R80-022F	R80	4/24/2019	F	Primary	--	2633021.03	640759.84	2000	R80-022F(04242019) 2000	307		1380		0.8		6.1	J			1090	
	R80	4/24/2019	F	Primary	--	2633021.03	640759.84	250	R80-022F(04242019) 250	399		1500		1.1		6	J			981	
R80-023F	R80	4/25/2019	F	Primary	--	2633016.62	640722.56	2000	R80-023F(04252019) 2000	607		1140		1		5.8	J			526	
R80-024F	R80	4/25/2019	F	Primary	--	2632985.11	640591.61	2000	R80-024F(04252019) 2000	293		1130		1		6.3	J			819	
R80-025F	R80	4/25/2019	F	Field Duplicate	R80-024F	2632985.11	640591.61	2000	R80-025F(04252019) 2000	296		1450		0.9		6.6	J			998	
	R80	4/25/2019	F	Field Duplicate	R80-024F	2632985.11	640591.61	250	R80-025F(04252019) 250	381		1600		1.2		6.5	J			1220	
R80-026F	R80	4/26/2019	F	Primary	--	2633001.93	640370.52	2000	R80-026F(04262019) 2000	246		4610		0.6		7.4	J			2330	
R81-001F	R81	3/25/2019	U	Primary	--	2631934.30	639120.77	2000	R81-001F(03252019) 2000	181		1400		1.7		7.4	J			1220	
	R81	3/25/2019	U	Primary	--	2631934.30	639120.77	250	R81-001F(03252019) 250	199		1500		1.7		7.4	J			1290	
R81-002F	R81	3/25/2019	R	Primary	--	2631897.27	639098.86	2000	R81-002F(03252019) 2000	283		1480		2.1		6.6	J			1590	
R81-003F	R81	3/25/2019	D	Primary	--	2631852.07	639069.05	2000	R81-003F(03252019) 2000	281		877		2.3		4.3	J			539	
R81-004F	R81	3/25/2019	L	Primary	--	2631886.08	639079.59	2000	R81-004F(03252019) 2000	178		1450		1.5		7.6	J			1070	
	R81	3/25/2019	L	Primary	--	2631886.08	639079.59	250	R81-004F(03252019) 250	238		1500		1.8		7.5	J			1230	
R81-005F	R81	3/25/2019	U	Field Duplicate	R81-001F	2631934.30	639120.77	2000	R81-005F(03252019) 2000	169		1440		1.5		7.5	J			1210	
R81-006F	R81	3/27/2019	F	Primary	--	2631886.57	639085.22	2000	R81-006F(03272019) 2000	253		774		2.3		5		0.25		477	
	R81	3/27/2019	F	Primary	--	2631886.57	639085.22	250	R81-006F(03272019) 250	325		896		2.8		5.2				559	
R82-001F	R82	3/20/2019	U	Primary	--	2631397.75	636131.98	2000	R82-001F(03202019) 2000	113		947		2.2		7.6	J			733	
R82-002F	R82	3/20/2019	R	Primary	--	2631465.14	636071.81	2000	R82-002F(03202019) 2000	167		1590		1.6		7.6	J			1110	
	R82	3/20/2019	R	Primary	--	2631465.14	636071.81	250	R82-002F(03202019) 250	205		1290		1.8		7.5	J			1170	
R82-003F	R82	3/20/2019	D	Primary	--	2631522.24	636029.21	2000	R82-003F(03202019) 2000	357		1150		1.8		7.1	J			959	
R82-004F	R82	3/20/2019	F	Primary	--	2631472.65	636072.10	2000	R82-004F(03202019) 2000	175		909		2.2		6.4				714	
R83-001F	R83	12/5/2018	U	Primary	--	2631198.00	636749.10	2000	R83-001F(12052018) 2000	238		1210		0.9		7	J	0.276	J	720	
R83-002F	R83	12/5/2018	D	Primary	--	2631434.49	636553.66	2000	R83-002F(12052018) 2000	159		1220		1.3		7.2	J	0.204	J	749	
R83-003F	R83	12/5/2018	L	Primary	--	2631478.12	636444.74	2000	R83-003F(12052018) 2000	257		1240		0.7		6.9	J	0.389	J	1550	
	R83	12/5/2018	L	Primary	--	2631478.12	636444.74	250	R83-003F(12052018) 250	365		1510		1.0		6.9	J	0.284	J	1860	
R83-004F	R83	12/5/2018	L	Primary	--	2631582.88	636187.28	2000	R83-004F(12052018) 2000	249		1250		0.7		5.8	J	0.156	J	489	
R83-005F	R83	4/2/2019	F	Primary	--	2631246.01	636670.19	2000	R83-005F(04022019) 2000	150		1130		0.6		8				478	
R83-006F	R83	4/2/2019	F	Primary	--	2631286.26	636608.05	2000	R83-006F(04022019) 2000	194		1160		0.8		7.5	J			765	
	R83	4/2/2019	F	Primary	--	2631286.26	636608.05	250	R83-006F(04022019) 250	296		1500		0.7		7.5	J			981	
R83-007F	R83	4/2/2019	F	Primary	--	2631345.35	636465.57	2000	R83-007F(04022019) 2000	88.1		1470		0.6		7.2	J			519	
R83-008F	R83	4/3/2019	F	Primary	--	2631411.60	636464.53	2000	R83-008F(04032019) 2000	124		1390		0.8		7	J			597	
R83-009F	R83	4/3/2019	F	Primary	--	2631434.34	636313.91	2000	R83-009F(04032019) 2000	285		1170		1.3		5.7	J			421	
	R83	4/3/2019	F	Primary	--	2631434.34	636313.91	250	R83-009F(04032019) 250	373		2010		1.2		5.6	J			584	
R83-010F	R83	4/3/2019	F	Primary	--	2631517.90	636217.56	2000	R83-010F(04032019) 2000	232		796		1.2		5.5	J			372	
R83-011F	R83	4/3/2019	F	Primary	--	2631406.84	636574.72	2000	R83-011F(04032019) 2000	121		296		1.6		4.8	J			163	
R84-001F	R84	12/5/2018	U	Primary	--	2632341.03	634743.22	2000	R84-001F(12062018) 2000	216		903		1.1		5.7	J	0.155	J	470	
R84-002F	R84	12/5/2018	R	Primary	--	2632470.37	634377.95	2000	R84-002F(12062018) 2000	181		1920		2.4		6.4	J	1.85	J	768	
	R84	12/5/2018	R	Primary	--	2632470.37	634377.95	250	R84-002F(12062018) 250	205		2220		2.1		6.6	J	0.314	J	1060	
R84-003F	R84	12/5/2018	D	Primary	--	2632427.99	634658.98	2000	R84-003F(12062018) 2000	239		1010		0.8		6	J	0.293	J	591	
R84-004F	R84	12/5/2018	L	Primary	--	2632559.17	634586.57	2000	R84-004F(12062018) 2000	210		1120		0.8		7.4	J	0.737	J	1450	J
R84-005F	R84	12/5/2018	L	Primary	--	2632383.66	634829.56	2000	R84-005F(12062018) 2000	230		1300		0.8		7.3	J	1.91	J	1680	
	R84	12/5/2018	L	Primary	--	2632383.66	634829.56	250	R84-005F(12062018) 250	256		1460		1.0		7.3	J	0.381	J	1950	
R84-006F	R84	12/5/2018	L	Field Duplicate	R84-004F	2632559.17	634586.57	2000	R84-006F(12062018) 2000	193		1300		2.7		5.5	J	< 0.150	UJ	667	J
R84-007F	R84	3/6/2019	U	Primary	--	2632407.47	634845.16	2000	R84-007F(03062019) 2000	127		983		0.9		7.2	J			576	
R84-008F	R84	3/6/2019	L	Primary	--	2632494.93	634840.69	2000	R84-008F(03062019) 2000	195		604		1.3		5.2	J			352	
R84-009F	R84	3/6/2019	D	Primary	--	2632493.38	634464.75	2000	R84-009F(03062019) 2000	148		2280		1.8		4.9	J			409	
	R84	3/6/2019	D	Primary	--	2632493.38	634464.75	250	R84-009F(03062019) 250	181		2090		2		4.9	J			494	
R84-010F	R84	3/6/2019	D	Field Duplicate	R84-009F	2632493.38	634464.75	2000	R84-010F(03062019) 2000	160		2270		1.9		4.9	J			439	
R84-011F	R84	3/15/2019	F	Primary	--	2632509.01	634668.56	2000	R84-011F(03152019) 2000	114		1660		2.3		6		0.305		794	
	R84	3/15/2019	F	Primary	--	2632509.01	634668.56	250	R84-011F(03152019) 250	114		1290		2.1		5.9				753	
R84-012F	R84	3/15/2019	F	Primary	--	2632490.79	634750.74	2000	R84-012F(03152019) 2000	260		654		2.1		4.6		< 0.15		421	
R84-013F	R84	3/15/2019	F	Primary	--	2632350.23	634806.04	2000	R84-013F(03152019) 2000	262		646		1.4		4.5		< 0.15		325	
R84-014F	R84	3/15/2019	F	Primary	--	2632420.47	634709.55	2000	R84-014F(03152019) 2000	64.3		1170		1.6		7.1		0.516		580	
	R84	3/15/2019	F	Primary	--	2632420.47	634709.55	250	R84-014F(03152019) 250	72.2		1260		1.8		7.1				677	
R84-015F	R84	3/15/2019	F	Field Duplicate	R84-014F	2632420.47	634709.55	2000	R84-015F(03152019) 2000	55.8		1290		1.8		7.3		0.457		576	
R84-016F	R84	3/15/2019	F	Primary	--	2632403.52	634565.95	2000	R84-016F(03152019) 2000	94.8		869		0.8		7.6		< 0.15		509	
R84-017F	R84	3/15/2019	F	Primary	--	2632420.04	634461.43	2000	R84-017F(03152019) 2000	145		1010		0.6		7.7		< 0.15		600	
	R84	3/15/2019	F	Primary	--	2632420.04	634461.43	250	R84-017F(03152019) 250	192		1140		0.8		7.6				706	
R85-001F	R85	12/6/2018	U	Primary	--	2632141.05	634735.90	2000	R85-001F(12062018) 2000	181		908		1.1		6.8	J	< 0.150	UJ	593	
R85-002F	R85	12/6/2018	R	Primary	--	2632234.76	634490.95	2000	R85-002F(12062018) 2000	153		1200		1.2		7.2	J	0.282	J	639	
R85-003F	R85	12/6/2018	D+D51	Primary	--	2632264.69	634510.71	2000	R85-003F(12062018) 2000	164		1080		0.9		7	J	< 0.150	UJ	564	
	R85	12/6/2018	D+D51	Primary	--	2632264.69	634510.71	250	R85-003F(12062018) 250	188		1370		1.2		7.2	J	< 0.150	UJ	745	
R85-004F	R85	12/6/2018	L	Primary	--	2632249.01	634719.75	2000	R85-004F(12062018) 2000	206		833		1.0		6	J	< 0.15	UJ	377	
R85-005F	R85	3/7/2019	F	Primary	--	2632170.55	634726.93	2000	R85-005F(03072019) 2000	231		1280		0.7		5.9				375	
R85-006F	R85	3/7/2019	F	Field Duplicate	R85-005F	2632170.55	634726.93	2000	R85-006F(03072019) 2000	288		1350		0.7		5.9				415	
	R85	3/7/2019	F	Field Duplicate	R85-005F	2632170.55	634726.93	250	R85-006F(03072019) 250	430		1730		1.2		5.6				450	
R85-007F	R85	3/8/2019	F	Primary	--	2632190.06	634628.22	2000	R85-007F(03082019) 2000	225		1030		0.9		5.4				408	
R85-008F	R85	3/8/2019	F	Primary	--	2632230.32	634550.00	2000	R85-008F(03082019) 2000	239		761		0.7		5.1				290	
R86-001F	R86	12/6/2018	U	Primary	--	2631905.19	635262.27	2000	R86-001F(12062018) 2000	189		887		0.7		7	J	< 0.15	UJ	494	
R86-002F	R86	12/6/2018	R	Primary	--	2631829.87	635215.08	2000	R86-002F(12062018) 2000	278		513		2.4		4	J	1.21	J	595	
	R86	12/6/2018	R	Primary	--	2631829.87	635215.08	250	R86-002F(12062018) 250	284		557		2.4		4.3	J	0.464	J	639	

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Lead 7439-92-1 mg/kg		Manganese 7439-96-5 mg/kg		Percent Moisture ARC-Moist %		pH ARC-pH SU		Total Organic Carbon ARC-TOC %		Zinc 7440-66-6 mg/kg	
										Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R86-003F	R86	12/6/2018	R	Primary	--	2631821.86	635120.25	2000	R86-003F(12062018) 2000	286		668		2.0		4.2	J	1.2	J	494	
R86-004F	R86	12/6/2018	D	Primary	--	2631880.11	634855.35	2000	R86-004F(12062018) 2000	146		771		0.8		7.3	J	< 0.150	UJ	629	
R86-005F	R86	3/20/2019	F	Primary	--	2631947.11	635179.11	2000	R86-005F(03202019) 2000	148		731		0.9		4.9				400	
	R86	3/20/2019	F	Primary	--	2631947.11	635179.11	250	R86-005F(03202019) 250	227		1260		1.2		5.6				435	
R86-006F	R86	3/20/2019	F	Primary	--	2631981.96	635034.33	2000	R86-006F(03202019) 2000	69.1		757		1.3		6.3				457	
R86-007F	R86	3/20/2019	F	Primary	--	2631953.35	634934.91	2000	R86-007F(03202019) 2000	182		786		0.9		5.2				326	
R86-008F	R86	3/20/2019	F	Primary	--	2631937.66	634864.06	2000	R86-008F(03202019) 2000	168		1040		0.9		7.1				738	
	R86	3/20/2019	F	Primary	--	2631937.66	634864.06	250	R86-008F(03202019) 250	255		1970		1.1		7.2				965	
R86-009F	R86	3/20/2019	F	Field Duplicate	R86-008F	2631937.66	634864.06	2000	R86-009F(03202019) 2000	164		1550		1.1		6.9		< 0.15		983	
R86-010F	R86	3/20/2019	F	Primary	--	2631893.63	635011.67	2000	R86-010F(03202019) 2000	249		1090		1		7.6		< 0.15		842	
R86-011F	R86	3/21/2019	F	Primary	--	2631852.53	635089.13	2000	R86-011F(03212019) 2000	179		853		1.5		5.4		< 0.15		552	
	R86	3/21/2019	F	Primary	--	2631852.53	635089.13	250	R86-011F(03212019) 250	278		1060		2.4		5.3				655	
R86-012F	R86	3/22/2019	F	Primary	--	2631867.83	635200.98	2000	R86-012F(03222019) 2000	244		1530		1.1		6.4		< 0.15		628	
R86-013F	R86	3/22/2019	F	Field Duplicate	R86-012F	2631867.83	635200.98	2000	R86-013F(03222019) 2000	155		877		1.2		5.8		< 0.15		483	
R87-001F	R87	12/6/2018	U	Primary	--	2632087.35	635149.44	2000	R87-001F(12062018) 2000	177		1330		0.9		7	J	< 0.150	UJ	530	
R87-002F	R87	12/6/2018	L	Primary	--	2632212.34	634890.39	2000	R87-002F(12062018) 2000	171		1200		1.0		6	J	< 0.150	UJ	451	
	R87	12/6/2018	L	Primary	--	2632212.34	634890.39	250	R87-002F(12062018) 250	244		1560		1.1		6.2	J	0.152	J	568	
R87-003F	R87	12/6/2018	L	Primary	--	2632213.68	634980.09	2000	R87-003F(12062018) 2000	196		980		1.2		5.8	J	< 0.150	UJ	436	
R87-004F	R87	12/6/2018	D	Primary	--	2632163.57	635124.04	2000	R87-004F(12062018) 2000	446		788		0.9		5.4	J	< 0.150	UJ	368	
R87-005F	R87	3/7/2019	L	Primary	--	2632027.28	635390.75	2000	R87-005F(03072019) 2000	191		899		0.7		6.7	J			513	
	R87	3/7/2019	L	Primary	--	2632027.28	635390.75	250	R87-005F(03072019) 250	257		1100		1.3		6.5	J			559	
R87-006F	R87	3/7/2019	U	Primary	--	2632029.59	635313.54	2000	R87-006F(03072019) 2000	236		1120		0.8		7.6	J			954	
R87-007F	R87	3/11/2019	F	Primary	--	2632037.47	635311.74	2000	R87-007F(03112019) 2000	251		713		1.5		5.1				253	
R87-009F	R87	3/11/2019	F	Primary	--	2632100.08	635045.86	2000	R87-009F(03112019) 2000	202		1100		1.4		5.7				365	
R87-010F	R87	3/11/2019	F	Primary	--	2632125.81	634944.86	2000	R87-010F(03112019) 2000	236		595		1.9		4.7				304	
R89-001F	R89	12/10/2018	U	Primary	--	2632265.26	631093.38	2000	R89-001F(12102018) 2000	26.3		906		1.7		8.0	J	0.954	J	125	
	R89	12/10/2018	U	Primary	--	2632265.26	631093.38	250	R89-001F(12102018) 250	31.4		814		2.2		8	J	0.164	J	136	
R89-002F	R89	12/10/2018	R	Primary	--	2632327.66	630890.24	2000	R89-002F(12102018) 2000	451		1060		1.4		5.3	J	< 0.150	UJ		
R89-003F	R89	12/10/2018	D	Primary	--	2632391.18	630754.15	2000	R89-003F(12102018) 2000	164		1230		1.6		7.6	J	4.73	J	735	
R89-004F	R89	12/10/2018	L	Primary	--	2632421.62	630772.53	2000	R89-004F(12102018) 2000	57.7		964		0.8		7.8	J	< 0.150	UJ	320	
	R89	12/10/2018	L	Primary	--	2632421.62	630772.53	250	R89-004F(12102018) 250	108		955		1.1		7.6	J	< 0.150	UJ	419	
R89-005F	R89	2/22/2019	F	Primary	--	2632316.48	630992.53	2000	R89-005F(02222019) 2000	215		795		0.8		5				405	
R89-006F	R89	2/22/2019	F	Primary	--	2632376.19	630832.86	2000	R89-006F(02222019) 2000	180		754		1		4.8				427	
	R89	2/22/2019	F	Primary	--	2632376.19	630832.86	250	R89-006F(02222019) 250	241		937		1.5		4.9				478	
R89A-001F	R89A	2/22/2019	U	Primary	--	2632283.19	630870.02	2000	R89A-001F(02222019) 2000	224		985		1.3		7.5	J			728	
R89A-002F	R89A	2/22/2019	R	Primary	--	2632310.20	630799.60	2000	R89A-002F(02222019) 2000	283		650		1.5		5.1	J			602	
R89A-003F	R89A	2/22/2019	D	Primary	--	2632340.38	630757.46	2000	R89A-003F(02222019) 2000	195		709		1		6	J			383	
	R89A	2/22/2019	D	Primary	--	2632340.38	630757.46	250	R89A-003F(02222019) 250	233		811		1.8		6.3	J			426	
R89A-004F	R89A	2/22/2019	L	Primary	--	2632348.57	630788.58	2000	R89A-004F(02222019) 2000	151		834		1.3		7.6	J			455	
R89A-005F	R89A	2/22/2019	L	Field Duplicate	R89A-004F	2632348.57	630788.58	2000	R89A-005F(02222019) 2000	148		857		1.3		7.6	J			478	
R89A-006F	R89A	3/1/2019	F	Primary	--	2632322.28	630808.97	2000	R89A-006F(03012019) 2000	255		515		2.2		4.4				341	
	R89A	3/1/2019	F	Primary	--	2632322.28	630808.97	250	R89A-006F(03012019) 250	334		532		3.4		4.4				385	
R90-001F	R90	12/11/2018	U,R	Primary	--	2632424.65	629309.58	2000	R90-001F(12112018) 2000	200		1660		0.7		6.6	J	< 0.15	UJ	798	
R90-002F	R90	12/11/2018	U,L	Primary	--	2632432.98	629322.00	2000	R90-002F(12112018) 2000	297		901		1.0		7.2	J	0.178	J	362	
R90-003F	R90	12/11/2018	D,L	Primary	--	2632482.26	629278.63	2000	R90-003F(12112018) 2000	174		1260		0.9		6.2	J	< 0.150	UJ	523	
	R90	12/11/2018	D,L	Primary	--	2632482.26	629278.63	250	R90-003F(12112018) 250	245		1380		1.2		5.9	J	0.191	J	615	
R90-004F	R90	12/11/2018	D,R	Primary	--	2632484.43	629258.77	2000	R90-004F(12112018) 2000	357		1090		0.7		7.2	J	< 0.150	UJ	788	
R91-001F	R91	12/14/2018	U	Primary	--	2632580.43	628531.05	2000	R91-001F(12142018) 2000	240		664		1.2		5.8	J	0.186	UJ	408	
	R91	12/14/2018	U	Primary	--	2632580.43	628531.05	250	R91-001F(12142018) 250	261		898		1.6		5.9	J	0.346	J	571	
R91-002F	R91	12/14/2018	R	Primary	--	2632506.36	628388.30	2000	R91-002F(12142018) 2000			825		1.3		7.3	J	0.778	J	467	
R91-003F	R91	12/14/2018	D	Primary	--	2632580.65	628406.07	2000	R91-003F(12142018) 2000	188		690		1.7		5.9	J	0.289	J	318	
	R91	12/14/2018	D	Primary	--	2632580.65	628406.07	250	R91-003F(12142018) 250	220		852		1.6		5.6	J	0.16	J	365	
R91-004F	R91	12/14/2018	L	Primary	--	2632596.58	628520.53	2000	R91-004F(12142018) 2000	201		833		1.6		7	J	0.355	J	489	
R91-005F	R91	12/14/2018	R	Field Duplicate	R91-002F	2632506.36	628388.30	2000	R91-005F(12142018) 2000	128		766		1.4		6.6	J	0.525	J	394	
R91-006F	R91	1/15/2019	F	Primary	--	2632569.96	628468.37	2000	R91-006F(01152019) 2000	155		840		1.8		4.8		0.271		349	
R92-001F	R92	12/14/2018	U	Primary	--	2632559.51	628360.88	2000	R92-001F(12142018) 2000	170		523		1.4		5.7	J	0.347	J	313	
	R92	12/14/2018	U	Primary	--	2632559.51	628360.88	250	R92-001F(12142018) 250	262		734		1.6		5.6	J	0.253	J	382	
R92-002F	R92	12/14/2018	R	Primary	--	2632471.72	628306.58	2000	R92-002F(12142018) 2000	71.3		1540		3.1		5	J	0.485	J	411	
R92-003F	R92	12/14/2018	D	Primary	--	2632476.15	628253.88	2000	R92-003F(12142018) 2000	180		481		2.4		4.9	J	< 0.150	UJ	251	
R92-004F	R92	12/14/2018	L	Primary	--	2632545.08	628296.21	2000	R92-004F(12142018) 2000	51.8		650		3.7		4.4	J	< 0.150	UJ	316	
R92-005F	R92	1/10/2019	F	Primary	--	2632505.92	628299.26	2000	R92-005F(01102019) 2000	173		518		3		4		< 0.15		271	
R93-001F	R93	12/11/2018	U	Primary	--	2632222.45	630114.55	2000	R93-001F(12112018) 2000	205		802		0.9		6.1	J	< 0.150	UJ	465	
R93-002F	R93	12/11/2018	R,U	Primary	--	2632165.25	630065.61	2000	R93-002F(12112018) 2000	242		795		0.7		5.2	J	< 0.150	UJ	358	
	R93	12/11/2018	R,U	Primary	--	2632165.25	630065.61	250	R93-002F(12112018) 250	379		804		1.3		5	J	0.246	J	378	
R93-003F	R93	12/11/2018	R,D	Primary	--	2632074.26	629989.77	2000	R93-003F(12112018) 2000	275		1110		3.9		7	J	0.322	J	644	
R93-004F	R93	12/11/2018	D	Primary	--	2632008.46	629897.54	2000	R93-004F(12112018) 2000	349		705		2.2		5.1	J	0.958	J	686	
R93-005F	R93	12/11/2018	R,D	Field Duplicate	R93-003F	2632074.26	629989.77	2000	R93-005F(12112018) 2000	262		753		1.6		6.6	J	0.370	J	574	
	R93	12/11/2018	R,D	Field Duplicate	R93-003F	2632074.26	629989.77	250	R93-005F(12112018) 250	293		895		1.8		6.6	J	0.298	J	643	
R93-006F	R93	4/18/2019	F	Primary	--	2632186.33	630065.26	2000	R93-006F(04182019) 2000	177		609		1.2		5.1				342	
	R93	4/18/2019	F	Primary	--	2632186.33	630065.26	250	R93-006F(04182019) 250	260		814		1.3		5.2				432	
R93-007F	R93	4/18/2019	F	Primary	--	2632067.06	629922.13	2000	R93-007F(04182019) 2000	186		827		1.2		5	J			445	
R93A-001F	R93A	4/18/2019	F	Primary	--	2632193.47	629853.98	2000	R93A-001F(04182019) 2000	218		827		3		4.3	J			556	
R94-001F	R94	12/11/2018	R	Primary	--	2632161.31	629768.80	2000	R94-001F(12112018) 2000	229		628		1.7		4.7	J	0.297	J	386	
R94-002F	R94	12/11/2018	U	Primary	--	2632190.19	629813.25	2000	R94-002F(12112018) 2000	212		541		1.4		5.3	J	< 0.150	UJ	323	
R94-003F	R94	12/11/2018	L	Primary	--	2632255.62	629657.19	2000	R94-003F(12112018) 2000	208		1240		1.3		6.5	J	0.497	J	1600	
	R94	12/11/2018	L	Primary	--	2632255.62	629657.19	250	R94-003F(12112018) 250	270		1440		1.6		6.3	J	0.481	J	1890	
R94-004F	R94	12/11/2018	D	Primary	--	2632382.72	629398.09	2000	R94-004F(12112018) 2000	192		1140		1.7		7.5	J	1.16	J	867	
R94-005F	R94	1/18/2019	F	Primary	--	2632216.78	629706.27	2000	R94-005F(01182019) 2000	136		1120		1.1		6		< 0.15		865	
R94-006F	R94	1/18/2019	F	Primary	--	2632317.90	629485.10	2000	R94-006F(01182019) 2000	129		677		1.2		4.9		< 0.15		339	
R94-007F	R94	1/18/2019	F	Field Duplicate	R94-006F	2632317.90	629485.10	2000	R94-007F(01182019) 2000	152		642		1.7		4.9		< 0.15		346	
	R94	1/18/2019	F	Field Duplicate	R94-006F	2632317.90	629485.10	250	R94-007F(01182019) 250	135		528		3.4				0.152		355	
R95-001F	R95	12/11/2018	U	Primary	--	2632292.12	629972.31	2000	R95-001F(12112018) 2000	212		1330		1.0		6.7	J	0.561	J	1380	
R95-002F	R95	12/11/2018	D	Primary	--	2632216.64	629874.00	2000	R95-002F(12112018) 2000	77.8		965		0.8		7.7	J	0.425	J	545	
	R95	12/11/2018	D	Primary	--	2632216.64	629874.00	250	R95-002F(12112018) 250	103		951		1.1		7.6	J	0.527	J	654	
R95-003F	R95	4/17/2019	F	Primary	--	2632240.25	629915.30	2000	R95-003F(04172019) 2000	103		690		2.1		4.8	J			305	
R97-001F	R97	12/17/2018	U	Primary	--	2633677.32	626350.01	2000	R97-001F(12172018) 2000	151		783		1.1		7.1	J	< 0.150	UJ	504	
R97-002F	R97	12/17/2018	UL	Primary	--	2633875.06	626196.12	2000	R97-002F(12172018) 2000	77.7		1080		1.8		8.0	J	0.421	J	405	
R97-003F	R97	12/17/2018	L	Primary	--	2633971.19	626101.92	2000	R97-003F(12172018) 2000	93.3		1110		1.1		7.5	J	< 0.150	UJ	432	
	R97	12/17/2018	L	Primary	--	2633971.19	626101.92	250	R97-003F(12172018) 250	163		1430		2.1		5	J	0.533	J	667	
R97-004F	R97	12/17/2018	L	Primary	--	2633993.47	626001.40	2000	R97-004F(12172018) 2000	149		1050		1.4		7.6	J	0.516	J	541	
R97-005F	R97	12/17/2018	L	Primary	--	2634102.09	625911.28	2000	R97-005F(12172018) 2000	187		710		1.5		4.8	J	0.164	J	333	
	R97	12/17/2018	L	Primary	--	2634102.09	625911.28	250	R97-005F(12172018) 250	196		718		1.4		5.0	J	0.232	J	363	
R97-006F	R97	12/17/2018	DL	Primary	--	2634137.55	625806.17	2000	R97-006F(12172018) 2000	152		1280		2.1		7.4	J	0.863	J	740	
R97-007F	R97	12/17/2018	U	Field Duplicate	R97-001F	2633677.32	626350.01	2000	R97-007F(12172018) 2000	156		706		1.2		7.2	J	0.240	J	477	

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Lead 7439-92-1 mg/kg		Manganese 7439-96-5 mg/kg		Percent Moisture ARC-Moist %		pH ARC-pH SU		Total Organic Carbon ARC-TOC %		Zinc 7440-66-6 mg/kg	
										Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R97-008F	R97	4/8/2019	F	Primary	--	2633656.70	626203.17	2000	R97-008F(04082019) 2000	134		325		1.6		4.6				165	
	R97	4/8/2019	F	Primary	--	2633656.70	626203.17	250	R97-008F(04082019) 250	189		393		2		4.4				191	
R97-009F	R97	4/8/2019	F	Primary	--	2633728.25	626106.20	2000	R97-009F(04082019) 2000	140		411		1.4		4.8				195	
R97-010F	R97	4/8/2019	F	Field Duplicate	R97-009F	2633728.25	626106.20	2000	R97-010F(04082019) 2000	144		390		1.1		4.8				178	
R97-011F	R97	4/8/2019	F	Primary	--	2633866.90	625956.65	2000	R97-011F(04082019) 2000	94.1		475		1		5.1	J			239	
	R97	4/8/2019	F	Primary	--	2633866.90	625956.65	250	R97-011F(04082019) 250	232		513		1		4.7	J			218	
R97-012F	R97	4/8/2019	F	Primary	--	2633993.37	625890.03	2000	R97-012F(04082019) 2000	127		605		1.4		5.4	J			323	
R97-013F	R97	4/9/2019	F	Primary	--	2633729.96	626262.28	2000	R97-013F(04092019) 2000	203		591		0.8		4.9	J			293	
R97-014F	R97	4/10/2019	F	Primary	--	2633907.45	626077.91	2000	R97-014F(04102019) 2000	144		751		1.2		4.7	J			277	
	R97	4/10/2019	F	Primary	--	2633907.45	626077.91	250	R97-014F(04102019) 250	263		619		1.8		4.5	J			276	
R97-015F	R97	4/10/2019	F	Primary	--	2634013.79	625952.53	2000	R97-015F(04102019) 2000	105		574		1.4		4.5	J			253	
R97-016F	R97	4/10/2019	F	Primary	--	2633902.91	626022.65	2000	R97-016F(04102019) 2000	154		436		1.2		4.4	J			206	
R97-017F	R97	4/10/2019	F	Primary	--	2633806.78	626137.82	2000	R97-017F(04102019) 2000	156		451		1.4		4.7	J			265	
	R97	4/10/2019	F	Primary	--	2633806.78	626137.82	250	R97-017F(04102019) 250	283		562		1.6		4.5	J			287	
R98-001F	R98	12/17/2018	U	Primary	--	2634074.99	625723.35	2000	R98-001F(12172018) 2000	193		1060		0.8		7.7	J	< 0.150	UJ	715	
	R98	12/17/2018	U	Primary	--	2634074.99	625723.35	250	R98-001F(12172018) 250	221		1350		0.9		7.7	J	0.154	J	750	
R98-002F	R98	12/17/2018	R	Primary	--	2634170.43	625647.95	2000	R98-002F(12172018) 2000	168		770		1.1		5.4	J	< 0.150	UJ	369	
R98-003F	R98	12/17/2018	R	Primary	--	2634308.94	625517.57	2000	R98-003F(12172018) 2000	103		906		1.1		6.8	J	< 0.150	UJ	464	
R98-004F	R98	12/17/2018	D	Primary	--	2634366.78	625440.16	2000	R98-004F(12172018) 2000	85.5		685		1.1		6.7	J	0.192	J	488	
	R98	12/17/2018	D	Primary	--	2634366.78	625440.16	250	R98-004F(12172018) 250	167		1060		1.1		7	J	0.23	J	537	
R98-005F	R98	2/20/2019	F	Primary	--	2634164.39	625659.95	2000	R98-005F(02202019) 2000	158		422		1		4.7				202	
R98-006F	R98	2/20/2019	F	Primary	--	2634283.84	625564.77	2000	R98-006F(02202019) 2000	148		557		1.1		5.3				289	
R98-007F	R98	2/20/2019	F	Primary	--	2634345.26	625514.29	2000	R98-007F(02202019) 2000	181		1160		1		5.3				391	
	R98	2/20/2019	F	Primary	--	2634345.26	625514.29	250	R98-007F(02202019) 250	218		1030		1.8		5.5				400	
R98-008F	R98	2/20/2019	F	Primary	--	2634309.02	625586.28	2000	R98-008F(02202019) 2000	177		557		1.4		5.5				478	
TC East 001F	TC East	2/20/2019	U	Primary	--	2632770.99	628597.65	2000	TC EAST 001F(02202019) 2000	50.9		278	J	3.2		4.3	J			222	J
TC East 002F	TC East	2/20/2019	R	Primary	--	2632739.39	628552.53	2000	TC EAST 002F(02202019) 2000	150		1120		1.8		5.3	J			405	
TC East 003F	TC East	2/20/2019	D	Primary	--	2632745.37	628479.07	2000	TC EAST 003F(02202019) 2000	130		980		1.6		7.2	J			436	
TC East 004F	TC East	2/20/2019	D	Field Duplicate	TC East-003F	2632745.37	628479.07	2000	TC EAST 004F(02202019) 2000	133		945		1.6		7.2	J			441	
TC East 005F	TC East	2/20/2019	L	Primary	--	2632776.52	628561.44	2000	TC EAST 005F(02202019) 2000	577		2110		2.3		6.5	J			607	
TC East 006F	TC East	2/25/2019	F	Primary	--	2632759.77	628550.43	2000	TC EAST 006F(02252019) 2000	78.2		1830		3.8		6.8				631	
TC West 001F	TC West	2/20/2019	U	Primary	--	2632470.10	628196.97	2000	TC WEST 001F(02202019) 2000	225		482		3.5		4.4	J			261	
TC West 002F	TC West	2/20/2019	R	Primary	--	2632444.45	628137.82	2000	TC WEST 002F(02202019) 2000	305		557		3.3		4.5	J			284	
TC West 003F	TC West	2/20/2019	D	Primary	--	2632452.12	628075.68	2000	TC WEST 003F(02202019) 2000	186		590		2		6	J			327	
TC West 004F	TC West	2/20/2019	L	Primary	--	2632471.58	628142.14	2000	TC WEST 004F(02202019) 2000	163		591		1.7		5.7	J			390	
TC West 005F	TC West	2/22/2019	F	Primary	--	2632456.91	628145.67	2000	TC WEST 005F(02222019) 2000	218		515		1.5		5.1				308	
R01-007F	R01	3/30/2019	R,U	Primary	--	2633309.70	645037.26	2000	R01-007F(03302019) 2000	350		1230		2		7.2	J	1.28	J	1170	
R09M-008F	R09M	1/23/2019	U	Primary	--	2633344.00	626824.92	2000	R09M-008F(01232019) 2000	170		302		2.3		4	J	0.244		284	
	R09M	1/23/2019	U	Primary	--	2633344.00	626824.92	250	R09M-008F(01232019) 250	173		361						0.225		321	
R09M-015F	R09M	1/31/2019	F	Primary	--	2633355.15	626840.62	2000	R09M-015F(01312019) 2000	105		402		1.8		4.8		< 0.15		206	
	R09M	1/31/2019	F	Primary	--	2633355.15	626840.62	250	R09M-015F(01312019) 250					2.2				< 0.150			
R120-008F	R120	1/24/2019	F	Primary	--	2632199.58	629591.03	2000	R120-008F(01242019) 2000	281		450		0.9		4.6		< 0.15		227	
	R120	1/24/2019	F	Primary	--	2632199.58	629591.03	250	R120-008F(01242019) 250			488						< 0.150		230	
R122-009F	R122	1/22/2019	F	Primary	--	2632485.29	629200.92	2000	R122-009F(01222019) 2000	185		604		1.2		5.6		< 0.15		379	
	R122	1/22/2019	F	Primary	--	2632485.29	629200.92	250	R122-009F(01222019) 250			822						< 0.150		415	
R305-004F	R305	3/26/2019	L	Primary	--	2631017.87	637172.30	2000	R305-004F(03262019) 2000	317		1140		1.6		5.6	J	0.472		1190	
R90-005F	R90	1/21/2019	F	Primary	--	2632464.30	629274.53	2000	R90-005F(01212019) 2000	159		713		0.8		5.9		< 0.15		344	
	R90	1/21/2019	F	Primary	--	2632464.30	629274.53	250	R90-005F(01212019) 250	281		723						< 0.150		371	
R03A-006F	R03A	2/7/2019	F	Primary	--	2633352.13	626265.48	2000	R03A-006F(02072019) 2000	132		1000		2.4		6.1				396	
	R03A	2/7/2019	F	Primary	--	2633352.13	626265.48	250	R03A-006F(02072019) 250	141		998		2.3		6.2				437	
R03B-008F	R03B	2/6/2019	F	Primary	--	2633726.48	625820.36	2000	R03B-008F(02062019) 2000	4470		469		2.3		4.4				268	
R03B-013F	R03B	2/7/2019	F	Primary	--	2633611.67	625943.25	2000	R03B-013F(02072019) 2000	64.2		1270		1.2		6.9				394	
	R03B	2/7/2019	F	Primary	--	2633611.67	625943.25	250	R03B-013F(02072019) 250	90.9		1030		1.6		6.8				414	
R303-004F	R303	3/12/2019	R	Primary	--	2631381.19	636711.10	2000	R303-004F(03122019) 2000	108		462		4.6		4.9	J			450	
	R303	3/12/2019	R	Primary	--	2631381.19	636711.10	250	R303-004F(03122019) 250			410				4.8	J			412	
R304-002F	R304	3/12/2019	L	Primary	--	2631312.34	638370.86	2000	R304-002F(03122019) 2000	226		977		2.2		7.2	J			678	
	R304	3/12/2019	L	Primary	--	2631312.34	638370.86	250	R304-002F(03122019) 250			1250				7.3	J			949	
R306-002F	R306	3/28/2019	R	Primary	--	2631951.79	632511.22	2000	R306-002F(03282019) 2000	47.1		2350		2.3		5.9	J	< 0.15		635	
R77M-002F	R77M	1/23/2019	R	Primary	--	2633379.40	626332.12	2000	R77M-002F(01232019) 2000	246		702		1.9		4.5	J	0.499		769	
	R77M	1/23/2019	R	Primary	--	2633379.40	626332.12	250	R77M-002F(01232019) 250	291		732				4.4	J			877	
R87-008F	R87	3/11/2019	F	Primary	--	2632090.92	635183.77	2000	R87-008F(03112019) 2000	167		687		1.5		4.7				331	
	R87	3/11/2019	F	Primary	--	2632090.92	635183.77	250	R87-008F(03112019) 250			869				4.7				355	
R87-011F	R87	3/12/2019	F	Primary	--	2632161.28	634876.72	2000	R87-011(03122019) 2000	418		1310		1.2		5.9				478	
	R87	3/12/2019	F	Primary	--	2632161.28	634876.72	250	R87-011(03122019) 250							6.1					
R09M-011F	R09M	1/24/2019	D	Primary	--	2633571.47	626282.22	2000	R09M-011F(01242019) 2000	110		802		0.9		5.8	J	< 0.15		390	
	R09M	1/24/2019	D	Primary	--	2633571.47	626282.22	250	R09M-011F(01242019) 250			1190						< 0.150		537	
R09M-014F	R09M	1/24/2019	LU	Primary	--	2633454.15	626705.56	2000	R09M-014F(01242019) 2000	138		1010		0.9		6.1	J	< 0.15		495	
	R09M	1/24/2019	LU	Primary	--	2633454.15	626705.56	250	R09M-014F(01242019) 250			1060						0.179		540	
R09M-018F	R09M	1/31/2019	F	Primary	--	2633442.48	626692.74	2000	R09M-018F(01312019) 2000	86.5		703		2		5.4		< 0.15		257	
	R09M	1/31/2019	F	Primary	--	2633442.48	626692.74	250	R09M-018F(01312019) 250			627				5.3		< 0.150		283	
R302-001F	R302	3/11/2019	U	Primary	--	2631493.97	636164.03	2000	R302-001F(03112019) 2000	125		1230		1.1		7.6	J			744	
	R302	3/11/2019	U	Primary	--	2631493.97	636164.03	250	R302-001F(03112019) 250			1390				7.6	J			892	
R302-004F	R302	3/11/2019	D	Primary	--	2631688.44	635982.42	2000	R302-004F(03112019) 2000	133		807		1.8		7	J			474	
	R302	3/11/2019	D	Primary	--	2631688.44	635982.42	250	R302-004F(03112019) 250			825				7.1	J			538	
R303-001F	R303	3/12/2019	U	Primary	--	2631326.17	636750.67	2000	R303-001F(03122019) 2000	153		1350		1		7.9	J			1090	
	R303	3/12/2019	U	Primary	--	2631326.17	636750.67	250	R303-001F(03122019) 250			1310				7.9	J			1320	
R304-005F	R304	3/12/2019	D	Field Duplicate	R304-003F	2631272.45	638217.38	2000	R304-005F(03122019) 2000	356		899		2.8		4.8	J			754	
	R304	3/12/2019	D	Field Duplicate	R304-003F	2631272.45	638217.38	250	R304-005F(03122019) 250			791				5	J			744	
R40-005F	R40	12/3/2018	F	Primary	--	2637271.33	647288.12	2000	R40-005F(12032018) 2000	272		768		2.3		5.7		0.257		607	
R04-004F	R04	12/10/2018	L,U	Primary	--	2632218.79	631509.53	2000	R4-004F(12102018) 2000	166		638		0.9		7.7	J	0.334	J	352	
R6/71-001F	R6/71	3/4/2019	F	Primary	--	2632045.02	631662.65	2000	R6/71-001F(03042019) 2000	122		1330		0.9		7.4				1630	
	R6/71	3/4/2019	F	Primary	--	2632045.02	631662.65	250	R6/71-001F(03042019) 250	151		1310		1.1		7.6				2160	
R01-006F	R01	3/30/2019	U	Primary	--	2633501.27	645139.45	2000	R01-006F(03302019) 2000	167		1490		1.1		7.7	J	0.406	J	1360	
R01-008F	R01	3/30/2019	R	Primary	--	2633129.98	644956.26	2000	R01-008F(03302019) 2000	165		1560		1.2		7.4	J	0.62		1520	
	R01	3/30/2019	R	Primary	--	2633129.98	644956.26	250	R01-008F(03302019) 250	176		1600		1.8		7.5	J			1610	
R01-009F	R01	3/30/2019	R	Field Duplicate	R01-008F	2633129.98	644956.26	2000	R01-009F(03302019) 2000	163		1510		1.5		7.5	J	0.696		1510	
R01-010F	R01	3/30/2019	R,D	Primary	--	2632933.80	644818.55	2000	R01-010F(03302019) 2000	189		1590		0.6		7.9	J	< 0.15		1240	
R01-011F	R01	3/30/2019	D	Primary	--	2632907.17	644707.42	2000	R01-011F(03302019) 2000	206		1330		1.1		7.6	J	0.522		1190	
	R01	3/30/2019	D	Primary	--	2632907.17	644707.42	250	R01-011F(03302019) 250	227		1360		1.3		7.7	J			1250	
R01-012F	R01	3/30/2019	L,D	Primary	--	2633211.05	644927.44	2000	R01-012F(03302019) 2000	78.5		748		1.7		7	J	0.338	J	326	
R01-013F	R01	3/30/2019	L	Primary	--	2633377.40	645044.83	2000	R01-013F(03302019) 2000	310		1420		1.8		5.3	J	1.45	J	988	
R01-014F	R01	5/13/2019	F	Primary	--	2633395.10	645102.09	2000	R01-014F(05132019) 2000	175		375	J	1.8		5.5	J			292	J
	R01	5/13/2019	F	Primary	--	2633395.10	645102.09	250	R01-014F(05132019) 250	284		360	J	2.8		5.4	J			352	
R01-015F	R01	5/13/2019	F	Primary	--	2633212.47	644977.44	2000	R01-015F(05132019) 2000	158		416		1.5		7.1	J			315	

Appendix A. Analytical Data
Table A-1. Chino Excavation Data
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

ARCADIS

Sample Location	Excavation ID	Sample Date	Excavation Collection Location[1]	Sample Type	Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Lead 7439-92-1 mg/kg		Manganese 7439-96-5 mg/kg		Percent Moisture ARC-Moist %		pH ARC-pH SU		Total Organic Carbon ARC-TOC %		Zinc 7440-66-6 mg/kg	
										Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
R01-016F	R01	5/13/2019	F	Primary	--	2633077.42	644912.18	2000	R01-016F(05132019) 2000	142		338		1.8		6.8	J			390	
R01-017F	R01	5/13/2019	F	Primary	--	2633672.90	645461.81	2000	R01-017F(05132019) 2000	219		801		2.7		6	J			459	
	R01	5/13/2019	F	Primary	--	2633672.90	645461.81	250	R01-017F(05132019) 250	249		772		1.7		6.2	J			459	
R03B-009F	R03B	2/6/2019	F	Primary	--	2633744.74	625803.59	2000	R03B-009F(02062019) 2000	122		463		2		4.7				221	
R03B-011F	R03B	2/7/2019	F	Primary	--	2633676.64	625882.32	2000	R03B-011F(02072019) 2000	190		456		1.6		4.7				229	
R03B-012F	R03B	2/7/2019	F	Primary	--	2633489.87	626163.67	2000	R03B-012F(02072019) 2000	127		626		2		4.3				325	
R09M-012F	R09M	1/24/2019	LD	Primary	--	2633578.72	626464.83	2000	R09M-012F(01242019) 2000	146		782		0.9		6.1	J	< 0.15		542	
R09M-013F	R09M	1/24/2019	L	Primary	--	2633566.26	626564.82	2000	R09M-013F(01242019) 2000	179		1280		1.3		6.1	J	0.188		589	
R09M-016F	R09M	1/31/2019	F	Primary	--	2633428.62	626637.45	2000	R09M-016F(01312019) 2000	122		344		1.7		4.5		< 0.15		194	
R09M-017F	R09M	1/31/2019	F	Primary	--	2633562.60	626359.18	2000	R09M-017F(01312019) 2000	113		362		2.7		4.2		< 0.15		299	
R10-005F	R10	2/26/2019	F	Primary	--	2632216.00	631180.08	2000	R10-005F(02262019) 2000	245		692		1.8		5.4				456	
	R10	2/26/2019	F	Primary	--	2632216.00	631180.08	250	R10-005F(02262019) 250	326		826		2.1		5.5				457	
R10-006F	R10	2/27/2019	F	Primary	--	2632057.46	631364.38	2000	R10-006F(02272019) 2000	210		757		2.2		6.2				460	
R10-007F	R10	2/27/2019	F	Primary	--	2632095.32	631295.78	2000	R10-007F(02272019) 2000	189		751		2		4.2				573	
R101-001F	R101	2/12/2019	R	Primary	--	2634490.72	624039.27	2000	R101-001F(02122019) 2000	151		830		0.9		6.8	J			518	
	R101	2/12/2019	R	Primary	--	2634490.72	624039.27	250	R101-001F(02122019) 250	171		1080		0.9		6.9	J			553	
R101-002F	R101	2/12/2019	R	Primary	--	2634466.57	623836.53	2000	R101-002F(02122019) 2000	120		940		0.9		6.8	J			511	
R101-003F	R101	2/12/2019	F	Primary	--	2634484.20	623942.03	2000	R101-003F(02122019) 2000	199		585		1.1		4.6				345	
R101-004F	R101	2/13/2019	F	Primary	--	2634457.44	623753.28	2000	R101-004F(02132019) 2000	126		536		1.2		5.5				253	
	R101	2/13/2019	F	Primary	--	2634457.44	623753.28	250	R101-004F(02132019) 250	183		665		1.7		5.7				282	
R102-001F	R102	2/12/2019	R	Primary	--	2634552.43	624395.64	2000	R102-001F(02122019) 2000	114		1060		0.7		7.5	J			900	
R102-002F	R102	2/12/2019	F	Primary	--	2634582.99	624453.95	2000	R102-002F(02122019) 2000	42.2		685		1.1		7.7				225	
R102-003F	R102	2/12/2019	F	Primary	--	2634528.42	624293.36	2000	R102-003F(02122019) 2000	217		621		0.8		5				302	
	R102	2/12/2019	F	Primary	--	2634528.42	624293.36	250	R102-003F(02122019) 250	299		783		0.9		5.3				346	
R120-010F	R120	1/24/2019	F	Primary	--	2632326.07	629343.74	2000	R120-010F(01242019) 2000	322		617		1.2		5.3		< 0.15		322	
R301-001F	R301	3/11/2019	U	Primary	--	2631861.47	635736.70	2000	R301-001F(03112019) 2000	0.048	J	930		1.8		7.3	J			418	
R301-002F	R301	3/11/2019	R	Primary	--	2631849.04	635699.75	2000	R301-002F(03112019) 2000	442		1120		1.4		7.8	J			852	
R301-003F	R301	3/11/2019	D	Primary	--	2631893.62	635694.31	2000	R301-003F(03112019) 2000	177		681		2.1		6.7	J			305	
R301-004F	R301	3/11/2019	L	Primary	--	2631867.40	635719.42	2000	R301-004F(03112019) 2000	194		867		2.1		7.5	J			401	
R301-005F	R301	4/5/2019	F	Primary	--	2631860.43	635705.49	2000	R301-005F(04052019) 2000	156		728		1.9		6.7	J			393	
R302-002F	R302	3/11/2019	L	Primary	--	2631550.32	636085.10	2000	R302-002F(03112019) 2000	172		1100		1		7.7	J			712	
R302-003F	R302	3/11/2019	L	Primary	--	2631656.08	636066.67	2000	R302-003F(03112019) 2000	185		1170		1.8		7.6	J			803	
R302-005F	R302	3/11/2019	L	Field Duplicate	R302-003F	2631656.08	636066.67	2000	R302-005F(03112019) 2000	195		1130		1.9		7.5	J			735	
R302-006F	R302	4/5/2019	F	Primary	--	2631511.54	636123.88	2000	R302-006F(04052019) 2000	89.6		424		1.2		5.2	J			212	
	R302	4/5/2019	F	Primary	--	2631511.54	636123.88	250	R302-006F(04052019) 250	162		623		1		4.9	J			240	
R303-002F	R303	3/12/2019	L	Primary	--	2631336.45	636672.00	2000	R303-002F(03122019) 2000	141		2100		2.1		6.6	J			771	
R303-003F	R303	3/12/2019	D	Primary	--	2631406.52	636642.21	2000	R303-003F(03122019) 2000	117		1420		2.2		6.6	J			546	
R304-004F	R304	3/12/2019	R	Primary	--	2631353.80	638320.11	2000	R304-004F(03122019) 2000	329		1400		2.1		6.2	J			1560	
R304-006F	R304	3/28/2019	F	Primary	--	2631389.08	638400.42	2000	R304-006F(03282019) 2000	91.6		490		1.8		4.5		< 0.15		312	
	R304	3/28/2019	F	Primary	--	2631389.08	638400.42	250	R304-006F(03282019) 250	174		791		2.5		4.4				512	
R304-007F	R304	3/28/2019	F	Primary	--	2631296.58	638268.73	2000	R304-007F(03282019) 2000	133		567		2.3		4.4		0.27		358	
R305-001F	R305	3/26/2019	U	Primary	--	2631003.32	637209.93	2000	R305-001F(03262019) 2000	207		1170		1.3		6.9	J	0.6		1250	
R40-003F	R40	11/19/2018	D	Primary	--	2637248.84	647305.81	2000	R40-003F(11192018) 2000	221		1900		1.3		7.4	J	0.852	J	1850	
R40-004F	R40	11/19/2018	L	Primary	--	2637265.81	647271.54	2000	R40-004F(11192018) 2000	273		1400		1.4		7.1	J	< 0.150	UJ	1200	
	R40	11/19/2018	L	Primary	--	2637265.81	647271.54	250	R40-004F(11192018) 250	297		1570		1.6		7.1	J	0.249	J	1440	
R04-002F	R04	12/10/2018	D	Primary	--	2632275.90	631339.85	2000	R4-002F(12102018) 2000	185		653		1.8		6.6	J	0.504	J	364	
R04-003F	R04	12/10/2018	L,D	Primary	--	2632259.66	631460.54	2000	R4-003F(12102018) 2000	59.2		322		3.6		4	J	0.597	J	283	
	R04	12/10/2018	L,D	Primary	--	2632259.66	631460.54	250	R4-003F(12102018) 250	57.3		322	J	3.6		4.1	J	0.338	J	273	
R59-004F	R59	3/25/2019	L	Primary	--	2631729.67	638941.96	2000	R59-004F(03252019) 2000			1240		1.2						1170	
	R59	3/25/2019	L	Primary	--	2631729.67	638941.96	250	R59-004F(03252019) 250	218		1450		1.7		7.9	J			1050	
R59-005F	R59	5/2/2019	F	Primary	--	2631739.91	638960.87	2000	R59-005F(05022019) 2000	117		379		0.8		5.7	J				
R62-001F	R62	12/5/2018	U	Primary	--	2631252.05	638304.19	2000	R62-001F(12052018) 2000	163		1170		1.0		7.2	J	< 0.150	UJ	911	
R62-002F	R62	12/5/2018	D	Primary	--	2631030.96	637926.13	2000	R62-002F(12052018) 2000	286		2750		1.4		6.6	J	0.252	J	1560	
	R62	12/5/2018	D	Primary	--	2631030.96	637926.13	250	R62-002F(12052018) 250	350		2160		1.8		6.6	J	0.314	J	1430	
R62-003F	R62	12/5/2018	L	Primary	--	2631108.93	637939.51	2000	R62-003F(12052018) 2000	277		753		1.1		6.1	J	< 0.150	UJ	407	

Notes:
1 - Sampling location. relative to removal area. are denoted as follows:
U=Upstream side of removal area
D=Downstream side of removal area
L=Left side of removal area, looking downstream
R=Right side of removal area, looking downstream
F=Floor Sample
2 - State Plane New Mexico West

Appendix A. Analytical Data
Table A-2. Chino Excavation Data
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

Location ID	Sample Date	Sample Type	Field Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Analyte	Arsenic		Cadmium		Chromium		Copper		Iron		Lead	
								CAS	7440-38-2		7440-43-9		7440-47-3		7440-50-8		7439-89-6		7439-92-1	
								Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
								Sample Date	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
B01-P1-2-021	1/9/2019	Primary	--	2638419.00	648352.00	2000	B01-P1-2-021	01/09/2019	5.46		1.63		7.73		285		45300		210	
B01-P1-2-025	1/8/2019	Primary	--	2638910.50	649094.90	250	B01-P1-2-025	01/08/2019	15.90		18.3		10.5		646		60500		634	
	1/8/2019	Primary	--	2638910.50	649094.90	2000	B01-P1-2-025	01/08/2019	8.26		13.2		8.14		465		41100		525	
B01-P1-3-013	1/8/2019	Primary	--	2638904.50	649168.20	2000	B01-P1-3-013	01/08/2019	7.04		6.2		8.47		435		56700		356	
B01-P1-3-014	1/8/2019	Primary	--	2638937.30	648808.00	2000	B01-P1-3-014	01/08/2019	4.74		7.18		10.1		341		33100		230	
B01-P1-3-016	1/8/2019	Primary	--	2638503.40	648728.50	2000	B01-P1-3-016	01/08/2019	7.69		1.54		9.43		348		53400		258	
B01-P1-3-024	1/9/2019	Primary	--	2638534.20	648157.10	250	B01-P1-3-024	01/09/2019	3.54		4.79		12.7		503		70500		152	
	1/9/2019	Primary	--	2638534.20	648157.10	2000	B01-P1-3-024	01/09/2019	3.03		2.91		7.69		271		43300		120	
B01-P1-3-025	1/9/2019	Primary	--	2638558.20	647934.20	2000	B01-P1-3-025	01/09/2019	4.86		2.66		7.5		378		33800		505	
B01-P2-2-004	1/11/2019	Primary	--	2636906.30	647368.70	2000	B01-P2-2-004	01/11/2019	7.22		2.42		9.89		486		53300		365	
B01-P2-2-012	1/11/2019	Primary	--	2637053.00	647355.40	250	B01-P2-2-012	01/11/2019	9.55		8.02		13.3		1090		75600		1310	
	1/11/2019	Primary	--	2637053.00	647355.40	2000	B01-P2-2-012	01/11/2019	6.43		4.87		10.6		627		48200		625	
B01-P3-2-001	2/21/2019	Primary	--	2632543.70	643993.20	250	B01-P3-2-001	02/21/2019	6.17		3.65		16.5		572		73000		222	
	2/21/2019	Primary	--	2632543.70	643993.20	2000	B01-P3-2-001	02/21/2019	3.82		2.98		13.1		421		39600		206	
B01-P3-2-004	2/21/2019	Primary	--	2632539.80	643552.00	2000	B01-P3-2-004	02/21/2019	3.7		3.39		12.6		423		30600		210	
B01-P3-2-007	3/14/2019	Primary	--	2632593.90	643118.70	250	B01-P3-2-007	03/14/2019	5.84		3.72		13.1		586		50500		228	
	3/14/2019	Primary	--	2632593.90	643118.70	2000	B01-P3-2-007	03/14/2019	5.31		3.82		12.9		564		38100		227	
	3/14/2019	Field Duplicate	B01-P3-2-007	2632593.90	643118.70	2000	B02-P3-2-007	03/14/2019	5.23		3.92		12.5		583		37400		219	
B01-P3-2-008	3/14/2019	Primary	--	2632627.00	642914.70	2000	B01-P3-2-008	03/14/2019	4.32		0.96		16.6		470		42600		141	
	3/14/2019	Field Duplicate	B01-P3-2-008	2632627.00	642914.70	2000	B02-P3-2-008	03/14/2019	4.93		1.11		18.2		489		47800		164	
B01-P3-2-010	3/14/2019	Primary	--	2632864.70	640973.00	2000	B01-P3-2-010	03/14/2019	3.65		2.72		12.3		335		32900		159	
	3/14/2019	Field Duplicate	B01-P3-2-010	2632864.70	640973.00	2000	B02-P3-2-010	03/14/2019	3.79		2.61		12.5		343		33000		178	
B01-P3-2-012	3/14/2019	Primary	--	2633052.40	640635.30	250	B01-P3-2-012	03/14/2019	7.19		4		17.2		837		59100		275	
	3/14/2019	Primary	--	2633052.40	640635.30	2000	B01-P3-2-012	03/14/2019	5.21		2.8		14.7		705		44200		209	
B01-P3-2-015M	3/25/2019	Primary	--	2632872.80	639941.65	250	B01-P3-2-015M	03/25/2019	4.26		3.15		14.6		464		47700		193	
	3/25/2019	Primary	--	2632872.80	639941.65	2000	B01-P3-2-015M	03/25/2019	3.96		3.1		15.7		417		50500		179	
B01-P3-2-017M	3/27/2019	Primary	--	2631411.64	638508.69	2000	B01-P3-2-017M	03/27/2019	3.94		3.07		15.3		599		39900		190	
B01-P3-2-022	4/2/2019	Primary	--	2630981.50	637218.60	2000	B01-P3-2-022	04/02/2019	6.16		2.72		12.2		586		43900		237	
B01-P3-2-023	4/4/2019	Primary	--	2631556.30	636310.30	2000	B01-P3-2-023	04/04/2019	9.85		1.02		14.3		534		48300		351	
B01-P3-2-027	4/9/2019	Primary	--	2632220.50	634458.00	2000	B01-P3-2-027	04/09/2019	3.19		1.15		14.8		514		44700		172	
B01-P3-2-028M	4/11/2019	Primary	--	2632177.16	631604.01	2000	B01-P3-2-028M	04/11/2019	2.26		1.55		11.4		1130		22700		103	
B01-P3-2-029	4/11/2019	Primary	--	2632273.10	631127.10	250	B01-P3-2-029	04/11/2019	5.77		1.93		17		560		52100		281	
	4/11/2019	Primary	--	2632273.10	631127.10	2000	B01-P3-2-029	04/11/2019	5.31		1.78		16.2		527		49200		273	
B01-P3-2-032M	4/12/2019	Primary	--	2632335.72	630279.76	250	B01-P3-2-032M	04/12/2019	4.14		1.95		17.5		548		49400		212	
	4/12/2019	Primary	--	2632335.72	630279.76	2000	B01-P3-2-032M	04/12/2019	3.42		1.71		15.2		464		42900		187	
B01-P3-2-034	4/12/2019	Primary	--	2632252.20	629881.30	2000	B01-P3-2-034	04/12/2019	2.95		2.9		13.2		764		24000		121	
B01-P3-2-035M	4/12/2019	Primary	--	2632109.35	629565.12	2000	B01-P3-2-035M	04/12/2019	3.16		1.05		13.2		613		38700		148	
B01-P3-2-037M	4/12/2019	Primary	--	2632404.30	629103.40	2000	B01-P3-2-037M	04/12/2019	4.76		1.44		14.9		514		52300		232	
B01-P3-2-042M	4/19/2019	Primary	--	2634487.74	624242.29	250	B01-P3-2-042M	04/19/2019	6.96		4.15		16.5		1380		48200		259	
	4/19/2019	Primary	--	2634487.74	624242.29	2000	B01-P3-2-042M	04/19/2019	5.35		3.96		15.5		1120		42700		177	
B01-P3-2-043M	4/19/2019	Primary	--	2634635.67	624072.17	2000	B01-P3-2-043M	04/19/2019	3.61		1.95		15.8		1210		37000		103	
B01-P3-2-044M	4/19/2019	Primary	--	2634437.47	623796.63	250	B01-P3-2-044M	04/19/2019	2.31		0.66		27.5		564		26300		31.9	
	4/19/2019	Primary	--	2634437.47	623796.63	2000	B01-P3-2-044M	04/19/2019	2.38		0.43		14.5		290		18500		22.6	
B01-P3-2-045M	4/19/2019	Primary	--	2634626.80	623825.16	2000	B01-P3-2-045M	04/19/2019	3.78		2.35		14.3		1050		32600		112	
B01-P3-2-047	4/19/2019	Primary	--	2634558.90	623356.70	2000	B01-P3-2-047	04/19/2019	3.75		1.32		18.3		438		56100		130	
B01-P3-2-048M	4/19/2019	Primary	--	2634546.86	623286.02	250	B01-P3-2-048M	04/19/2019	4.12		1.44		20.2		468		63000		188	
	4/19/2019	Primary	--	2634546.86	623286.02	2000	B01-P3-2-048M	04/19/2019	4.34		1.23		18.6		443		60200		193	
B01-P3-2-052	3/21/2019	Primary	--	2632547.80	643651.50	2000	B01-P3-2-052	03/21/2019	4.86		3.59		15.8		539		40900		229	
B01-P3-2-055	3/15/2019	Primary	--	2632980.60	640109.50	2000	B01-P3-2-055	03/15/2019	9.28		1.79		14.8		998		50100		332	
	3/15/2019	Field Duplicate	B01-P3-2-055	2632980.60	640109.50	2000	B02-P3-2-055	03/15/2019	9.54		1.12		13.5		759		45500		326	
B01-P3-2-061	4/19/2019	Primary	--	2634396.80	623569.90	2000	B01-P3-2-061	04/19/2019	2.91		0.66		17.3		438		25200		44.4	
B01-P3-3-001	2/21/2019	Primary	--	2632502.40	643749.70	2000	B01-P3-3-001	02/21/2019	5.83		1.49		12		159		27300		276	
B01-P3-3-004	3/14/2019	Primary	--	2632481.10	643120.90	250	B01-P3-3-004	03/14/2019	4.09		3.72		12		507		41200		188	
	3/14/2019	Primary	--	2632481.10	643120.90	2000	B01-P3-3-004	03/14/2019	3.83		3.9		11.8		519		33900		178	
	3/14/2019	Field Duplicate	B01-P3-3-004	2632481.10	643120.90	2000	B02-P3-3-004	03/14/2019	3.98		3.76		11.8		531		34700		186	
B01-P3-3-005M	3/14/2019	Primary	--	2632642.75	643113.16	250	B01-P3-3-005M	03/14/2019	1.97		0.18		19.1		57.8		24900		15.3	
	3/14/2019	Primary	--	2632642.75	643113.16	2000	B01-P3-3-005M	03/14/2019	2.11		0.2		15.8		46.4		21300		14.5	
B01-P3-3-010	1/17/2019	Primary	--	2632548.60	642308.30	2000	B01-P3-3-010	01/17/2019	3.24		1.41		13.1		378		32000		114	

Location ID	Sample Date	Sample Type	Field Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Analyte	Arsenic		Cadmium		Chromium		Copper		Iron		Lead	
								CAS	7440-38-2		7440-43-9		7440-47-3		7440-50-8		7439-89-6		7439-92-1	
								Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
								Sample Date	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
B01-P3-3-012	1/17/2019	Primary	--	2632555.60	641993.60	250	B01-P3-3-012	01/17/2019	5.16		--		--		--		--		187	
	1/17/2019	Primary	--	2632555.60	641993.60	2000	B01-P3-3-012	01/17/2019	3.87		1.16		15.8		384		38900		132	
B01-P3-3-017M	3/14/2019	Primary	--	2632774.95	641196.90	2000	B01-P3-3-017M	03/14/2019	3.95		3.64		14.2		448		36200		189	
B01-P3-3-020	3/14/2019	Primary	--	2632738.00	640631.30	250	B01-P3-3-020	03/14/2019	6.66		2.07		14.4		1150		59100		245	
	3/14/2019	Primary	--	2632738.00	640631.30	2000	B01-P3-3-020	03/14/2019	5.98		2.12		12.4		1030		47000		216	
B01-P3-3-021	3/15/2019	Primary	--	2633196.30	640628.40	2000	B01-P3-3-021	03/15/2019	3.29		1.97		8.42		339		22000		331	
B01-P3-3-022	3/25/2019	Primary	--	2632822.00	640204.80	250	B01-P3-3-022	03/25/2019	7.07		2.54		21.5		776		69500		280	
	3/25/2019	Primary	--	2632822.00	640204.80	2000	B01-P3-3-022	03/25/2019	6.43		2.49		21.4		722		69100		253	
B01-P3-3-025M	3/26/2019	Primary	--	2632190.24	639355.68	2000	B01-P3-3-025M	03/26/2019	4.36		3.17		14.6		407		42500		186	
B01-P3-3-032	4/1/2019	Primary	--	2631052.20	637518.70	250	B01-P3-3-032	04/01/2019	5.19		2.72		12.4		811		34400		286	
	4/1/2019	Primary	--	2631052.20	637518.70	2000	B01-P3-3-032	04/01/2019	4.35		1.98		11		540		29100		224	
B01-P3-3-034M	4/1/2019	Primary	--	2631074.01	637226.63	2000	B01-P3-3-034M	04/01/2019	3.86		3.49		12.3		747		27600		237	
B01-P3-3-038M	4/5/2019	Primary	--	2631798.36	635254.23	250	B01-P3-3-038M	04/05/2019	3.30		1.9		14.4		661		29000		108	
	4/5/2019	Primary	--	2631798.36	635254.23	2000	B01-P3-3-038M	04/05/2019	2.4		1.63		12.4		551		23300		95.5	
B01-P3-3-041	4/9/2019	Primary	--	2632056.00	634447.70	2000	B01-P3-3-041	04/09/2019	2.5		1.34		12.4		595		21700		95.8	
B01-P3-3-043	4/9/2019	Primary	--	2632514.60	633935.40	2000	B01-P3-3-043	04/09/2019	4.55		3.39		12.2		964		34000		174	
B01-P3-3-045	4/9/2019	Primary	--	2632118.80	632706.20	250	B01-P3-3-045	04/09/2019	2.91		1.88		11.5		989		24200		90	
	4/9/2019	Primary	--	2632118.80	632706.20	2000	B01-P3-3-045	04/09/2019	2.46		1.58		10.6		714		20200		77.9	
B01-P3-3-046	4/11/2019	Primary	--	2632200.90	631031.70	2000	B01-P3-3-046	04/11/2019	3.81		1.87		16.8		741		25500		173	
B01-P3-3-049	4/18/2019	Primary	--	2632558.60	628655.60	2000	B01-P3-3-049	04/18/2019	3.34		0.73		13.6		678		36400		123	
B01-P3-3-050	4/18/2019	Primary	--	2633128.20	627199.50	2000	B01-P3-3-050	04/18/2019	3.92		2.21		10.4		825		25000		141	
	4/18/2019	Field Duplicate	B01-P3-3-050	2633128.20	627199.50	2000	B02-P3-3-050	04/18/2019	3.72		2.42		11.7		929		28600		172	
B01-P3-3-053	4/19/2019	Primary	--	2634352.20	625735.20	2000	B01-P3-3-053	04/19/2019	9.53		4.7		16.4		1030		42700		318	
	4/19/2019	Field Duplicate	B01-P3-3-053	2634352.20	625735.20	2000	B02-P3-3-053	04/19/2019	8.99		5.5		16.6		1080		43500		304	
B01-P3-3-056	4/19/2019	Primary	--	2634689.70	624214.30	250	B01-P3-3-056	04/19/2019	6.93		3.59		15.2		1280		42500		206	
	4/19/2019	Primary	--	2634689.70	624214.30	2000	B01-P3-3-056	04/19/2019	6.12		3.56		16.3		1120		44500		190	
B01-P3-3-057	4/19/2019	Primary	--	2634463.10	624094.30	2000	B01-P3-3-057	04/19/2019	3.72		5.05		13		1140		33400		166	
	4/19/2019	Field Duplicate	B01-P3-3-057	2634463.10	624094.30	2000	B02-P3-3-057	04/19/2019	3.26		5.88		12		1170		31700		140	
B01-P3-3-059	4/19/2019	Primary	--	2634779.80	622552.70	250	B01-P3-3-059	04/19/2019	4.29		2.81		15.5		1920		38100		143	
	4/19/2019	Primary		2634779.80	622552.70	2000	B01-P3-3-059	04/19/2019	3.52		2.25		12.1		1380		31200		97.1	
	4/19/2019	Field Duplicate	B01-P3-3-059	2634779.80	622552.70	2000	B02-P3-3-059	04/19/2019	3.73		2.31		13.5		1340		36300		110	
B01-P3-3-075	1/17/2019	Primary	--	2632558.30	642125.40	2000	B01-P3-3-075	01/17/2019	6.27		1.7		14.2		658		50300		246	
B01-P3-3-077	3/15/2019	Primary	--	2633185.20	640411.70	2000	B01-P3-3-077	03/15/2019	2.56		1.09		12.8		500		24200		81.9	
B01-P3-3-078	4/18/2019	Primary	--	2632359.90	628909.90	2000	B01-P3-3-078	04/18/2019	3.76		7.75		12.4		905		27500		173	
B01-P3-3-080	4/18/2019	Primary	--	2633682.30	626004.50	250	B01-P3-3-080	04/18/2019	5.57		0.93		36.7		611		95000		355	
	4/18/2019	Primary	--	2633682.30	626004.50	2000	B01-P3-3-080	04/18/2019	5.83		1.09		48.6		845		135000		469	
ERA-22M	4/19/2019	Primary	--	2634356.64	623083.22	2000	ERA-22M	04/19/2019	2.77		1.34		7.67		1310		11600		44.8	
	4/19/2019	Field Duplicate	ERA-22M	2634356.64	623083.22	2000	ERA2-22M	04/19/2019	2.58		1.31		7.78		1250		12400		43.6	
ERA-28M	4/5/2019	Primary	--	2631945.73	635698.42	2000	ERA-28M	04/05/2019	3.85		0.63		16.1		332		48200		121	
ERA-29	1/7/2019	Primary	--	2641025.00	653751.00	2000	ERA-29	01/07/2019	5.55		6.79		10.2		529		50100		280	
RAN-01	1/7/2019	Primary	--	2643446.65	656832.75	2000	RAN-01	01/07/2019	3.25		6.15		6.04		387		31700		137	
	1/7/2019	Field Duplicate	RAN-01	2643446.65	656832.75	2000	RAN-02	01/07/2019	3.03		5.68		7.03		357		32500		169	
RAN-03	1/23/2019	Primary	--	2643803.46	657686.95	250	RAN-03	01/23/2019	--		4.97		11.7		748		60200		--	
	1/23/2019	Primary	--	2643803.46	657686.95	2000	RAN-03	01/23/2019	3.49		4.83		9.44		461		37800		111	
RAN-04	1/23/2019	Primary	--	2643189.32	656642.90	2000	RAN-04	01/23/2019	3.47		5.52		10.3		583		55900		145	
RAN-05	1/23/2019	Primary	--	2642510.73	656308.57	2000	RAN-05	01/23/2019	4.12		5.12		9.09		537		42800		152	
RAN-06	1/23/2019	Primary	--	2642299.80	656048.36	250	RAN-06	01/23/2019	--		3.75		13.7		1020		55200		--	
RAN-06	1/23/2019	Primary	--	2642299.80	656048.36	2000	RAN-06	01/23/2019	15.2		4.34		16		1040		53000		1660	
RAN-07	1/24/2019	Primary	--	2640894.84	653204.75	2000	RAN-07	01/24/2019	3.26		3.87		9.49		363		42100		128	
RAN-08	1/24/2019	Primary	--	2640871.05	653120.46	2000	RAN-08	01/24/2019	3.9		3.09		9.26		583		40700		156	
RAN-09	1/29/2019	Primary	--	2640086.10	651383.93	250	RAN-09	01/29/2019	3.42		3.87		11		431		51600		143	
	1/29/2019	Primary	--	2640086.10	651383.93	2000	RAN-09	01/29/2019	2.73		3.16		8.07		309		35100		97.9	
	1/29/2019	Field Duplicate	RAN-09	2640086.10	651383.93	2000	RAN-10	01/29/2019	2.84		3.98		9.77		355		43200		92.5	
RAN-11	1/29/2019	Primary	--	2640139.19	651405.03	2000	RAN-11	01/29/2019	2.94		3.82		8.29		436		35000		110	
RAN-12	1/30/2019	Primary	--	2640133.66	651098.53	250	RAN-12	01/30/2019	3.62		--		--		--		--		146	
	1/30/2019	Primary	--	2640133.66	651098.53	2000	RAN-12	01/30/2019	2.9		5.47		12.7		510		36300		122	
	1/30/2019	Field Duplicate	RAN-12	2640133.66	651098.53	2000	RAN-13	01/30/2019	3.3		4.8		9.76		471		38000		188	
U02-10154	1/8/2019	Primary	--	2638963.15	649050.51	250	U02-10154	01/08/2019	5.73		5.42		9.45		417		56600		347	

Location ID	Sample Date	Sample Type	Field Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Analyte	Arsenic		Cadmium		Chromium		Copper		Iron		Lead	
								CAS	7440-38-2		7440-43-9		7440-47-3		7440-50-8		7439-89-6		7439-92-1	
								Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
								Sample Date	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
	1/8/2019	Primary	--	2638963.15	649050.51	2000	U02-10154	01/08/2019	5.49		4.06		8.58		371		46000		334	
U02-1100M	4/26/2019	Primary	--	2643706.97	657314.14	2000	U02-1100M	04/26/2019	4.95		6.78		13.8		685		61100		200	
U02-1102M	4/26/2019	Primary	--	2643632.83	657319.54	2000	U02-1102M	04/26/2019	4.02		5.15		15.4		736		63300		104	
U02-1103	4/26/2019	Primary	--	2638690.90	648741.70	250	U02-1103	04/26/2019	7.89		6.4		13.8		897		87400		246	
	4/26/2019	Primary	--	2638690.90	648741.70	2000	U02-1103	04/26/2019	6.83		4.64		12.5		671		71600		141	
U02-1105M	4/26/2019	Primary	--	2638770.20	648531.52	2000	U02-1105M	04/26/2019	5.35		4.69		13.5		475		73300		259	
U02-2100	1/7/2019	Primary	--	2643645.00	657044.00	2000	U02-2100	01/07/2019	2.46		4.21		7.56		330		29700		102	
U02-2102	1/8/2019	Primary	--	2638454.40	648460.40	2000	U02-2102	01/08/2019	5.93		3.49		7.53		488		40300		184	
U02-3100	1/7/2019	Primary	--	2643730.80	657187.30	2000	U02-3100	01/07/2019	3.8		12		8.52		432		38600		263	
U02-3102	1/8/2019	Primary	--	2638511.10	648621.80	2000	U02-3102	01/08/2019	5.62		3.59		7.73		400		47600		166	
U02-3104	1/7/2019	Primary	--	2643699.41	657189.48	250	U02-3104	01/07/2019	4.10		7.13		11		747		62900		158	
	1/7/2019	Primary	--	2643699.41	657189.48	2000	U02-3104	01/07/2019	3.72		5.41		9.69		572		46100		143	
U02-3200	1/11/2019	Primary	--	2636995.55	647270.19	2000	U02-3200	01/11/2019	4.95		2.94		15.3		1580		48200		181	
U03-10202	1/11/2019	Primary	--	2636949.14	647206.62	250	U03-10202	01/11/2019	2.24		1.95		9.26		445		20800		115	
	1/11/2019	Primary	--	2636949.14	647206.62	2000	U03-10202	01/11/2019	2.17		2.23		8.95		403		19800		100	
U03-10308	4/9/2019	Primary	--	2632342.01	632485.95	2000	U03-10308	04/09/2019	2.68		1.38		13		718		27000		95.2	
U03-10319	4/9/2019	Primary	--	2632321.40	632473.04	2000	U03-10319	04/09/2019	2.63		1.1		12.6		729		23400		94	
U03-10324	4/19/2019	Primary	--	2634713.46	623811.80	2000	U03-10324	04/19/2019	2.72		1.08		13.2		657		25900		66	
U03-10335	4/19/2019	Primary	--	2634542.45	625442.43	250	U03-10335	04/19/2019	2.27		1.04		13.6		429		25900		62.8	
	4/19/2019	Primary	--	2634542.45	625442.43	2000	U03-10335	04/19/2019	2.05		0.93		12		380		24100		57.2	
U03-10340	4/9/2019	Primary	--	2631875.12	634349.77	250	U03-10340	04/09/2019	2.21		1.12		12.2		440		23600		58.2	
	4/9/2019	Primary	--	2631875.12	634349.77	2000	U03-10340	04/09/2019	2.1		1.02		9.97		336		20500		48.4	
U03-10345	4/9/2019	Primary	--	2632530.58	634430.32	2000	U03-10345	04/09/2019	5.66		3.93		11.4		1060		31800		188	
	4/9/2019	Field Duplicate	U03-10345	2632530.58	634430.32	2000	U04-10345	04/09/2019	5.5		3.86		12.4		1050		34200		246	
U03-10346M	4/18/2019	Primary	--	2633030.79	627704.06	2000	U03-10346M	04/18/2019	2.7		1.37		12.1		998		20300		69.8	
U03-10357	4/1/2019	Primary	--	2631045.07	637342.56	2000	U03-10357	04/01/2019	4.8		3.4		10.6		768		28600		309	
U03-1200M	1/17/2019	Primary	--	2637351.04	647327.36	2000	U03-1200M	01/17/2019	7.28		12.4		9.34		864		41100		376	
U03-1202M	1/17/2019	Primary	--	2637328.29	647337.90	250	U03-1202M	01/17/2019	--		9		14.1		947		67900		--	
	1/17/2019	Primary	--	2637328.29	647337.90	2000	U03-1202M	01/17/2019	10.7		7.63		12.8		787		50400		354	
U03-1301	3/14/2019	Primary	--	2632557.00	642768.80	250	U03-1301	03/14/2019	4.20		2.86		11.6		326		42200		220	
	3/14/2019	Primary	--	2632557.00	642768.80	2000	U03-1301	03/14/2019	2.56		2.79		10.1		270		29000		155	
U03-1302M	3/25/2019	Primary	--	2632642.22	639567.80	250	U03-1302M	03/25/2019	1.93		0.79		11		276		19400		40.3	
	3/25/2019	Primary	--	2632642.22	639567.80	2000	U03-1302M	03/25/2019	2.08		0.8		11.4		267		19700		40.5	
U03-1304	4/2/2019	Primary	--	2630963.90	637095.40	250	U03-1304	04/02/2019	3.70		2.91		16.5		504		49300		179	
	4/2/2019	Primary	--	2630963.90	637095.40	2000	U03-1304	04/02/2019	3.82		2.55		17.6		498		60600		169	
U03-1306	4/2/2019	Primary	--	2630965.70	637077.90	2000	U03-1306	04/02/2019	3.23		2.42		16		403		43900		140	
U03-1307M	4/9/2019	Primary	--	2632619.32	633918.40	250	U03-1307M	04/09/2019	3.52		2.48		14.8		461		37100		164	
	4/9/2019	Primary	--	2632619.32	633918.40	2000	U03-1307M	04/09/2019	3.61		2.5		14.8		450		34200		149	
U03-1309M	4/11/2019	Primary	--	2632567.73	630788.36	250	U03-1309M	04/11/2019	2.57		1.09		13.8		660		22000		83.1	
	4/11/2019	Primary	--	2632567.73	630788.36	2000	U03-1309M	04/11/2019	2.25		0.9		11.4		546		19700		76.9	
U03-1311M	4/18/2019	Primary	--	2632599.87	628137.59	2000	U03-1311M	04/18/2019	3.58		1.27		15.9		419		56300		132	
U03-1313	4/19/2019	Primary	--	2634421.40	625446.30	2000	U03-1313	04/19/2019	3.6		1.78		14.6		756		34100		85.2	
U03-1316M	4/19/2019	Primary	--	2634510.95	622634.88	250	U03-1316M	04/19/2019	4.33		2.28		17.7		558		45400		190	
	4/19/2019	Primary	--	2634510.95	622634.88	2000	U03-1316M	04/19/2019	4.69		2.24		18		583		45400		168	
U03-1317M	4/19/2019	Primary	--	2634514.28	622635.48	2000	U03-1317M	04/19/2019	4.42		1.5		16.5		485		45100		148	
U03-1400	4/19/2019	Primary	--	2635734.10	620517.20	250	U03-1400	04/19/2019	3.35		1.67		16.5		552		37600		143	
	4/19/2019	Primary	--	2635734.10	620517.20	2000	U03-1400	04/19/2019	3.86		1.82		16.6		593		37800		127	
	4/19/2019	Field Duplicate	U03-1400	2635734.10	620517.20	2000	U04-1400	04/19/2019	3.88		1.87		17.6		609		38300		136	
U03-2200	1/11/2019	Primary	--	2637091.10	647347.30	250	U03-2200	01/11/2019	8.43		8.14		20.9		1600		72400		295	
	1/11/2019	Primary	--	2637091.10	647347.30	2000	U03-2200	01/11/2019	6.47		4.16		13.2		800		41800		207	
U03-2302	3/14/2019	Primary	--	2632866.50	640820.30	2000	U03-2302	03/14/2019	4.55		2.51		12.2		421		41300		170	
U03-2305M	3/15/2019	Primary	--	2632873.95	640432.32	2000	U03-2305M	03/15/2019	4.59		2.22		14.8		375		39300		188	
U03-2312	4/18/2019	Primary	--	2632626.00	628559.70	2000	U03-2312	04/18/2019	3.39		1.62		14.9		467		46900		168	
U03-2315	4/18/2019	Primary	--	2632565.80	628360.10	2000	U03-2315	04/18/2019	4.32		0.72		15		583		46000		165	
	4/18/2019	Field Duplicate	U03-2315	2632565.80	628360.10	2000	U04-2315	04/18/2019	4.12		0.53		15.4		581		44600		269	
U03-2316M	4/18/2019	Primary	--	2632499.30	628248.23	2000	U03-2316M	04/18/2019	4.32		0.68		16.4		747		47200		197	
U03-2318M	4/19/2019	Primary	--	2634458.96	623953.98	250	U03-2318M	04/19/2019	5.00		1.27		22.5		465		88600		199	
	4/19/2019	Primary	--	2634458.96	623953.98	2000	U03-2318M	04/19/2019	4.32		0.9		15.7		402		49100		137	

Location ID	Sample Date	Sample Type	Field Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Analyte	Arsenic		Cadmium		Chromium		Copper		Iron		Lead	
								CAS	7440-38-2		7440-43-9		7440-47-3		7440-50-8		7439-89-6		7439-92-1	
								Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
								Sample Date	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
	4/19/2019	Field Duplicate	U03-2318	2634458.96	623953.98	2000	U04-2318	04/19/2019	4.4		0.97		18.7		424		60200		164	
U03-2320	4/19/2019	Primary	--	2634352.20	623564.00	2000	U03-2320	04/19/2019	2.71		0.55		18.9		347		24700		27	
U03-2323	4/19/2019	Primary	--	2634407.30	623430.30	250	U03-2323	04/19/2019	3.98		1.12		32		489		77500		160	
	4/19/2019	Primary	--	2634407.30	623430.30	2000	U03-2323	04/19/2019	3.81		0.8		19.7		378		49900		130	
U03-3200M	1/11/2019	Primary	--	2636839.65	647308.01	2000	U03-3200M	01/11/2019	2.78		4		11.6		3390		60200		313	
U03-3300M	2/21/2019	Primary	--	2632412.74	643962.96	2000	U03-3300M	02/21/2019	13		18.3		8.91		973		32700		4360	
U03-3302	3/14/2019	Primary	--	2632661.20	640833.90	250	U03-3302	03/14/2019	9.69		1.01		15.1		641		57000		526	
	3/14/2019	Primary	--	2632661.20	640833.90	2000	U03-3302	03/14/2019	7.59		1.11		14.8		635		49500		385	
U03-3303M	3/26/2019	Primary	--	2631984.61	639186.35	250	U03-3303M	03/26/2019	6.36		3.99		12.8		679		31600		144	
	3/26/2019	Primary	--	2631984.61	639186.35	2000	U03-3303M	03/26/2019	4.37		3.71		13.5		623		29300		132	
U03-3305M	3/27/2019	Primary	--	2631499.20	638662.34	2000	U03-3305M	03/27/2019	3.57		2.66		14.4		418		37100		198	
	3/27/2019	Field Duplicate	U03-3305M	2631499.20	638662.34	2000	U04-3305M	03/27/2019	3.56		2.62		13.3		410		38900		173	
U03-3306	4/2/2019	Primary	--	2631090.50	637105.70	2000	U03-3306	04/02/2019	4.47		3.84		12.7		949		32100		229	
U03-3308	4/2/2019	Primary	--	2631184.80	637115.50	250	U03-3308	04/02/2019	2.03		1.17		11.1		668		20500		56.9	
	4/2/2019	Primary	--	2631184.80	637115.50	2000	U03-3308	04/02/2019	1.97		1.08		10.3		539		18400		52.1	
U03-3309	4/2/2019	Primary	--	2631274.50	637136.00	2000	U03-3309	04/02/2019	1.48		0.35		9.36		109		15200		24.1	
U03-3311	4/2/2019	Primary	--	2631377.20	637146.00	2000	U03-3311	04/02/2019	1.27		0.51		7.16		149		12900		18.9	
U03-3312	4/9/2019	Primary	--	2632298.00	632559.40	2000	U03-3312	04/09/2019	2.43		1.24		11.3		905		24400		118	
	4/9/2019	Field Duplicate	U03-3312	2632298.00	632559.40	2000	U04-3312	04/09/2019	2.58		1.05		12.1		894		26100		102	
U03-3314	4/9/2019	Primary	--	2632383.80	632554.70	2000	U03-3314	04/09/2019	2.51		1.14		12.6		665		28000		81.2	
U03-3316	4/11/2019	Primary	--	2632200.30	631785.10	2000	U03-3316	04/11/2019	2.23		0.93		11.7		482		21800		68	
U03-3317M	4/11/2019	Primary	--	2632504.69	631789.07	2000	U03-3317M	04/11/2019	1.52		0.6		7.31		320		11700		28	
U03-3318	4/19/2019	Primary	--	2634673.90	624008.10	2000	U03-3318	04/19/2019	4.46		2.69		15		985		32600		126	
U03-3320	4/19/2019	Primary	--	2634605.20	622972.30	2000	U03-3320	04/19/2019	4.45		3.24		17		1110		52700		162	
U03-3321	4/19/2019	Primary	--	2634884.60	622991.80	250	U03-3321	04/19/2019	2.85		1.3		14.3		1120		22300		71.2	
	4/19/2019	Primary	--	2634884.60	622991.80	2000	U03-3321	04/19/2019	2.75		1.17		12.4		915		19800		58.5	
U03-3322	4/19/2019	Primary	--	2635018.20	622311.30	2000	U03-3322	04/19/2019	3.85		2.02		13.7		1040		32600		129	
U03-3324M	4/1/2019	Primary	--	2631097.27	637364.11	250	U03-3324M	04/01/2019	2.96		1.88		13.8		848		28800		116	
	4/1/2019	Primary	--	2631097.27	637364.11	2000	U03-3324M	04/01/2019	2.49		1.71		12.2		687		25100		106	
U03-3325	4/9/2019	Primary	--	2632475.37	634457.51	2000	U03-3325	04/09/2019	8.68		4.12		14.5		1190		50400		270	
U03-3326M	4/18/2019	Primary	--	2633078.13	627732.79	250	U03-3326M	04/18/2019	2.64		1.36		13.7		885		22600		64	
	4/18/2019	Primary	--	2633078.13	627732.79	2000	U03-3326M	04/18/2019	2.62		1.31		13		829		21500		67.8	
U03-3400	4/19/2019	Primary	--	2636188.10	620097.90	2000	U03-3400	04/19/2019	4.3		3.14		18.9		738		32900		156	
U03-7300M	3/25/2019	Primary	--	2632710.60	639779.90	2000	U03-7300M	03/25/2019	3.82		1.77		14		345		27100		126	
U03-7301M	3/26/2019	Primary	--	2632269.97	639394.93	2000	U03-7301M	03/26/2019	3.43		3.06		13.2		400		37400		172	
U03-7302M	1/17/2019	Primary	--	2632550.20	642536.22	2000	U03-7302M	01/17/2019	6.03		4.05		15.7		695		44100		230	
U03-7303M	2/14/2019	Primary	--	2632607.83	641330.91	2000	U03-7303M	02/14/2019	3.6		1.04		12.3		198		20900		85.2	
U03-7304M	2/14/2019	Primary	--	2632676.94	642161.44	250	U03-7304M	02/14/2019	3.86		1.47		19.2		430		36200		194	
	2/14/2019	Primary	--	2632676.94	642161.44	2000	U03-7304M	02/14/2019	3.85		1.51		16.8		382		32800		2700	
	2/14/2019	Field Duplicate	U03-7304M	2632676.94	642161.44	2000	U04-7304M	02/14/2019	3.89		1.62		17		391		33900		184	
U03-7305M	2/14/2019	Primary	--	2632733.61	641922.13	2000	U03-7305M	02/14/2019	4.04		1.76		12.8		469		32400		138	
U03-9302M	3/26/2019	Primary	--	2632448.49	639511.16	2000	U03-9302M	03/26/2019	3.49		2.93		14		431		42900		190	
U03-9302M	3/26/2019	Primary	--	2632448.49	639511.16	2000	U03-9302M	03/26/2019	3.49		2.93		14		431		42900		190	
P4-1	5/12/2022	Primary	--	2635013.99	621381.39	2000	P4-1(A)	05/12/2022	5.12		1.32		13.1		1180		17800		52.7	
P4-1	5/12/2022	Primary	--	2635013.99	621381.39	250	P4-1 (B)	05/12/2022	4.93		1.15		12.4		1030		16400		41.9	
P4-2	5/12/2022	Primary	--	2635524.19	620777.53	2000	P4-2 (A)	05/12/2022	6.06		2.56		16.9		595		44600		204	
P4-2	5/12/2022	Primary	--	2635524.19	620777.53	250	P4-2 (B)	05/12/2022	6.09		2.37		15.8		536		44500		214	
P4-3	5/12/2022	Primary	--	2636081.68	620248.15	2000	P4-3 (A)	05/12/2022	7.14		3.67		21.1		1150		33300		179	
P4-3	5/12/2022	Primary	--	2636081.68	620248.15	250	P4-3 (B)	05/12/2022	6.5		3.23		20.9		999		34300		170	
P4-4	5/12/2022	Primary	--	2636409.53	619765.94	2000	P4-4 (A)	05/12/2022	4.21		0.95		14.4		782		21500		36.3	
P4-4	5/12/2022	Primary	--	2636409.53	619765.94	250	P4-4 (B)	05/12/2022	4.83		1.18		14.7		1090		22400		52.7	
P4-5	5/12/2022	Primary	--	2636559.19	619480.31	2000	P4-5 (A)	05/12/2022	7.68		3.03		21.8		936		38900		182	
P4-5	5/12/2022	Primary	--	2636559.19	619480.31	250	P4-5 (B)	05/12/2022	6.95		2.79		19		810		38800		191	
P4-6	5/12/2022	Primary	--	2636122.46	619967.90	2000	P4-6 (A)	05/12/2022	6.4		2.86		19.6		680		40700		207	
P4-6	5/12/2022	Primary	--	2636122.46	619967.90	250	P4-6 (B)	05/12/2022	6.42		2.4		17.1		588		39400		200	
P4-7	5/12/2022	Primary	--	2636597.87	619215.72	2000	P4-7 (A)	05/12/2022	7.45		3.04		22		978		36900		232	
P4-7	5/12/2022	Primary	--	2636597.87	619215.72	250	P4-7 (B)	05/12/2022	6.86		2.79		20.2		993		35500		201	

Notes:

1 - Sampling location, relative to removal area, are denoted as follows:

Appendix A. Analytical Data
Table A-2. Chino Excavation Data
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

Location ID	Sample Date	Sample Type	Field Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Analyte	Arsenic		Cadmium		Chromium		Copper		Iron		Lead	
								CAS	7440-38-2		7440-43-9		7440-47-3		7440-50-8		7439-89-6		7439-92-1	
								Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
								Sample Date	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual

U=Upstream side of removal area
D=Downstream side of removal area
L=Left side of removal area, looking downstream
R=Right side of removal area, looking downstream
F=Floor Sample
2 - State Plane New Mexico West

Location ID	Sample Date	Sample Type	Field Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Manganese 7439-96-5 mg/kg		Percent Moisture ARC-Moist %		pH ARC-pH SU		Total Organic Carbon ARC-TOC %		Zinc 7440-66-6 mg/kg	
								Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
B01-P1-2-021	1/9/2019	Primary	--	2638419.00	648352.00	2000	B01-P1-2-021	952		1		7.1		0.15		756	
B01-P1-2-025	1/8/2019	Primary	--	2638910.50	649094.90	250	B01-P1-2-025	2940		1.1		7		1.24		7320	
	1/8/2019	Primary	--	2638910.50	649094.90	2000	B01-P1-2-025	2150		1.6		7		4.24		5250	
B01-P1-3-013	1/8/2019	Primary	--	2638904.50	649168.20	2000	B01-P1-3-013	2380		2.4		7.3		9.18		2310	
B01-P1-3-014	1/8/2019	Primary	--	2638937.30	648808.00	2000	B01-P1-3-014	1710		1.2		7.7		1.75		2830	
B01-P1-3-016	1/8/2019	Primary	--	2638503.40	648728.50	2000	B01-P1-3-016	1150		0.9		7		0.15		700	
B01-P1-3-024	1/9/2019	Primary	--	2638534.20	648157.10	250	B01-P1-3-024	1970		0.7		7.7		0.15		1880	
	1/9/2019	Primary	--	2638534.20	648157.10	2000	B01-P1-3-024	1260		1.1		7.9		0.161		1100	
B01-P1-3-025	1/9/2019	Primary	--	2638558.20	647934.20	2000	B01-P1-3-025	1110		1.2		7.6		0.816		955	
B01-P2-2-004	1/11/2019	Primary	--	2636906.30	647368.70	2000	B01-P2-2-004	1660		0.9		6.6		0.966		1100	
B01-P2-2-012	1/11/2019	Primary	--	2637053.00	647355.40	250	B01-P2-2-012	2280		1.1		6.8		0.806		2630	
	1/11/2019	Primary	--	2637053.00	647355.40	2000	B01-P2-2-012	1600		1		6.8		0.571		1930	
B01-P3-2-001	2/21/2019	Primary	--	2632543.70	643993.20	250	B01-P3-2-001	1700		1.1		7.8		--		1320	
	2/21/2019	Primary	--	2632543.70	643993.20	2000	B01-P3-2-001	1490		0.9		7.7		0.279		1220	
B01-P3-2-004	2/21/2019	Primary	--	2632539.80	643552.00	2000	B01-P3-2-004	1400		1.6		7.7		--		1260	
B01-P3-2-007	3/14/2019	Primary	--	2632593.90	643118.70	250	B01-P3-2-007	1690		1.5		7.4		--		1440	
	3/14/2019	Primary	--	2632593.90	643118.70	2000	B01-P3-2-007	1530		1.7		7.4		--		1390	
	3/14/2019	Field Duplicate	B01-P3-2-007	2632593.90	643118.70	2000	B02-P3-2-007	1590		1.6		7.4		--		1460	
B01-P3-2-008	3/14/2019	Primary	--	2632627.00	642914.70	2000	B01-P3-2-008	701		2.9		7.1		--		423	
	3/14/2019	Field Duplicate	B01-P3-2-008	2632627.00	642914.70	2000	B02-P3-2-008	882		2.9		7.1		--		500	
B01-P3-2-010	3/14/2019	Primary	--	2632864.70	640973.00	2000	B01-P3-2-010	1250		0.8		7.8		0.244		1120	
	3/14/2019	Field Duplicate	B01-P3-2-010	2632864.70	640973.00	2000	B02-P3-2-010	1250		0.8		7.9		0.179		1100	
B01-P3-2-012	3/14/2019	Primary	--	2633052.40	640635.30	250	B01-P3-2-012	1430		2.8		7		--		1320	
	3/14/2019	Primary	--	2633052.40	640635.30	2000	B01-P3-2-012	982		2.5		6.9		2.93		969	
B01-P3-2-015M	3/25/2019	Primary	--	2632872.80	639941.65	250	B01-P3-2-015M	1530		1		7.8		--		1240	
	3/25/2019	Primary	--	2632872.80	639941.65	2000	B01-P3-2-015M	1530		1.6		7.6		--		1170	
B01-P3-2-017M	3/27/2019	Primary	--	2631411.64	638508.69	2000	B01-P3-2-017M	1350		2.8		7.6		--		1040	
B01-P3-2-022	4/2/2019	Primary	--	2630981.50	637218.60	2000	B01-P3-2-022	1250		1.3		6.7		--		1040	
B01-P3-2-023	4/4/2019	Primary	--	2631556.30	636310.30	2000	B01-P3-2-023	1500		1		6.5		--		463	
B01-P3-2-027	4/9/2019	Primary	--	2632220.50	634458.00	2000	B01-P3-2-027	812		0.6		7.3		--		509	
B01-P3-2-028M	4/11/2019	Primary	--	2632177.16	631604.01	2000	B01-P3-2-028M	859		0.9		7.9		--		543	
B01-P3-2-029	4/11/2019	Primary	--	2632273.10	631127.10	250	B01-P3-2-029	1190		1.5		7.4		--		776	
	4/11/2019	Primary	--	2632273.10	631127.10	2000	B01-P3-2-029	990		1.1		7.2		--		699	
B01-P3-2-032M	4/12/2019	Primary	--	2632335.72	630279.76	250	B01-P3-2-032M	1220		1.4		7.8		--		801	
	4/12/2019	Primary	--	2632335.72	630279.76	2000	B01-P3-2-032M	1000		0.9		7.7		--		672	
B01-P3-2-034	4/12/2019	Primary	--	2632252.20	629881.30	2000	B01-P3-2-034	1020		1		7.9		--		979	
B01-P3-2-035M	4/12/2019	Primary	--	2632109.35	629565.12	2000	B01-P3-2-035M	3470		1		5.7		--		434	
B01-P3-2-037M	4/12/2019	Primary	--	2632404.30	629103.40	2000	B01-P3-2-037M	895		0.8		5.8		--		617	
B01-P3-2-042M	4/19/2019	Primary	--	2634487.74	624242.29	250	B01-P3-2-042M	1220		1		7.1		--		1300	
	4/19/2019	Primary	--	2634487.74	624242.29	2000	B01-P3-2-042M	1260		0.7		7.5		--		1180	
B01-P3-2-043M	4/19/2019	Primary	--	2634635.67	624072.17	2000	B01-P3-2-043M	1230		0.8		8.1		--		516	
B01-P3-2-044M	4/19/2019	Primary	--	2634437.47	623796.63	250	B01-P3-2-044M	609		1.8		7.8		--		117	
	4/19/2019	Primary	--	2634437.47	623796.63	2000	B01-P3-2-044M	775		1.1		8		--		77.2	
B01-P3-2-045M	4/19/2019	Primary	--	2634626.80	623825.16	2000	B01-P3-2-045M	904		0.8		8		--		725	
B01-P3-2-047	4/19/2019	Primary	--	2634558.90	623356.70	2000	B01-P3-2-047	893		0.8		7.5		--		561	
B01-P3-2-048M	4/19/2019	Primary	--	2634546.86	623286.02	250	B01-P3-2-048M	1130		1.3		7.3		--		612	
	4/19/2019	Primary	--	2634546.86	623286.02	2000	B01-P3-2-048M	967		0.6		7.3		--		533	
B01-P3-2-052	3/21/2019	Primary	--	2632547.80	643651.50	2000	B01-P3-2-052	1450		2		7.5		1.64		1250	
B01-P3-2-055	3/15/2019	Primary	--	2632980.60	640109.50	2000	B01-P3-2-055	1550		1.3		7.3		--		905	
	3/15/2019	Field Duplicate	B01-P3-2-055	2632980.60	640109.50	2000	B02-P3-2-055	1420		1.2		7.2		--		684	
B01-P3-2-061	4/19/2019	Primary	--	2634396.80	623569.90	2000	B01-P3-2-061	629		1.5		8.1		--		148	
B01-P3-3-001	2/21/2019	Primary	--	2632502.40	643749.70	2000	B01-P3-3-001	860		2.3		7.7		--		637	
B01-P3-3-004	3/14/2019	Primary	--	2632481.10	643120.90	250	B01-P3-3-004	1490		1.9		7.6		--		1410	
	3/14/2019	Primary	--	2632481.10	643120.90	2000	B01-P3-3-004	1460		2.1		7.5		--		1400	
	3/14/2019	Field Duplicate	B01-P3-3-004	2632481.10	643120.90	2000	B02-P3-3-004	1500		2		7.5		--		1390	
B01-P3-3-005M	3/14/2019	Primary	--	2632642.75	643113.16	250	B01-P3-3-005M	500		4.7		7.8		--		83	
	3/14/2019	Primary	--	2632642.75	643113.16	2000	B01-P3-3-005M	512		4.2		7.9		--		71.8	
B01-P3-3-010	1/17/2019	Primary	--	2632548.60	642308.30	2000	B01-P3-3-010	960		1.1		7.9		0.959		454	

Location ID	Sample Date	Sample Type	Field Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Manganese 7439-96-5 mg/kg		Percent Moisture ARC-Moist %		pH ARC-pH SU		Total Organic Carbon ARC-TOC %		Zinc 7440-66-6 mg/kg	
								Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
B01-P3-3-012	1/17/2019	Primary	--	2632555.60	641993.60	250	B01-P3-3-012	--		1		--		--		--	
	1/17/2019	Primary	--	2632555.60	641993.60	2000	B01-P3-3-012	824		1.2		7.4		0.275		425	
B01-P3-3-017M	3/14/2019	Primary	--	2632774.95	641196.90	2000	B01-P3-3-017M	1430		1.7		7.8		--		1320	
B01-P3-3-020	3/14/2019	Primary	--	2632738.00	640631.30	250	B01-P3-3-020	1240		1.2		7		--		848	
	3/14/2019	Primary	--	2632738.00	640631.30	2000	B01-P3-3-020	1170		0.9		7.1		--		818	
B01-P3-3-021	3/15/2019	Primary	--	2633196.30	640628.40	2000	B01-P3-3-021	886		1.9		8.1		--		588	
B01-P3-3-022	3/25/2019	Primary	--	2632822.00	640204.80	250	B01-P3-3-022	1190		1.9		7.1		--		1000	
	3/25/2019	Primary	--	2632822.00	640204.80	2000	B01-P3-3-022	1160		2.3		6.9		--		910	
B01-P3-3-025M	3/26/2019	Primary	--	2632190.24	639355.68	2000	B01-P3-3-025M	1490		1.9		7.6		--		1180	
B01-P3-3-032	4/1/2019	Primary	--	2631052.20	637518.70	250	B01-P3-3-032	1200		1.7		7.5		--		968	
	4/1/2019	Primary	--	2631052.20	637518.70	2000	B01-P3-3-032	994		1.4		7.6		--		716	
B01-P3-3-034M	4/1/2019	Primary	--	2631074.01	637226.63	2000	B01-P3-3-034M	1160		1.2		7.7		--		1240	
B01-P3-3-038M	4/5/2019	Primary	--	2631798.36	635254.23	250	B01-P3-3-038M	1140		1.6		7.8		--		633	
	4/5/2019	Primary	--	2631798.36	635254.23	2000	B01-P3-3-038M	1000		1.1		7.7		--		544	
B01-P3-3-041	4/9/2019	Primary	--	2632056.00	634447.70	2000	B01-P3-3-041	994		1.3		7.8		--		435	
B01-P3-3-043	4/9/2019	Primary	--	2632514.60	633935.40	2000	B01-P3-3-043	1150		0.7		7.7		--		1120	
B01-P3-3-045	4/9/2019	Primary	--	2632118.80	632706.20	250	B01-P3-3-045	956		1.4		5.9		--		385	
	4/9/2019	Primary	--	2632118.80	632706.20	2000	B01-P3-3-045	1010		1.1		6		--		345	
B01-P3-3-046	4/11/2019	Primary	--	2632200.90	631031.70	2000	B01-P3-3-046	876		1.6		7.9		1.2		564	
B01-P3-3-049	4/18/2019	Primary	--	2632558.60	628655.60	2000	B01-P3-3-049	708		0.9		5.9		0.191		334	
B01-P3-3-050	4/18/2019	Primary	--	2633128.20	627199.50	2000	B01-P3-3-050	1030		0.7		7.7		0.493		752	
	4/18/2019	Field Duplicate	B01-P3-3-050	2633128.20	627199.50	2000	B02-P3-3-050	1010		0.7		7.8		0.461		826	
B01-P3-3-053	4/19/2019	Primary	--	2634352.20	625735.20	2000	B01-P3-3-053	1310		1.9		6.3		--		1680	
	4/19/2019	Field Duplicate	B01-P3-3-053	2634352.20	625735.20	2000	B02-P3-3-053	1380		1.8		6.5		--		1920	
B01-P3-3-056	4/19/2019	Primary	--	2634689.70	624214.30	250	B01-P3-3-056	1210		1		6.7		--		1110	
	4/19/2019	Primary	--	2634689.70	624214.30	2000	B01-P3-3-056	1250		0.7		6.7		--		1050	
B01-P3-3-057	4/19/2019	Primary	--	2634463.10	624094.30	2000	B01-P3-3-057	1310		0.6		7.9		--		1890	
	4/19/2019	Field Duplicate	B01-P3-3-057	2634463.10	624094.30	2000	B02-P3-3-057	1560		0.6		7.9		--		2090	
B01-P3-3-059	4/19/2019	Primary	--	2634779.80	622552.70	250	B01-P3-3-059	1120		1		7.8		--		770	
	4/19/2019	Primary		2634779.80	622552.70	2000	B01-P3-3-059	900		0.7		7.9		--		591	
	4/19/2019	Field Duplicate	B01-P3-3-059	2634779.80	622552.70	2000	B02-P3-3-059	1110		0.7		8.2		--		628	
B01-P3-3-075	1/17/2019	Primary	--	2632558.30	642125.40	2000	B01-P3-3-075	899		1.9		6.7		0.562		790	
B01-P3-3-077	3/15/2019	Primary	--	2633185.20	640411.70	2000	B01-P3-3-077	924		1.3		7.9		--		411	
B01-P3-3-078	4/18/2019	Primary	--	2632359.90	628909.90	2000	B01-P3-3-078	1340		0.8		7.7		0.443		3310	
B01-P3-3-080	4/18/2019	Primary	--	2633682.30	626004.50	250	B01-P3-3-080	456		3.5		3.6		--		487	
	4/18/2019	Primary	--	2633682.30	626004.50	2000	B01-P3-3-080	461		4.5		3.6		0.423		569	
ERA-22M	4/19/2019	Primary	--	2634356.64	623083.22	2000	ERA-22M	542		4.2		7.7		0.869		148	
	4/19/2019	Field Duplicate	ERA-22M	2634356.64	623083.22	2000	ERA2-22M	558		4.2		7.7		0.933		157	
ERA-28M	4/5/2019	Primary	--	2631945.73	635698.42	2000	ERA-28M	781		1.5		6.7		--		281	
ERA-29	1/7/2019	Primary	--	2641025.00	653751.00	2000	ERA-29	2080		1.1		7.4		1.7		2630	
RAN-01	1/7/2019	Primary	--	2643446.65	656832.75	2000	RAN-01	1650		0.7		8		0.15		2260	
	1/7/2019	Field Duplicate	RAN-01	2643446.65	656832.75	2000	RAN-02	1380		0.7		8		0.171		2290	
RAN-03	1/23/2019	Primary	--	2643803.46	657686.95	250	RAN-03	1710		--		8		0.235		2030	
	1/23/2019	Primary	--	2643803.46	657686.95	2000	RAN-03	1630		0.8		8		0.15		2040	
RAN-04	1/23/2019	Primary	--	2643189.32	656642.90	2000	RAN-04	1490		0.6		7.9		0.235		2230	
RAN-05	1/23/2019	Primary	--	2642510.73	656308.57	2000	RAN-05	1760		0.7		7.7		0.395		2140	
RAN-06	1/23/2019	Primary	--	2642299.80	656048.36	250	RAN-06	1820		--		--		0.291		1830	
RAN-06	1/23/2019	Primary	--	2642299.80	656048.36	2000	RAN-06	1650		0.7		5.6		0.591		1840	
RAN-07	1/24/2019	Primary	--	2640894.84	653204.75	2000	RAN-07	1580		0.2		8		0.15		1600	
RAN-08	1/24/2019	Primary	--	2640871.05	653120.46	2000	RAN-08	2230		0.6		6		0.488		1660	
RAN-09	1/29/2019	Primary	--	2640086.10	651383.93	250	RAN-09	1600		0.8		--		0.15		1600	
	1/29/2019	Primary	--	2640086.10	651383.93	2000	RAN-09	1420		0.7		7.8		0.15		1330	
	1/29/2019	Field Duplicate	RAN-09	2640086.10	651383.93	2000	RAN-10	2140		0.7		7.7		0.15		1640	
RAN-11	1/29/2019	Primary	--	2640139.19	651405.03	2000	RAN-11	1570		0.8		7.8		0.15		1530	
RAN-12	1/30/2019	Primary	--	2640133.66	651098.53	250	RAN-12	--		--		--		--		--	
	1/30/2019	Primary	--	2640133.66	651098.53	2000	RAN-12	1990		1.1		7.8		0.248		2040	
	1/30/2019	Field Duplicate	RAN-12	2640133.66	651098.53	2000	RAN-13	1840		1		7.8		0.248		2000	
U02-10154	1/8/2019	Primary	--	2638963.15	649050.51	250	U02-10154	2230		1		7.3		1.06		1720	

Location ID	Sample Date	Sample Type	Field Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Manganese 7439-96-5 mg/kg		Percent Moisture ARC-Moist %		pH ARC-pH SU		Total Organic Carbon ARC-TOC %		Zinc 7440-66-6 mg/kg	
								Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
	1/8/2019	Primary	--	2638963.15	649050.51	2000	U02-10154	1940		1.1		7.4		1.17		1450	
U02-1100M	4/26/2019	Primary	--	2643706.97	657314.14	2000	U02-1100M	2330		1.3		7.9		--		2630	
U02-1102M	4/26/2019	Primary	--	2643632.83	657319.54	2000	U02-1102M	1620		1.7		7.9		--		2100	
U02-1103	4/26/2019	Primary	--	2638690.90	648741.70	250	U02-1103	2080		1.1		7.8		--		2020	
	4/26/2019	Primary	--	2638690.90	648741.70	2000	U02-1103	1900		0.7		7.8		--		1870	
U02-1105M	4/26/2019	Primary	--	2638770.20	648531.52	2000	U02-1105M	2670		1.5		7.5		--		1730	
U02-2100	1/7/2019	Primary	--	2643645.00	657044.00	2000	U02-2100	1450		0.8		7.8		0.256		1890	
U02-2102	1/8/2019	Primary	--	2638454.40	648460.40	2000	U02-2102	1310		0.8		7.6		0.15		1300	
U02-3100	1/7/2019	Primary	--	2643730.80	657187.30	2000	U02-3100	2730		0.9		7.7		0.318		4050	
U02-3102	1/8/2019	Primary	--	2638511.10	648621.80	2000	U02-3102	2080		0.8		7.5		0.15		1370	
U02-3104	1/7/2019	Primary	--	2643699.41	657189.48	250	U02-3104	2310		1		7.7		0.447		2550	
	1/7/2019	Primary	--	2643699.41	657189.48	2000	U02-3104	1930		1.2		7.8		0.645		2070	
U02-3200	1/11/2019	Primary	--	2636995.55	647270.19	2000	U02-3200	1390		1.2		6.9		0.237		1200	
U03-10202	1/11/2019	Primary	--	2636949.14	647206.62	250	U03-10202	985		2.5		6.8		2.89		423	
	1/11/2019	Primary	--	2636949.14	647206.62	2000	U03-10202	1040		2.9		6.9		3.52		415	
U03-10308	4/9/2019	Primary	--	2632342.01	632485.95	2000	U03-10308	915		0.8		8		--		490	
U03-10319	4/9/2019	Primary	--	2632321.40	632473.04	2000	U03-10319	857		1.1		8		--		398	
U03-10324	4/19/2019	Primary	--	2634713.46	623811.80	2000	U03-10324	873		1.6		8.1		--		369	
U03-10335	4/19/2019	Primary	--	2634542.45	625442.43	250	U03-10335	869		1.5		8.1		--		337	
	4/19/2019	Primary	--	2634542.45	625442.43	2000	U03-10335	856		1.9		8.1		--		318	
U03-10340	4/9/2019	Primary	--	2631875.12	634349.77	250	U03-10340	967		1.2		7.8		--		313	
	4/9/2019	Primary	--	2631875.12	634349.77	2000	U03-10340	849		0.9		7.8		--		277	
U03-10345	4/9/2019	Primary	--	2632530.58	634430.32	2000	U03-10345	1250		0.7		7.7		--		1290	
	4/9/2019	Field Duplicate	U03-10345	2632530.58	634430.32	2000	U04-10345	1230		0.7		7.8		--		1290	
U03-10346M	4/18/2019	Primary	--	2633030.79	627704.06	2000	U03-10346M	570		1.4		7.9		0.515		262	
U03-10357	4/1/2019	Primary	--	2631045.07	637342.56	2000	U03-10357	1120		0.9		7.4		--		1210	
U03-1200M	1/17/2019	Primary	--	2637351.04	647327.36	2000	U03-1200M	2680		1.2		6.9		0.48		4450	
U03-1202M	1/17/2019	Primary	--	2637328.29	647337.90	250	U03-1202M	2570		--		5.8		0.285		3350	
	1/17/2019	Primary	--	2637328.29	647337.90	2000	U03-1202M	2280		1		6.1		0.274		2970	
U03-1301	3/14/2019	Primary	--	2632557.00	642768.80	250	U03-1301	1450		1		7.9		--		1140	
	3/14/2019	Primary	--	2632557.00	642768.80	2000	U03-1301	1350		0.9		7.8		0.232		1130	
U03-1302M	3/25/2019	Primary	--	2632642.22	639567.80	250	U03-1302M	816		2.1		7.9		--		247	
	3/25/2019	Primary	--	2632642.22	639567.80	2000	U03-1302M	802		3.4		7.7		--		244	
U03-1304	4/2/2019	Primary	--	2630963.90	637095.40	250	U03-1304	1520		1.3		7.9		--		1120	
	4/2/2019	Primary	--	2630963.90	637095.40	2000	U03-1304	1410		0.9		7.8		--		925	
U03-1306	4/2/2019	Primary	--	2630965.70	637077.90	2000	U03-1306	1220		1.2		7.8		--		902	
U03-1307M	4/9/2019	Primary	--	2632619.32	633918.40	250	U03-1307M	1370		1.7		7.6		--		1000	
	4/9/2019	Primary	--	2632619.32	633918.40	2000	U03-1307M	1310		1.8		7.5		--		891	
U03-1309M	4/11/2019	Primary	--	2632567.73	630788.36	250	U03-1309M	928		2.3		7.7		--		367	
	4/11/2019	Primary	--	2632567.73	630788.36	2000	U03-1309M	860		1.2		7.7		--		323	
U03-1311M	4/18/2019	Primary	--	2632599.87	628137.59	2000	U03-1311M	852		0.7		7.2		0.15		526	
U03-1313	4/19/2019	Primary	--	2634421.40	625446.30	2000	U03-1313	874		1.6		8		--		629	
U03-1316M	4/19/2019	Primary	--	2634510.95	622634.88	250	U03-1316M	1230		2.2		7.6		--		833	
	4/19/2019	Primary	--	2634510.95	622634.88	2000	U03-1316M	1290		3.6		7.7		--		890	
U03-1317M	4/19/2019	Primary	--	2634514.28	622635.48	2000	U03-1317M	1070		2.4		7.6		--		658	
U03-1400	4/19/2019	Primary	--	2635734.10	620517.20	250	U03-1400	1080		2.3		7.8		--		605	
	4/19/2019	Primary	--	2635734.10	620517.20	2000	U03-1400	1140		3.9		7.6		--		677	
	4/19/2019	Field Duplicate	U03-1400	2635734.10	620517.20	2000	U04-1400	1150		3.8		7.7		--		664	
U03-2200	1/11/2019	Primary	--	2637091.10	647347.30	250	U03-2200	2030		1.2		7.4		0.625		2800	
	1/11/2019	Primary	--	2637091.10	647347.30	2000	U03-2200	1290		1.1		7.6		0.617		1550	
U03-2302	3/14/2019	Primary	--	2632866.50	640820.30	2000	U03-2302	1280		0.9		7.8		0.285		986	
U03-2305M	3/15/2019	Primary	--	2632873.95	640432.32	2000	U03-2305M	1180		1.5		7.6		0.394		982	
U03-2312	4/18/2019	Primary	--	2632626.00	628559.70	2000	U03-2312	963		0.8		7.3		0.266		677	
U03-2315	4/18/2019	Primary	--	2632565.80	628360.10	2000	U03-2315	673		1.5		5.5		0.201		347	
	4/18/2019	Field Duplicate	U03-2315	2632565.80	628360.10	2000	U04-2315	701		1.6		5.5		0.15		331	
U03-2316M	4/18/2019	Primary	--	2632499.30	628248.23	2000	U03-2316M	763		2.1		5.1		0.205		349	
U03-2318M	4/19/2019	Primary	--	2634458.96	623953.98	250	U03-2318M	1230		0.9		7.3		--		552	
	4/19/2019	Primary	--	2634458.96	623953.98	2000	U03-2318M	762		1.2		7.3		--		499	

Location ID	Sample Date	Sample Type	Field Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Manganese 7439-96-5 mg/kg		Percent Moisture ARC-Moist %		pH ARC-pH SU		Total Organic Carbon ARC-TOC %		Zinc 7440-66-6 mg/kg	
								Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
	4/19/2019	Field Duplicate	U03-2318	2634458.96	623953.98	2000	U04-2318	977		1.1		7.4		--		514	
U03-2320	4/19/2019	Primary	--	2634352.20	623564.00	2000	U03-2320	656		2		7.9		--		124	
U03-2323	4/19/2019	Primary	--	2634407.30	623430.30	250	U03-2323	1110		1.3		7.5		--		432	
	4/19/2019	Primary	--	2634407.30	623430.30	2000	U03-2323	790		1.2		7.4		--		406	
U03-3200M	1/11/2019	Primary	--	2636839.65	647308.01	2000	U03-3200M	661		1.6		6.3		0.212		385	
U03-3300M	2/21/2019	Primary	--	2632412.74	643962.96	2000	U03-3300M	3150		3.2		7.1		6.49		6750	
U03-3302	3/14/2019	Primary	--	2632661.20	640833.90	250	U03-3302	968		1.4		6.8		--		594	
	3/14/2019	Primary	--	2632661.20	640833.90	2000	U03-3302	1080		1.2		7		0.465		601	
U03-3303M	3/26/2019	Primary	--	2631984.61	639186.35	250	U03-3303M	1490		2.4		7.4		--		1320	
	3/26/2019	Primary	--	2631984.61	639186.35	2000	U03-3303M	1360		2.8		7.3		--		1210	
U03-3305M	3/27/2019	Primary	--	2631499.20	638662.34	2000	U03-3305M	1190		2.1		7.6		--		941	
	3/27/2019	Field Duplicate	U03-3305M	2631499.20	638662.34	2000	U04-3305M	1250		1.6		7.7		--		997	
U03-3306	4/2/2019	Primary	--	2631090.50	637105.70	2000	U03-3306	1200		1.2		7.4		--		1270	
U03-3308	4/2/2019	Primary	--	2631184.80	637115.50	250	U03-3308	879		1.8		7.8		--		377	
	4/2/2019	Primary	--	2631184.80	637115.50	2000	U03-3308	786		1.7		7.6		--		311	
U03-3309	4/2/2019	Primary	--	2631274.50	637136.00	2000	U03-3309	570		1.5		7.5		--		126	
U03-3311	4/2/2019	Primary	--	2631377.20	637146.00	2000	U03-3311	606		1.4		6.9		--		124	
U03-3312	4/9/2019	Primary	--	2632298.00	632559.40	2000	U03-3312	871		0.9		7.8		--		430	
	4/9/2019	Field Duplicate	U03-3312	2632298.00	632559.40	2000	U04-3312	836		0.8		7.9		--		406	
U03-3314	4/9/2019	Primary	--	2632383.80	632554.70	2000	U03-3314	942		1.3		7.9		--		406	
U03-3316	4/11/2019	Primary	--	2632200.30	631785.10	2000	U03-3316	861		1		7.8		--		286	
U03-3317M	4/11/2019	Primary	--	2632504.69	631789.07	2000	U03-3317M	473		1.2		6.7		--		106	
U03-3318	4/19/2019	Primary	--	2634673.90	624008.10	2000	U03-3318	939		0.9		7.8		--		851	
U03-3320	4/19/2019	Primary	--	2634605.20	622972.30	2000	U03-3320	1120		0.7		7.8		--		1090	
U03-3321	4/19/2019	Primary	--	2634884.60	622991.80	250	U03-3321	931		1.7		7.7		--		369	
	4/19/2019	Primary	--	2634884.60	622991.80	2000	U03-3321	818		1.5		8		--		321	
U03-3322	4/19/2019	Primary	--	2635018.20	622311.30	2000	U03-3322	980		1.6		7.7		--		591	
U03-3324M	4/1/2019	Primary	--	2631097.27	637364.11	250	U03-3324M	1030		1.8		7.6		--		618	
	4/1/2019	Primary	--	2631097.27	637364.11	2000	U03-3324M	984		1.1		7.7		--		530	
U03-3325	4/9/2019	Primary	--	2632475.37	634457.51	2000	U03-3325	1280		0.7		7.5		--		1350	
U03-3326M	4/18/2019	Primary	--	2633078.13	627732.79	250	U03-3326M	851		1.9		7.8		--		326	
	4/18/2019	Primary	--	2633078.13	627732.79	2000	U03-3326M	863		1.9		7.9		1.36		305	
U03-3400	4/19/2019	Primary	--	2636188.10	620097.90	2000	U03-3400	1370		3.7		7.7		--		1020	
U03-7300M	3/25/2019	Primary	--	2632710.60	639779.90	2000	U03-7300M	888		3.2		7.8		--		669	
U03-7301M	3/26/2019	Primary	--	2632269.97	639394.93	2000	U03-7301M	1450		1.4		7.6		--		1220	
U03-7302M	1/17/2019	Primary	--	2632550.20	642536.22	2000	U03-7302M	1280		1.7		7.4		3.41		1390	
U03-7303M	2/14/2019	Primary	--	2632607.83	641330.91	2000	U03-7303M	818		2.4		7.8		1.25		367	
U03-7304M	2/14/2019	Primary	--	2632676.94	642161.44	250	U03-7304M	892		2.4		7.7		--		512	
	2/14/2019	Primary	--	2632676.94	642161.44	2000	U03-7304M	847		1.9		7.7		1.29		538	
	2/14/2019	Field Duplicate	U03-7304M	2632676.94	642161.44	2000	U04-7304M	862		2		7.7		1.27		546	
U03-7305M	2/14/2019	Primary	--	2632733.61	641922.13	2000	U03-7305M	1220		1.5		7.6		1.41		696	
U03-9302M	3/26/2019	Primary	--	2632448.49	639511.16	2000	U03-9302M	1380		1.7		7.5		--		1150	
U03-9302M	3/26/2019	Primary	--	2632448.49	639511.16	2000	U03-9302M	1380		1.7		7.5		--		1150	
P4-1	5/12/2022	Primary	--	2635013.99	621381.39	2000	P4-1(A)	427		1.4		7.6		2.69		148	
P4-1	5/12/2022	Primary	--	2635013.99	621381.39	250	P4-1 (B)	368		1.2		7.5		2.79		112	
P4-2	5/12/2022	Primary	--	2635524.19	620777.53	2000	P4-2 (A)	1220		0.5		7.5		1.73		832	
P4-2	5/12/2022	Primary	--	2635524.19	620777.53	250	P4-2 (B)	1200		0.4		7.5		1.73		822	
P4-3	5/12/2022	Primary	--	2636081.68	620248.15	2000	P4-3 (A)	1620		3.8		7.4		6.32		1090	
P4-3	5/12/2022	Primary	--	2636081.68	620248.15	250	P4-3 (B)	1470		2.9		7.4		6.11		1030	
P4-4	5/12/2022	Primary	--	2636409.53	619765.94	2000	P4-4 (A)	368		1		7.9		0.15		124	
P4-4	5/12/2022	Primary	--	2636409.53	619765.94	250	P4-4 (B)	385		1.3		7.9		-0.15		161	
P4-5	5/12/2022	Primary	--	2636559.19	619480.31	2000	P4-5 (A)	1270		2.5		7.2		2.03		1170	
P4-5	5/12/2022	Primary	--	2636559.19	619480.31	250	P4-5 (B)	1180		1.8		7.3		2.25		1060	
P4-6	5/12/2022	Primary	--	2636122.46	619967.90	2000	P4-6 (A)	1360		1.5		7.5		2.17		1080	
P4-6	5/12/2022	Primary	--	2636122.46	619967.90	250	P4-6 (B)	1170		1.2		7.5		1.91		887	
P4-7	5/12/2022	Primary	--	2636597.87	619215.72	2000	P4-7 (A)	1350		1.5		7.6		2.2		1090	
P4-7	5/12/2022	Primary	--	2636597.87	619215.72	250	P4-7 (B)	1230		1.5		7.7		2.3		957	

Notes:

1 - Sampling location, relative to removal area, are denoted as follows:

Appendix A. Analytical Data
Table A-2. Chino Excavation Data
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

Location ID	Sample Date	Sample Type	Field Duplicate Parent Sample	X Coordinate[2]	Y Coordinate[2]	Sieve Size (µm)	Sample ID	Manganese		Percent Moisture		pH		Total Organic Carbon		Zinc	
								7439-96-5		ARC-Moist		ARC-pH		ARC-TOC		7440-66-6	
								mg/kg		%		SU		%		mg/kg	
								Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual

U=Upstream side of removal area
D=Downstream side of removal area
L=Left side of removal area, looking downstream
R=Right side of removal area, looking downstream
F=Floor Sample
2 - State Plane New Mexico West

Appendix A. Analytical Data
Table A-3. Removal Area Backfill XRF-Measured Concentrations
Interim Removal Action Residual Risk Assessment Report
Hanover Whitewater Creek Investigative Unit
Vanadium, New Mexico

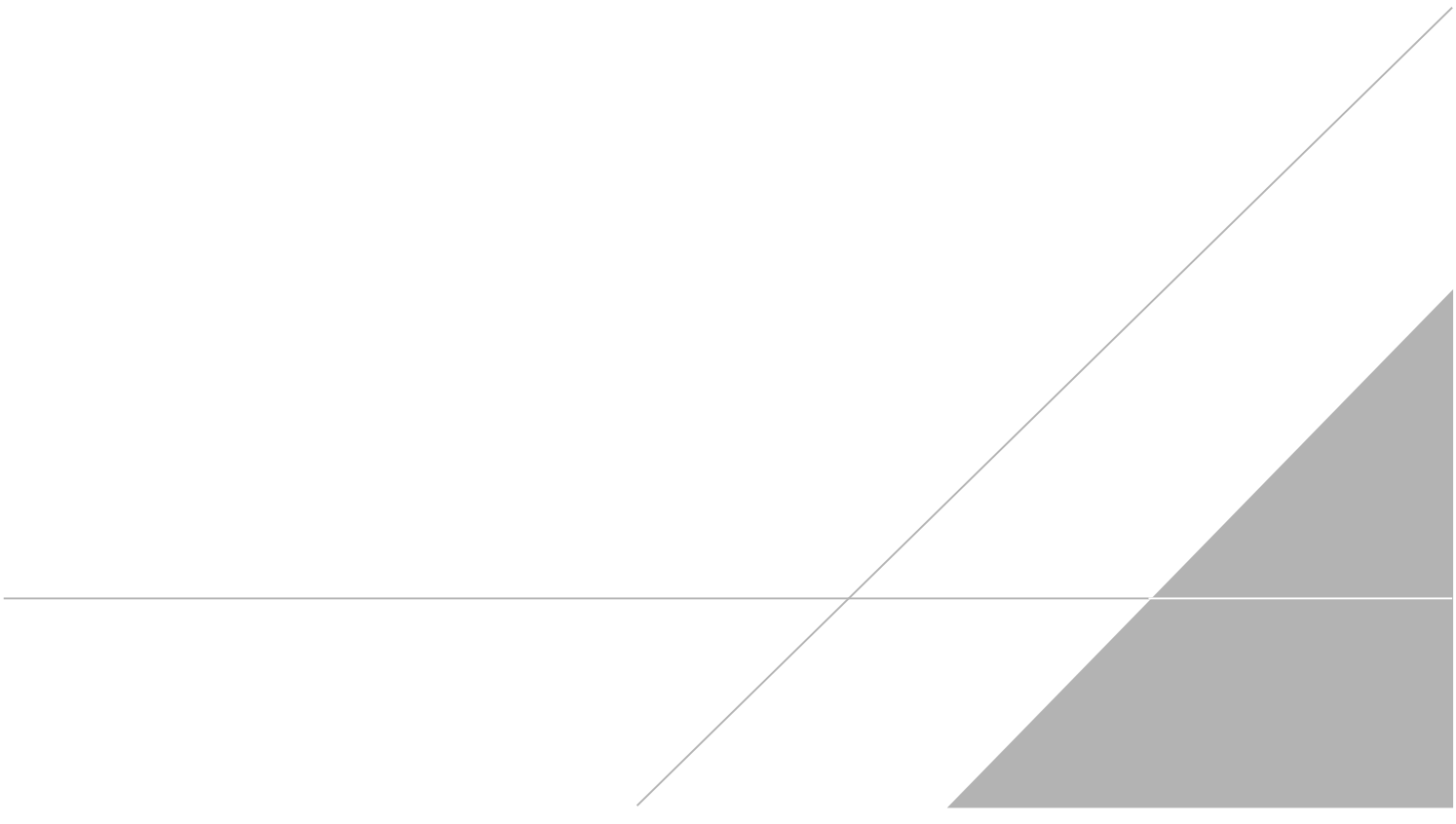
Physical Reach	Removal Area	Original Fill Data[a]						Sieved to <2000µm[b]	Sieved to <250µm[c]					
		Arsenic	Cadmium[d]	Copper	Iron	Lead	Manganese	Copper	Arsenic	Cadmium	Copper	Iron	Lead	Manganese
1	R33	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
2	R1	7.27	0	24.6	17,498	15.2	304	103	8.52	2.60	136	15,618	24.6	182
	R14	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R15	7.27	0	24.6	17,498	15.2	304	103	8.52	2.60	136	15,618	24.6	182
	R18	7.27	0	24.6	17,498	15.2	304	103	8.52	2.60	136	15,618	24.6	182
	R19	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R20	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R21	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R22	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R23	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R24	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R25	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R26	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R27	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R28	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R29	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R30	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R31	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R32	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R34	4.50	0	8.2	7,135	5.2	188	92	5.23	2.60	123	5,298	14.0	115
	R35	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R36	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R37	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R38/R39/R40	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R41	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R42	8.71	0	13.6	10,688	8.4	235	96	10.24	2.60	127	8,623	17.4	142
	R44	7.27	0	24.6	17,498	15.2	304	103	8.52	2.60	136	15,618	24.6	182
	R46	4.50	0	8.2	7,135	5.2	188	92	5.23	2.60	123	5,298	14.0	115
	R47	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R48	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R79	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
3	R10	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R100	7.27	0	24.6	17,498	15.2	304	103	8.52	2.60	136	15,618	24.6	182
	R101 NORTH	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R101 SOUTH	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R102	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R11	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R116	0.00	0	19.5	18,500	7.0	340	100	2.88	2.60	132	16,702	15.9	202
	R119	8.70	0	157.3	19,061	18.6	659	191	10.23	2.60	240	17,314	28.1	380
	R12	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R120	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R121	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R2	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R301	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R302	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R303	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R304	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R305	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R306	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R307	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R308	0.00	0	19.5	18,500	7.0	340	100	2.88	2.60	132	16,702	15.9	202
	R309	0.00	0	19.5	18,500	7.0	340	100	2.88	2.60	132	16,702	15.9	202
	R3A/B	2.60	0	299.0	26,608	22.6	623	285	3.00	2.60	348	25,881	32.3	360
	R4	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R404	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R5	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R50	7.27	0	24.6	17,498	15.2	304	103	8.52	2.60	136	15,618	24.6	182
	R51	7.27	0	24.6	17,498	15.2	304	103	8.52	2.60	136	15,618	24.6	182
	R52	7.27	0	24.6	17,498	15.2	304	103	8.52	2.60	136	15,618	24.6	182
	R55	0.00	0	19.5	18,500	7.0	340	100	2.88	2.60	132	16,702	15.9	202
	R56	0.00	0	19.5	18,500	7.0	340	100	2.88	2.60	132	16,702	15.9	202
	R58	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R59	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R60	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R61	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R62	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R63	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R64	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R65	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R67	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R68	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R70	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R71/R88/R6	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R74	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R75	7.27	0	24.6	17,498	15.2	304	103	8.52	2.60	136	15,618	24.6	182
	R76	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R76A	14.80	0	15.6	11,514	14.5	696	97	8.47	2.60	129	9,432	23.9	400
	R77	7.27	0	24.6	17,498	15.2	304	103	8.52	2.60	136	15,618	24.6	182
	R78	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R80	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R80	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R82	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R83	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R84	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R85	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R86	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R87	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R89	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R89A	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R9	7.27	0	24.6	17,498	15.2	304	103	8.52	2.60	136	15,618	24.6	182
	R90	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R91	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R92	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R92A	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R93	8.70	0	157.3	19,061	18.6	659	191	10.23	2.60	240	17,314	28.1	380
	R95	14.80	0	15.6	11,514	14.5	696	97	17.54	2.60	129	9,432	23.9	400
	R96	7.23	0	15.1	7,077	5.7	425	97	8.47	2.60	128	5,246	14.5	250
	R97	7.27	0	24.6	17,498	15.2	304	103	8.52	2.60	136	15,618	24.6	182
	R98 NORTH	7.27	0	24.6	17,498	15.2	304	103	8.52	2.60	136	15,618	24.6	182
	R98 SOUTH	7.27	0	24.6	17,498	15.2	304	103	8.52	2.60	136	15,618	24.6	182
	R99	7.27	0	24.6	17,498	15.2	304	103	8.52	2.60	136	15,618	24.6	182

Notes:
a Backfill types measured with Olympus Vanta Handheld X-Ray Fluorescence (XRF) Analyzer
b Backfill types converted from XRF to <2000µm.
c Backfill types converted from XRF to <250µm.
d Cadmium was not detected in any samples above the limit of detection for the XRF device. Value provided is equal to one-half the limit of detection provided by the manufacturer.

APPENDIX B

Data Validation

(submitted via CD only)



APPENDIX C

Site-specific Regressions

APPENDIX C - SITE-SPECIFIC REGRESSIONS

The dataset used for the Interim Removal Action Residual Risk Assessment Report included 851 analytical surface soil samples collected from overbank and bar features. Every sample except thirty were sieved to <2,000 µm for evaluation of ecological risk. Of the 851 analytical samples collected, 247 were also sieved to <250 µm for the evaluation of risk to human receptors. Linear regression analyses were conducted separately for each constituent of potential concern (COPC) using the data from the 247 samples sieved to both sizes. These data were transformed to meet the assumptions of the regression analysis, including normality and homogeneity of variance, using natural log transformations of the soil concentration data. Outliers were removed from the dataset as identified by the SYSTAT linear regression tool (Systat Software version 13, San Jose, CA). Using this tool, outliers were removed. The resulting regression equations were then used to generate predicted <250 µm sieve data from <2,000 µm sieve analytical data for the remainder of the dataset for which only <2,000 µm sieve data were collected. Additionally, thirty samples that were intended to be sieved to <2,000 µm were only sieved to <250 µm due to laboratory error. Accordingly, the same regression equations developed for the above-described analyses were used to back-calculate predicted <2,000 µm sieve data for these samples. Scatterplots and regressions equations for these data are presented in Figure C-1.

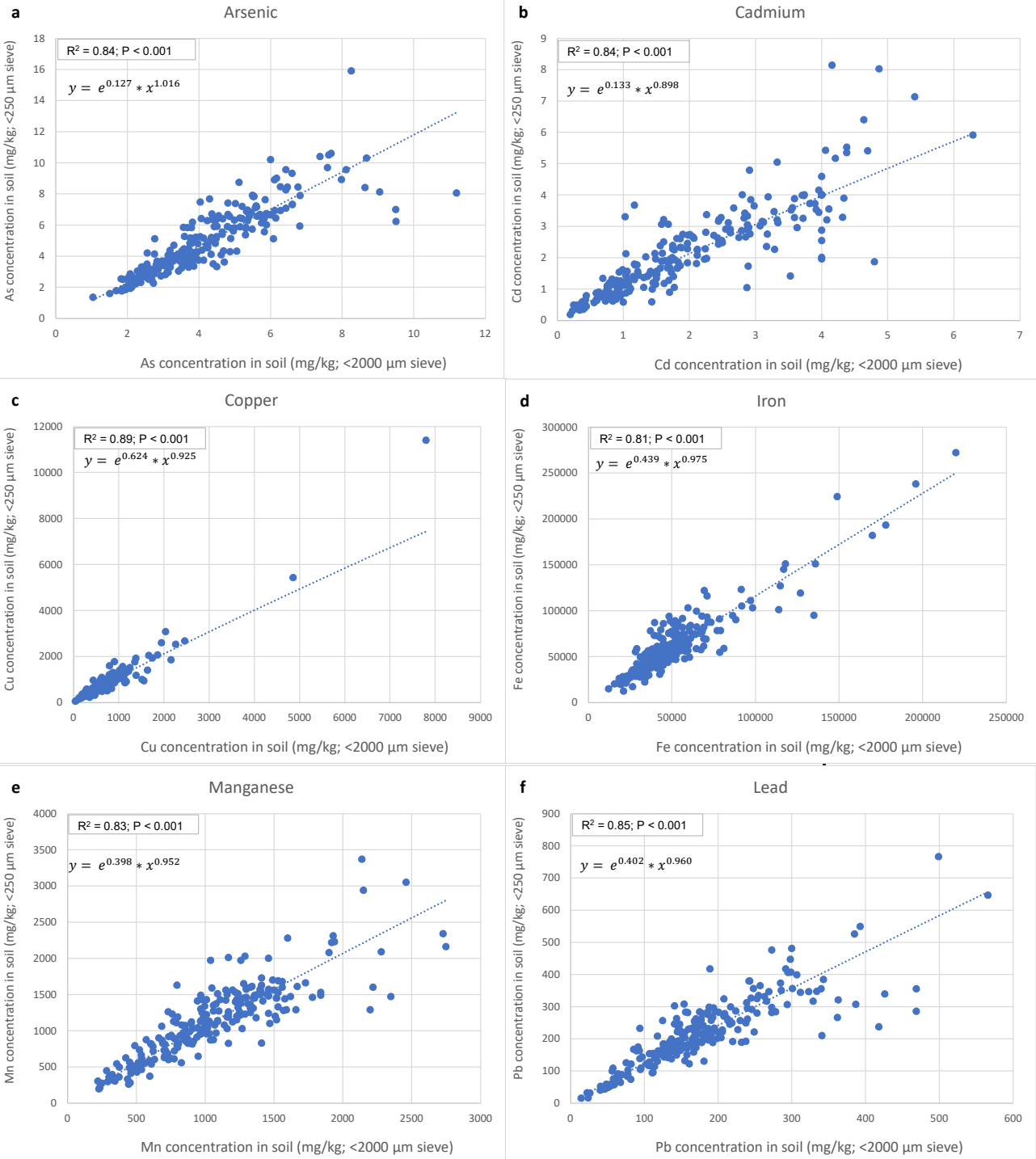
In addition to the analytical data collected onsite, x-ray fluorescence (XRF) samples were used confirm that COPCs did not exceed screening criteria and because the size of the material prevented sample collection and analysis by a laboratory. Site-specific linear regressions analyses were subsequently conducted by COPC using the co-located XRF and analytical confirmation samples. Analytical data to XRF regression equations for copper and lead were developed by Golder Associates in support of the Hanover Whitewater Creek Interim Removal Action (Johnejack 2019) and are presented in Figure C-2. Additional regression analyses were conducted for arsenic[1], iron, and manganese for the purposes of this IRARRA[2]; XRF to analytical data regressions are presented in Figure C-3. As for the sieve size regressions detailed above, outliers were removed from the dataset as identified by the SYSTAT linear regression tool (Systat Software version 13, San Jose, CA). The resulting site-specific linear regression equations were applied to XRF data to convert XRF values to predicted analytical data sieved to <2,000 µm. The site-specific regressions described above were then applied to convert the <2,000 µm sieve values to <250 µm sieve-equivalent data, as needed. The dataset used to develop site-specific regression equations is presented in Appendix A.

[1] No significant regression was found for arsenic ($p = 0.19$, Figure C-2). Thus, data were not transformed from XRF to laboratory analytical data before using in analyses.
[2] Cadmium XRF regressions were not developed due to low sample sizes of detected values from cadmium XRF data.

References

Chino Mines Company. 1997. Administrative Order on Consent. Remedial Investigation Quality Assurance Plan, Chino Mines Investigation Area. Prepared by Chino Mines Company. January 1997.

Johnejack, K. 2019. “Re: WW Creek XRF site-specific calibration.” Message to P. Pinson, M. Steward, D. Crawford, Y. Morgan, S. Keller, and M. Barkley. January 9, 2019. E-mail.



Notes:
mg/kg = milligram per kilogram
P = probability value
R^2 = coefficient of determination

FREEPORT-MCMORAN CHINO MINES COMPANY
HANOVER WHITEWATER CREK INVESTIGATION UNIT
VANADIUM, NEW MEXICO
INTERIM REMOVAL ACTION RESIDUAL RISK ASSESSMENT REPORT
APPENDIX C SITE SPECIFIC REGRESSIONS

SITE-SPECIFIC LINEAR REGRESSION ANALYSES PREDICTING <250 µm SIEVE DATA FROM <2000 µm SIEVE DATA

ARCADIS

FIGURE C-1

Figure C-2a
Laboratory versus XRF for Copper (Johnejack 2019)

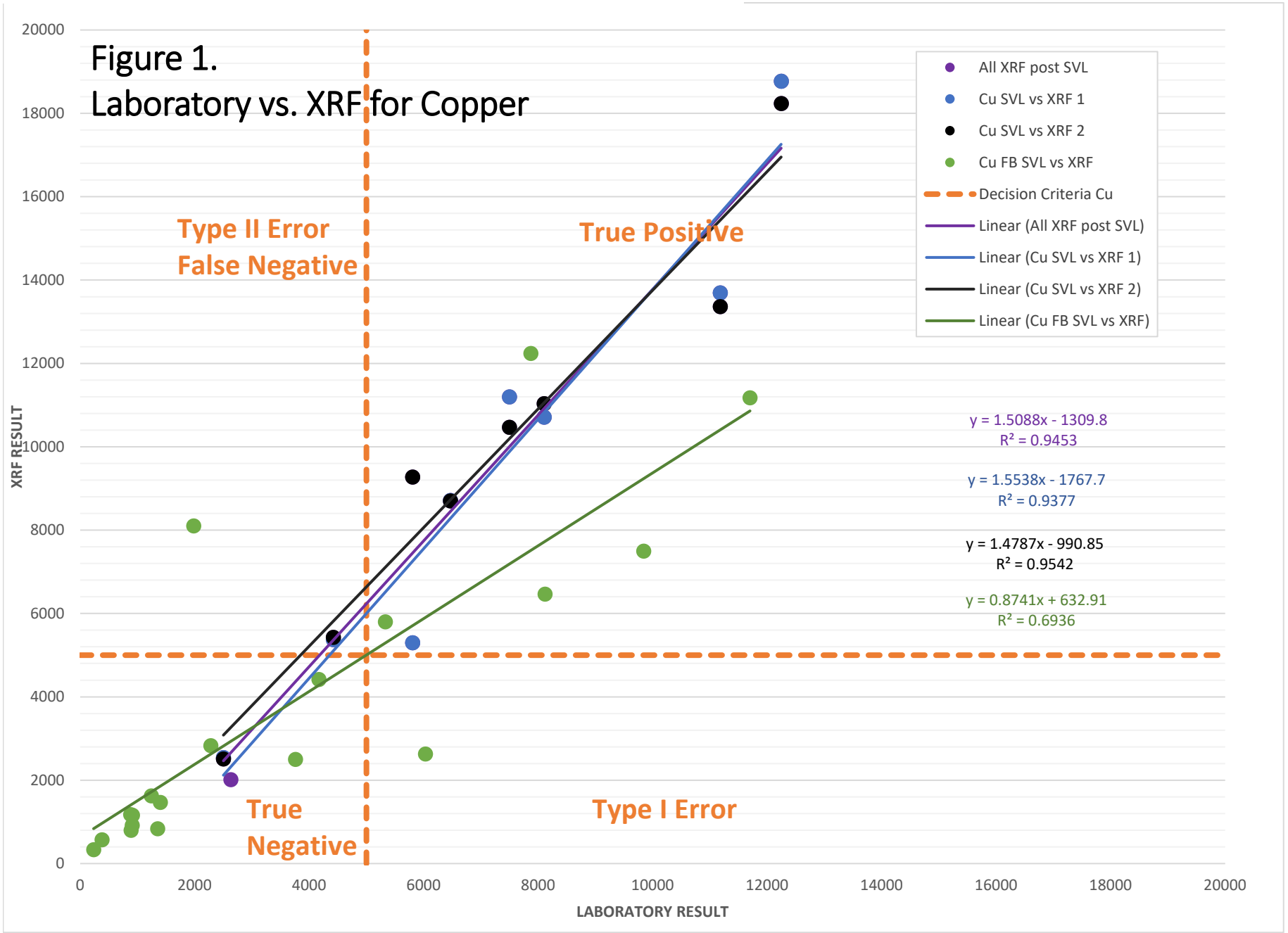
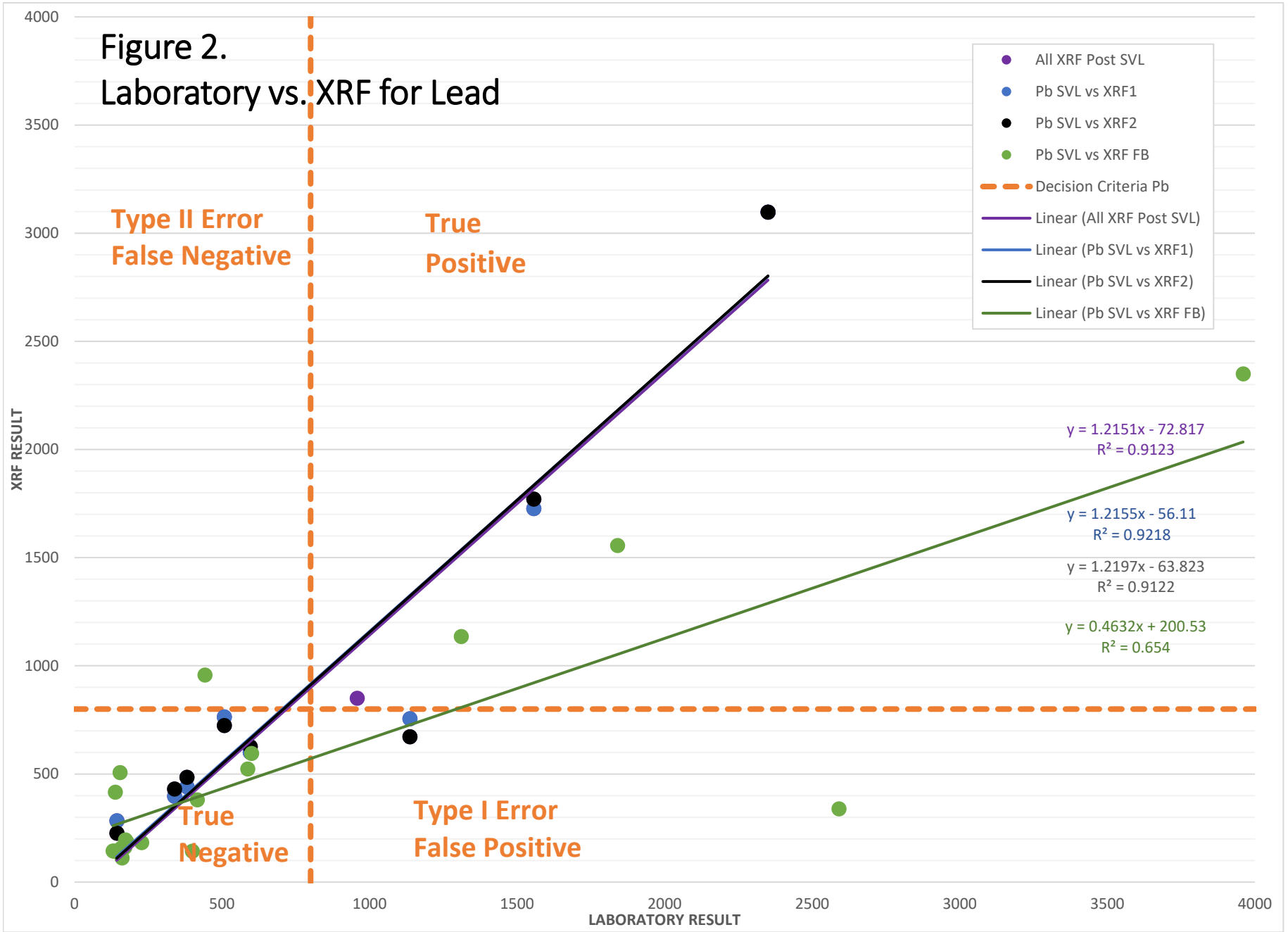
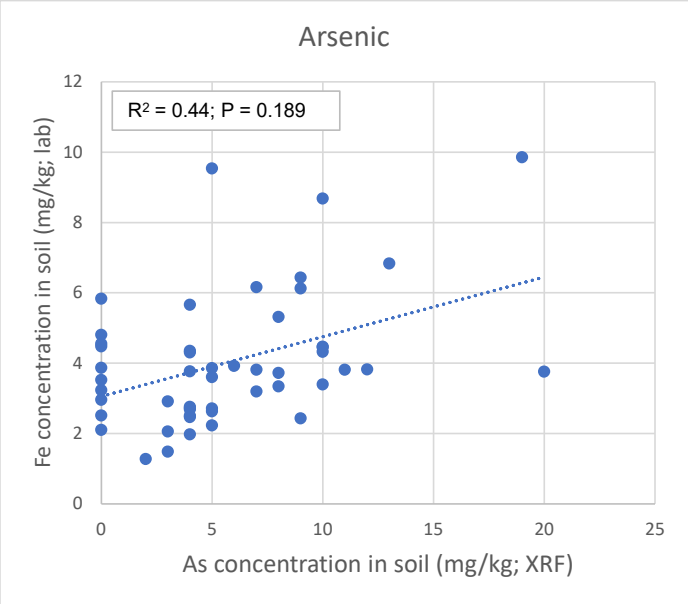
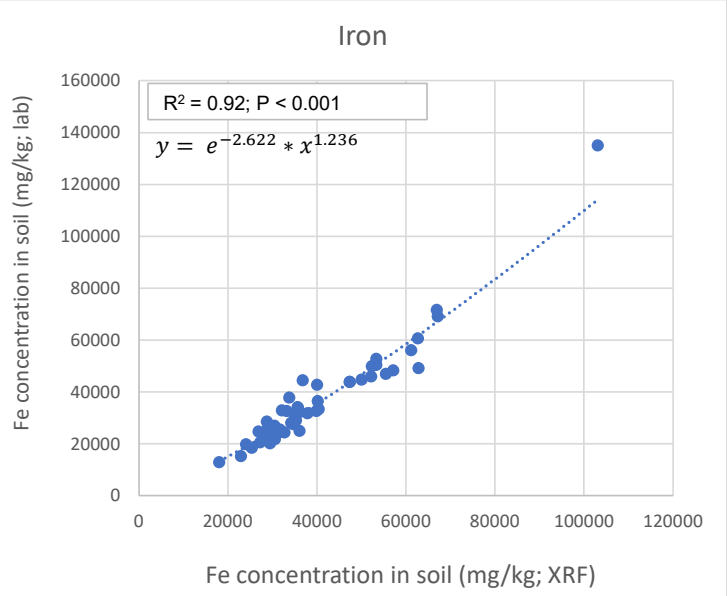
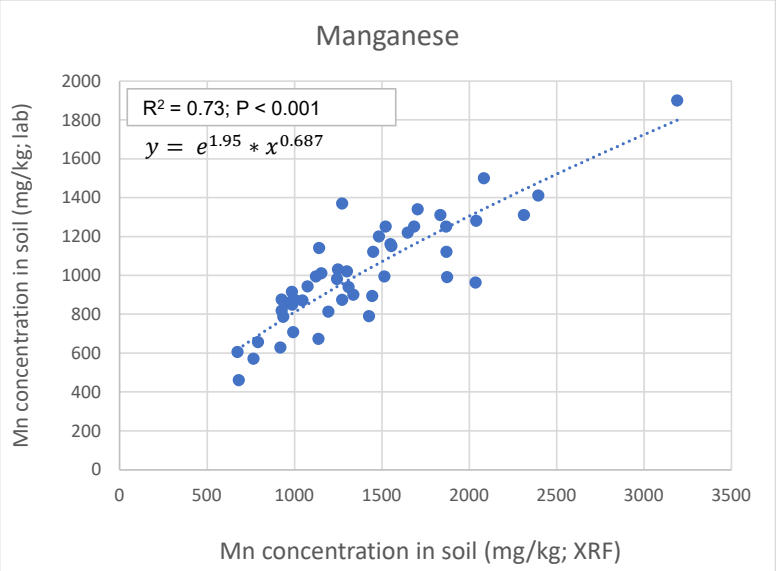


Figure C-2b
Laboratory versus XRF for Lead (Johnejack 2019)









Notes:
ln-mg/kg = natural log milligram per kilogram
P = probability value
R^2 = coefficient of determination
XRF = x-ray fluorescence
lab = laboratory analytical data

FREEPORT-MCMORAN CHINO MINES COMPANY
HANOVER WHITEWATER CREK INVESTIGATION UNIT
VANADIUM, NEW MEXICO
INTERIM REMOVAL ACTION RESIDUAL RISK ASSESSMENT REPORT
APPENDIX C SITE SPECIFIC REGRESSIONS

SITE-SPECIFIC LINEAR REGRESSION ANALYSES PREDICTING LABORATORY-ANALYSED DATA FROM XRF FIELD DATA

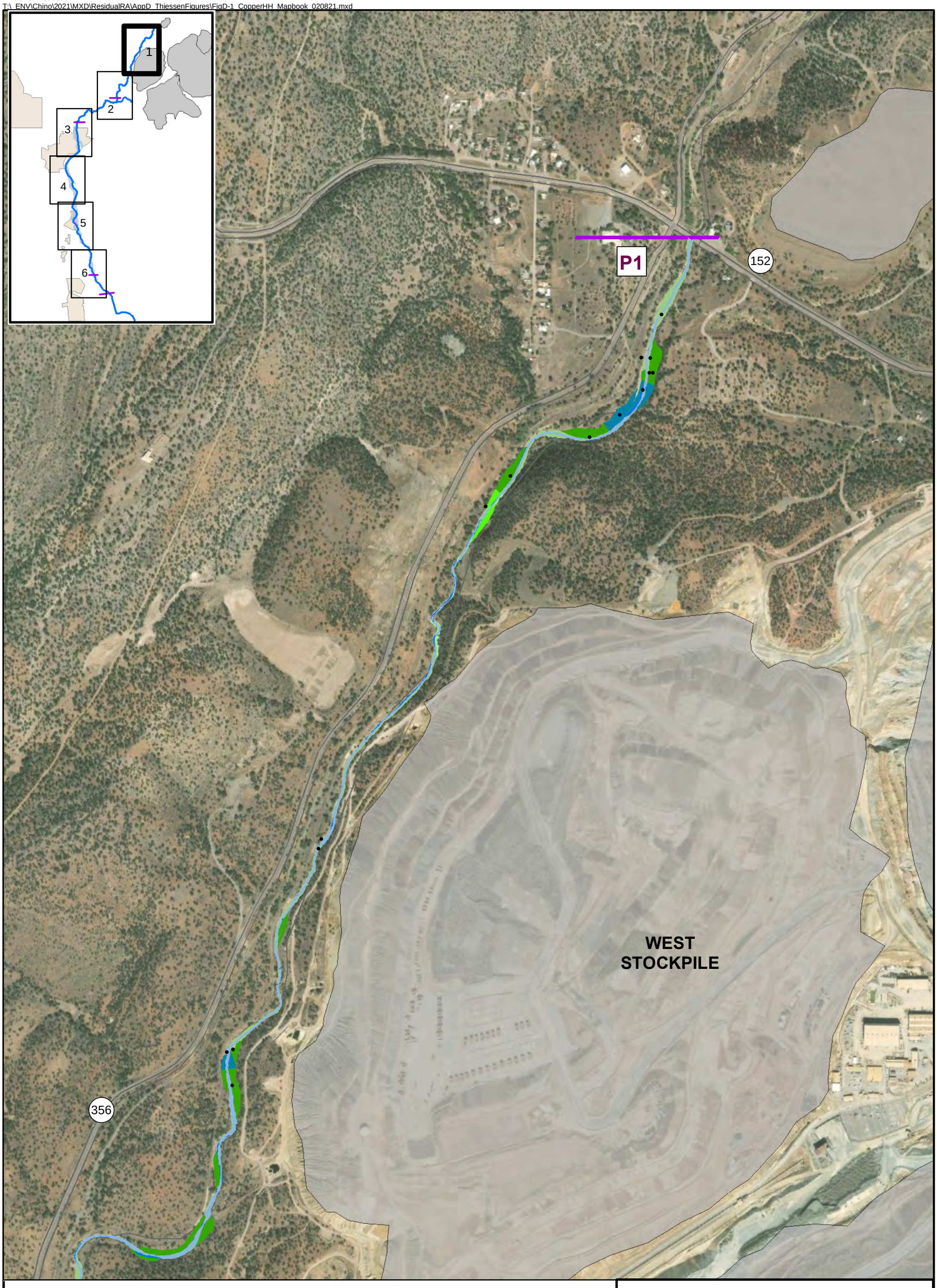
ARCADIS

FIGURE C-3

APPENDIX D

Hanover-Whitewater Creek Thiessen Polygon Figures

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-1_CopperHH_Mapbook_020821.mxd



Legend

Copper (Sieved to 250 µm)

- > 3,000 mg/kg
- 2,000 - 3000 mg/kg
- 1,000 - 2,000 mg/kg
- 500 - 1,000 mg/kg
- < 500 mg/kg

- Sample Locations
- Physical Reach (P1)
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

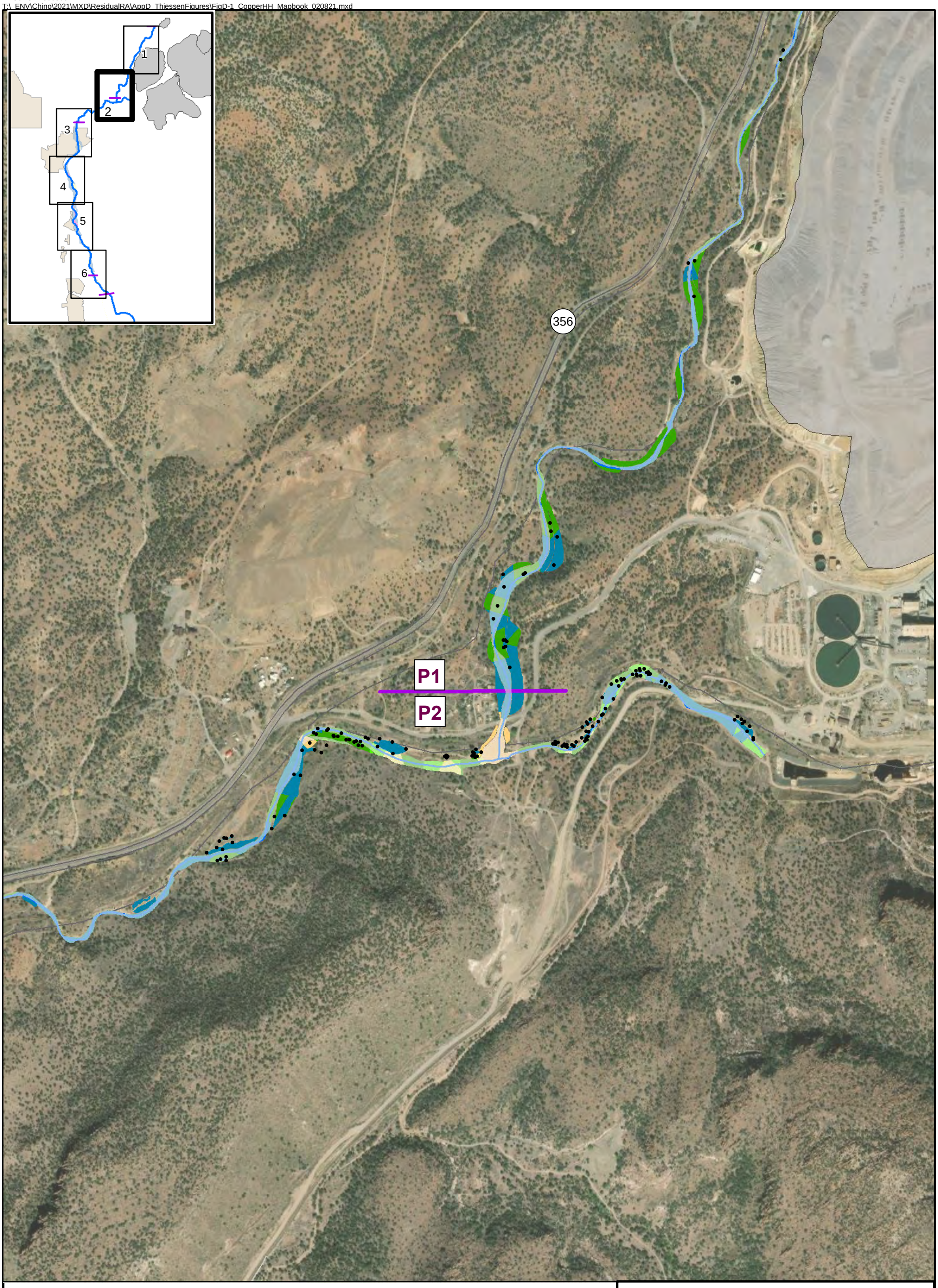
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS
COPPER (HUMAN HEALTH) - SHEET 1

ARCADIS

FIGURE
D-1a

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-1_CopperHH_Mapbook_020821.mxd



Legend

Copper (Sieved to 250 µm)

- > 3,000 mg/kg
- 2,000 - 3000 mg/kg
- 1,000 - 2,000 mg/kg
- 500 - 1,000 mg/kg
- < 500 mg/kg

- Sample Locations
- Physical Reach (P1)
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS
COPPER (HUMAN HEALTH) - SHEET 2

ARCADIS

FIGURE
D-1b

PROJECT# 30050314
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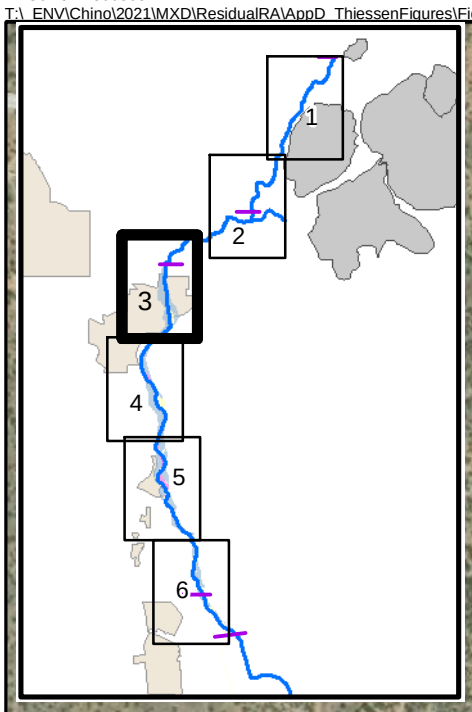

P2

P3

Legend

Copper (Sieved to 250 µm)

- > 3,000 mg/kg
- 2,000 - 3000 mg/kg
- 1,000 - 2,000 mg/kg
- 500 - 1,000 mg/kg
- < 500 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel

- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS
COPPER (HUMAN HEALTH) - SHEET 3

ARCADIS

FIGURE
D-1c

PROJECT# 30050314
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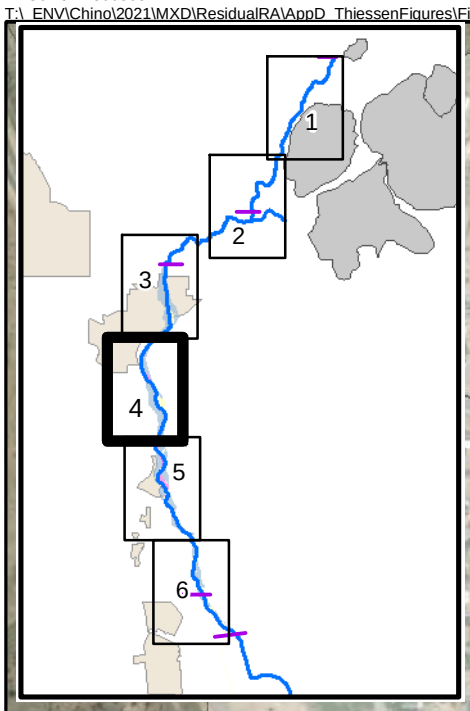

P3

Legend

Copper (Sieved to 250 µm)

- > 3,000 mg/kg
- 2,000 - 3000 mg/kg
- 1,000 - 2,000 mg/kg
- 500 - 1,000 mg/kg
- < 500 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel

- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS
COPPER (HUMAN HEALTH) - SHEET 4

ARCADIS

FIGURE
D-1d

PROJECT# 30050314
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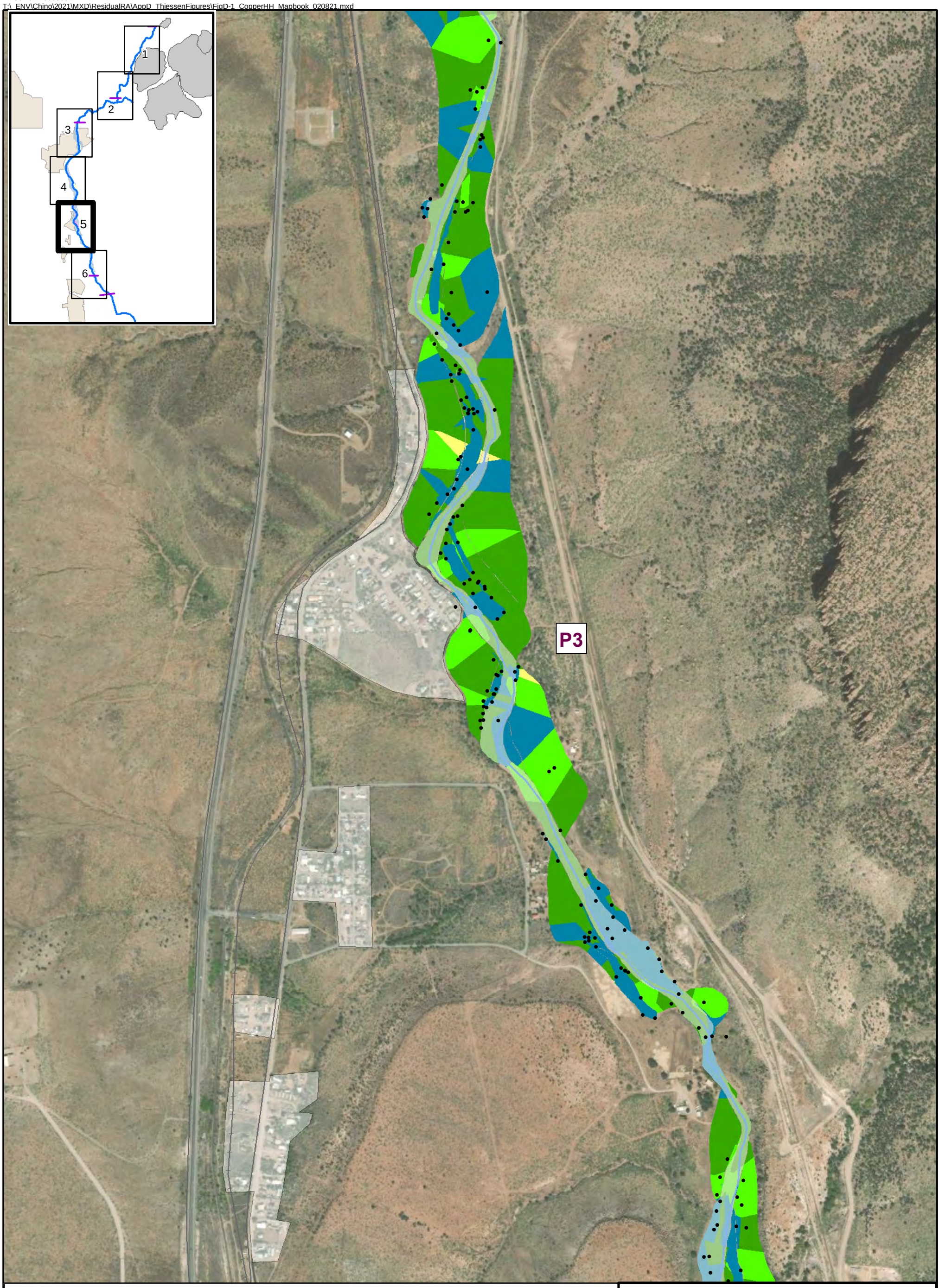

Legend

Copper (Sieved to 250 µm)

- > 3,000 mg/kg
- 2,000 - 3000 mg/kg
- 1,000 - 2,000 mg/kg
- 500 - 1,000 mg/kg
- < 500 mg/kg

- Sample Locations
- Physical Reach (P1)
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS
COPPER (HUMAN HEALTH) - SHEET 5

ARCADIS

FIGURE
D-1e

PROJECT# 30050314
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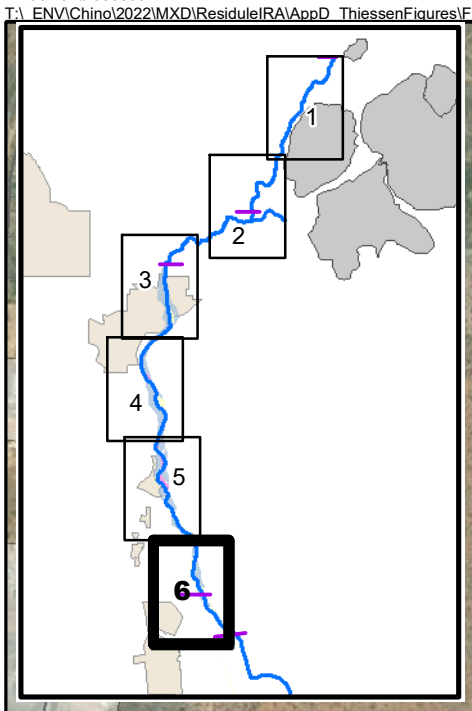

P3

P4

P4

P5

Legend

Copper (Sieved to 250 µm)

- > 3,000 mg/kg
- 2,000 - 3000 mg/kg
- 1,000 - 2,000 mg/kg
- 500 - 1,000 mg/kg
- < 500 mg/kg

- Sample Locations
- Physical Reach (P1)
- HWC Centerline
- HWC Channel

- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 500 1,000

Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 7/22/2022.

FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS
COPPER (HUMAN HEALTH) - SHEET 6

ARCADIS

FIGURE
D-1f

PROJECT# 30050314
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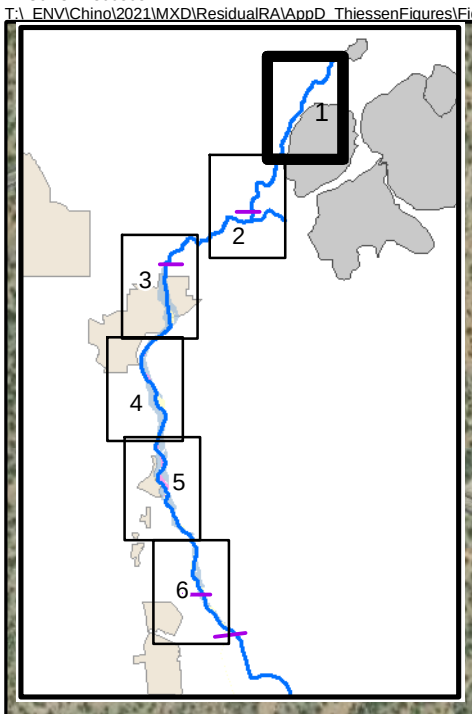


P1

152

WEST
STOCKPILE

356

Legend

Iron (Sieved to 250 µm)

- > 100,000 mg/kg
- 75,000 - 100,000 mg/kg
- 50,000 - 75,000 mg/kg
- 25,000 - 50,000 mg/kg
- < 25,000 mg/kg

- Sample Locations
- Physical Reach (P1)
- HWC Centerline
- HWC Channel

- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

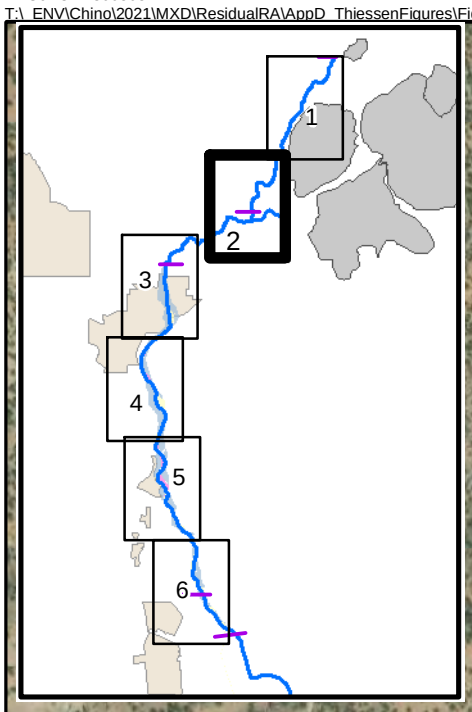
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - IRON
SHEET 1

ARCADIS

FIGURE
D-2a

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-2_Iron_Mapbook_030121.mxd



356

P1

P2

Legend

Iron (Sieved to 250 µm)

- > 100,000 mg/kg
- 75,000 - 100,000 mg/kg
- 50,000 - 75,000 mg/kg
- 25,000 - 50,000 mg/kg
- < 25,000 mg/kg

- Sample Locations
- Physical Reach (P1)
- HWC Centerline
- HWC Channel

- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

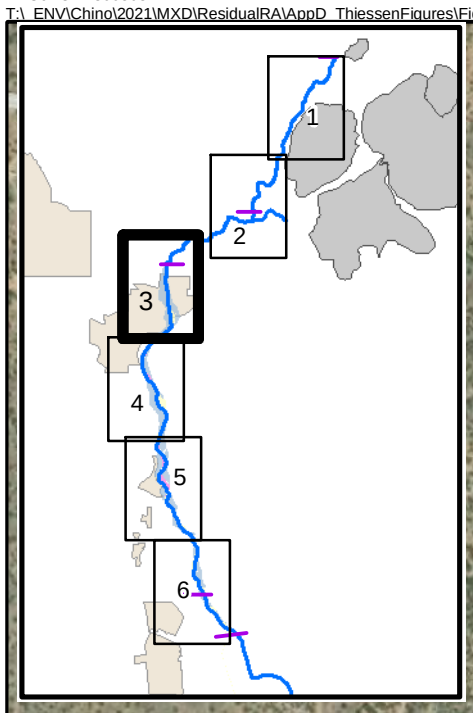
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - IRON
SHEET 2

ARCADIS

FIGURE
D-2b

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-2_Iron_Mapbook_030121.mxd



P2

P3

Legend

Iron (Sieved to 250 µm)

- > 100,000 mg/kg
- 75,000 - 100,000 mg/kg
- 50,000 - 75,000 mg/kg
- 25,000 - 50,000 mg/kg
- < 25,000 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel

- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

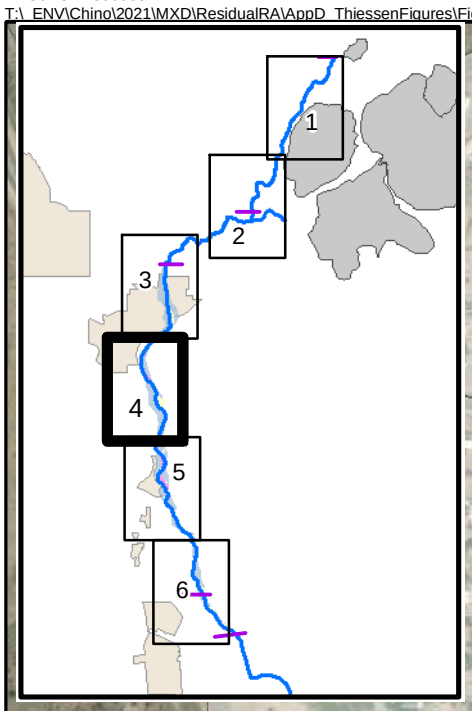
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - IRON
SHEET 3

ARCADIS

FIGURE
D-2c

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-2_Iron_Mapbook_030121.mxd



P3

Legend

Iron (Sieved to 250 µm)

- > 100,000 mg/kg
- 75,000 - 100,000 mg/kg
- 50,000 - 75,000 mg/kg
- 25,000 - 50,000 mg/kg
- < 25,000 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel

- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

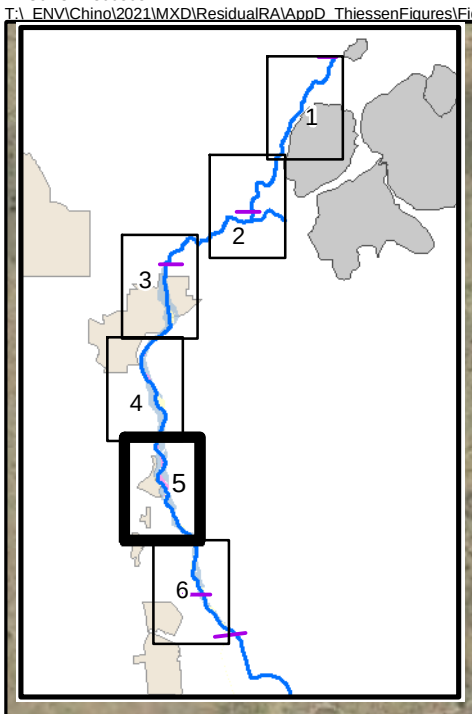
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - IRON
SHEET 4

ARCADIS

FIGURE
D-2d

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-2_Iron_Mapbook_030121.mxd



P3

Legend

Iron (Sieved to 250 µm)

- > 100,000 mg/kg
- 75,000 - 100,000 mg/kg
- 50,000 - 75,000 mg/kg
- 25,000 - 50,000 mg/kg
- < 25,000 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel

- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - IRON
SHEET 5

ARCADIS

FIGURE
D-2e

PROJECT# 30050314
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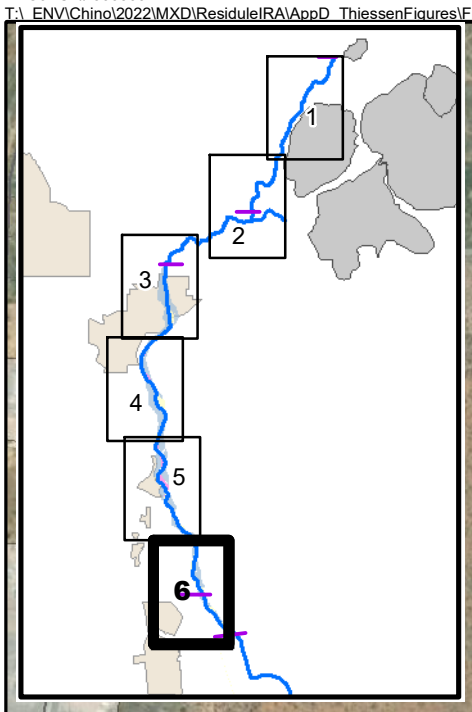


P3

P4

P4

P5

Legend

Iron (Sieved to 250 µm)

- > 100,000 mg/kg
- 75,000 - 100,000 mg/kg
- 50,000 - 75,000 mg/kg
- 25,000 - 50,000 mg/kg
- < 25,000 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 500 1,000

Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 7/22/2022.

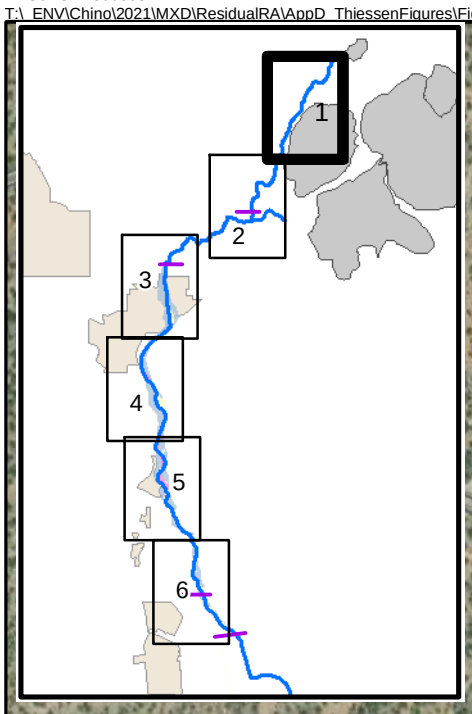
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - IRON
SHEET 6

ARCADIS

FIGURE
D-2f

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-3_Lead_Mapbook_020221.mxd



P1

152

WEST
STOCKPILE

356

Legend

Lead (Sieved to 250 µm)

- > 525 mg/kg
- 400 - 525 mg/kg
- 250 - 525 mg/kg
- 125 - 250 mg/kg
- < 125 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

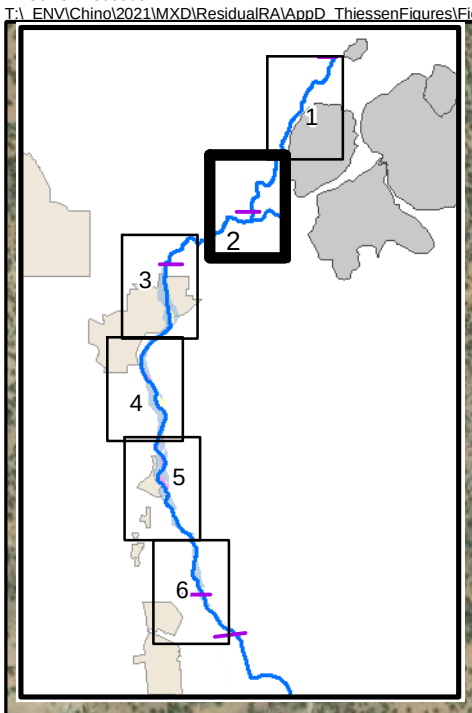
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - LEAD
SHEET 1

ARCADIS

FIGURE
D-3a

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-3_Lead_Mapbook_020221.mxd



356

P1

P2

Legend

Lead (Sieved to 250 µm)

- > 525 mg/kg
- 400 - 525 mg/kg
- 250 - 525 mg/kg
- 125 - 250 mg/kg
- < 125 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

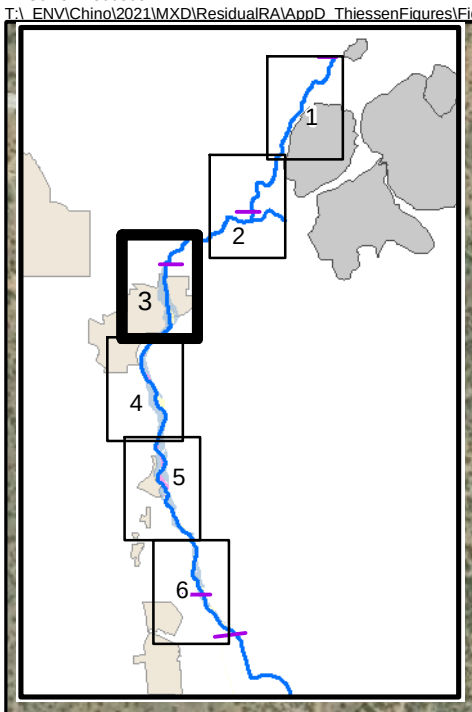
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - LEAD
SHEET 2

ARCADIS

FIGURE
D-3b

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-3_Lead_Mapbook_020221.mxd



P2

P3

Legend

Lead (Sieved to 250 µm)

- > 525 mg/kg
- 400 - 525 mg/kg
- 250 - 525 mg/kg
- 125 - 250 mg/kg
- < 125 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel

- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

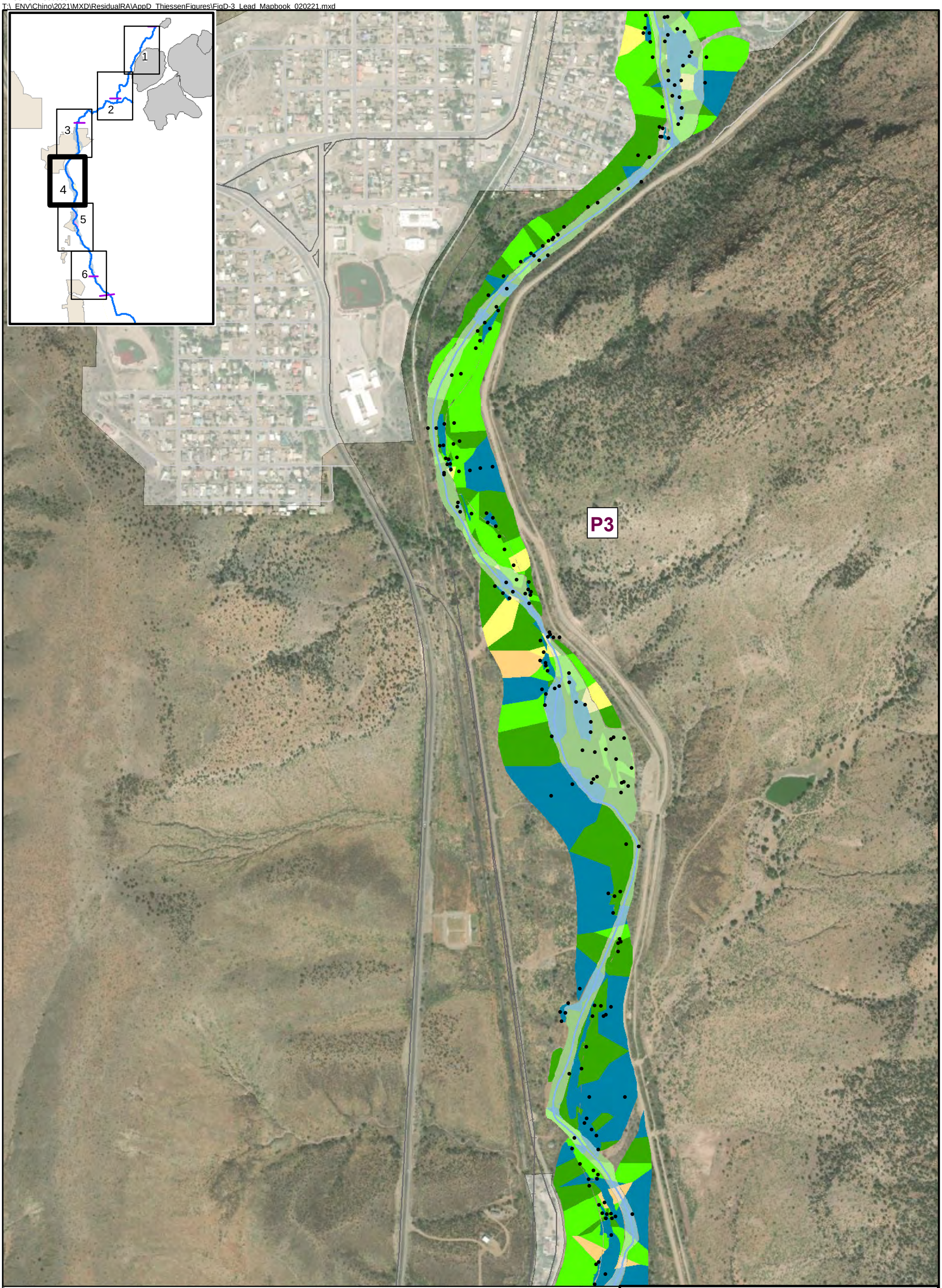
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - LEAD
SHEET 3

ARCADIS

FIGURE
D-3c

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-3_Lead_Mapbook_020221.mxd



Legend

Lead (Sieved to 250 µm)

- > 525 mg/kg
- 400 - 525 mg/kg
- 250 - 525 mg/kg
- 125 - 250 mg/kg
- < 125 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel

- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

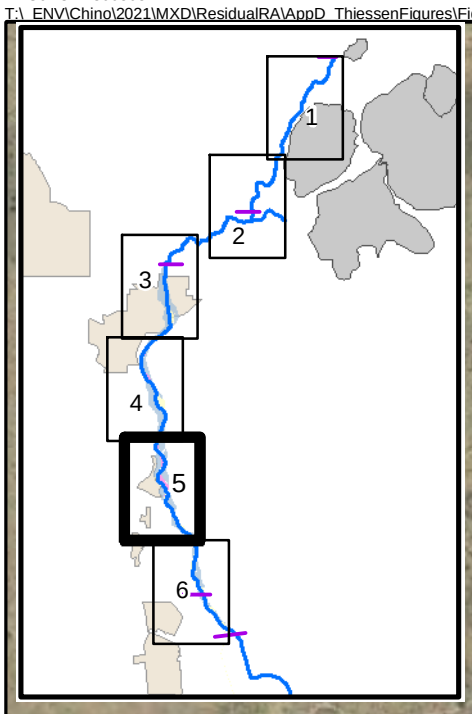
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - LEAD
SHEET 4

ARCADIS

FIGURE
D-3d

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-3_Lead_Mapbook_020221.mxd



P3

Legend

Lead (Sieved to 250 µm)

- > 525 mg/kg
- 400 - 525 mg/kg
- 250 - 525 mg/kg
- 125 - 250 mg/kg
- < 125 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

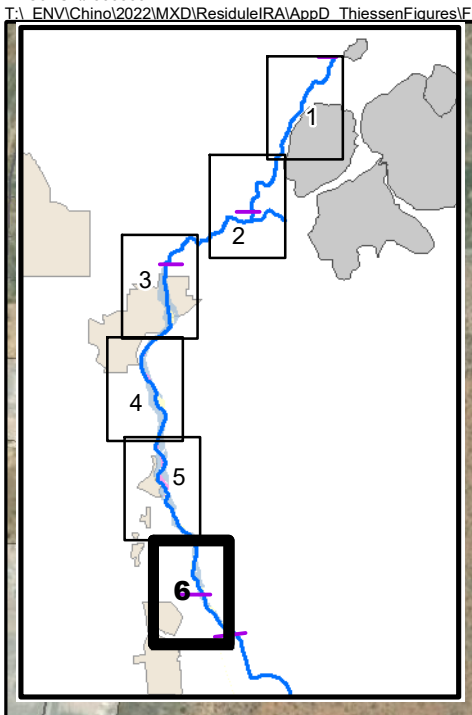
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - LEAD
SHEET 5

ARCADIS

FIGURE
D-3e

PROJECT# 30050314
T:_ENV\Chino\2022\MXD\ResiduleIRA\AppD_ThiessenFigures\FigD-3_Lead_Mapbook_July22.mxd



P3

P4

P4

P5

Legend

Lead (Sieved to 250 µm)

- > 525 mg/kg
- 400 - 525 mg/kg
- 250 - 525 mg/kg
- 125 - 250 mg/kg
- < 125 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 500 1,000

Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 7/22/2022.

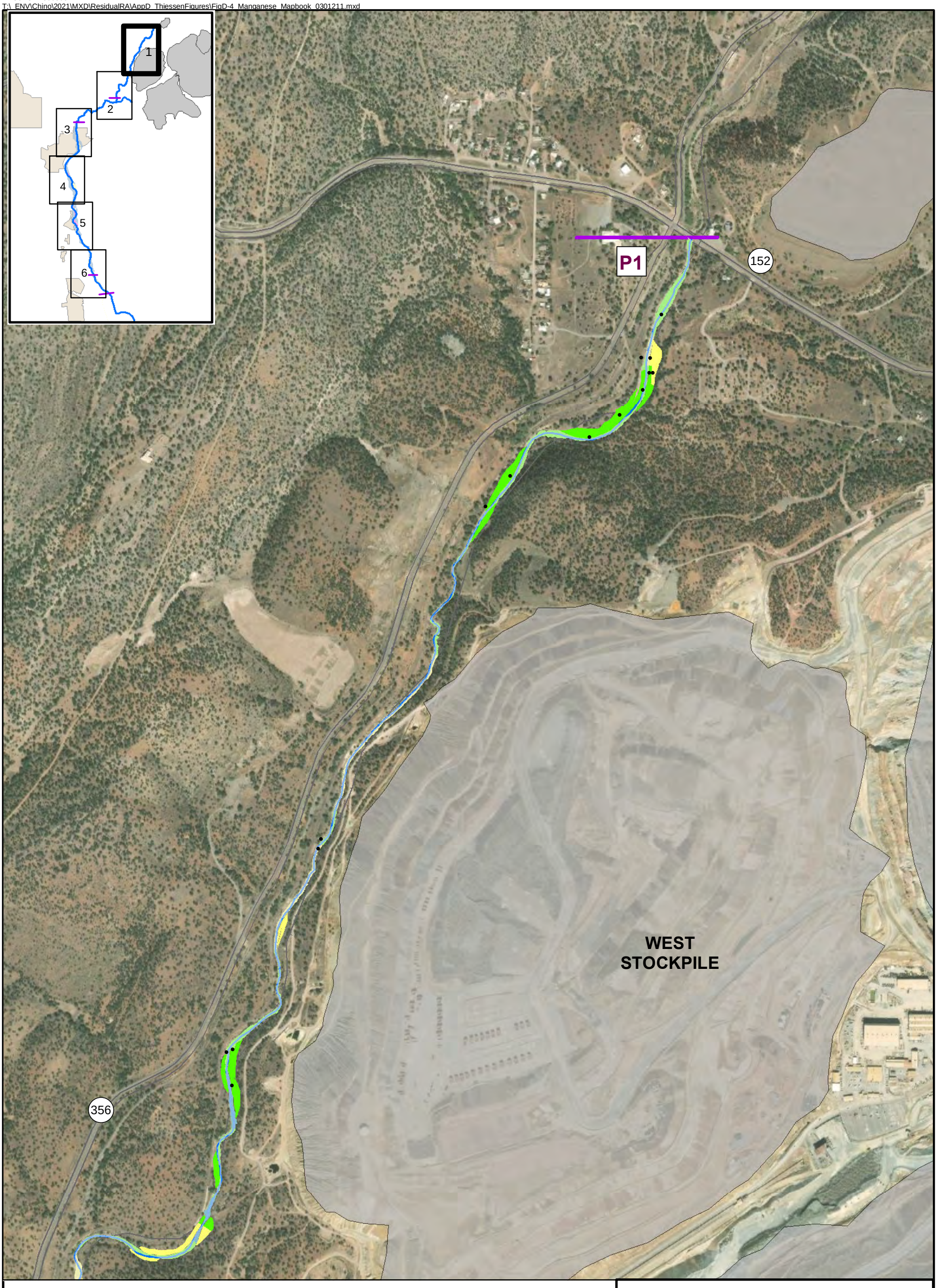
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - LEAD
SHEET 6

ARCADIS

FIGURE
D-3f

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-4_Manganese_Mapbook_0301211.mxd



Legend

Manganese (Sieved to 250 µm)

- > 3,200 mg/kg
- 2,000 - 3,200 mg/kg
- 1,000 - 2,000 mg/kg
- 500 - 1,000 mg/kg
- < 500 mg/kg

- Sample Locations
- Physical Reach (P1)
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

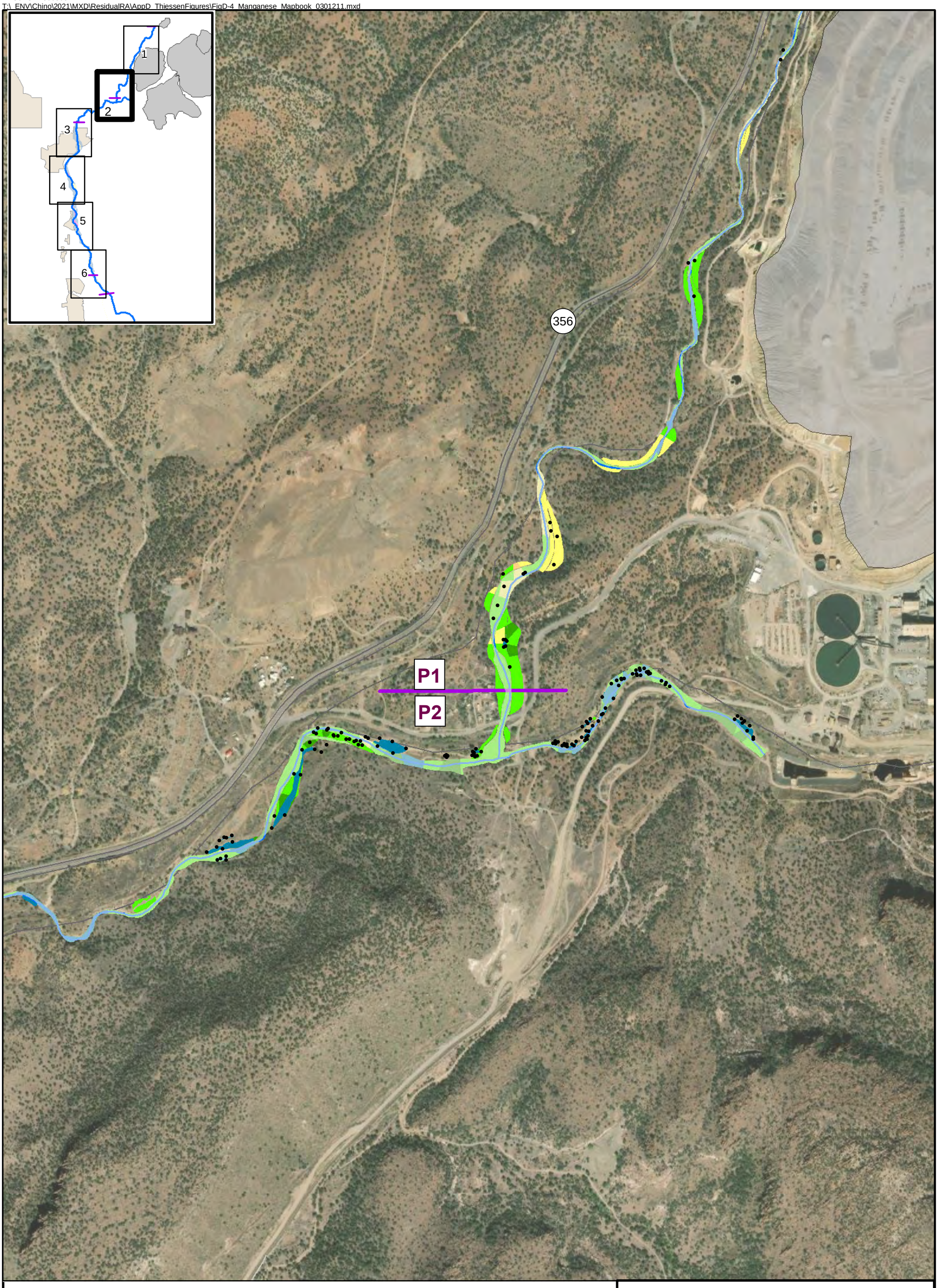
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - MANGANESE
SHEET 1

ARCADIS

FIGURE
D-4a

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-4_Manganese_Mapbook_0301211.mxd



Legend

Manganese (Sieved to 250 µm)

- > 3,200 mg/kg
- 2,000 - 3,200 mg/kg
- 1,000 - 2,000 mg/kg
- 500 - 1,000 mg/kg
- < 500 mg/kg

- Sample Locations
- Physical Reach (P1)
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

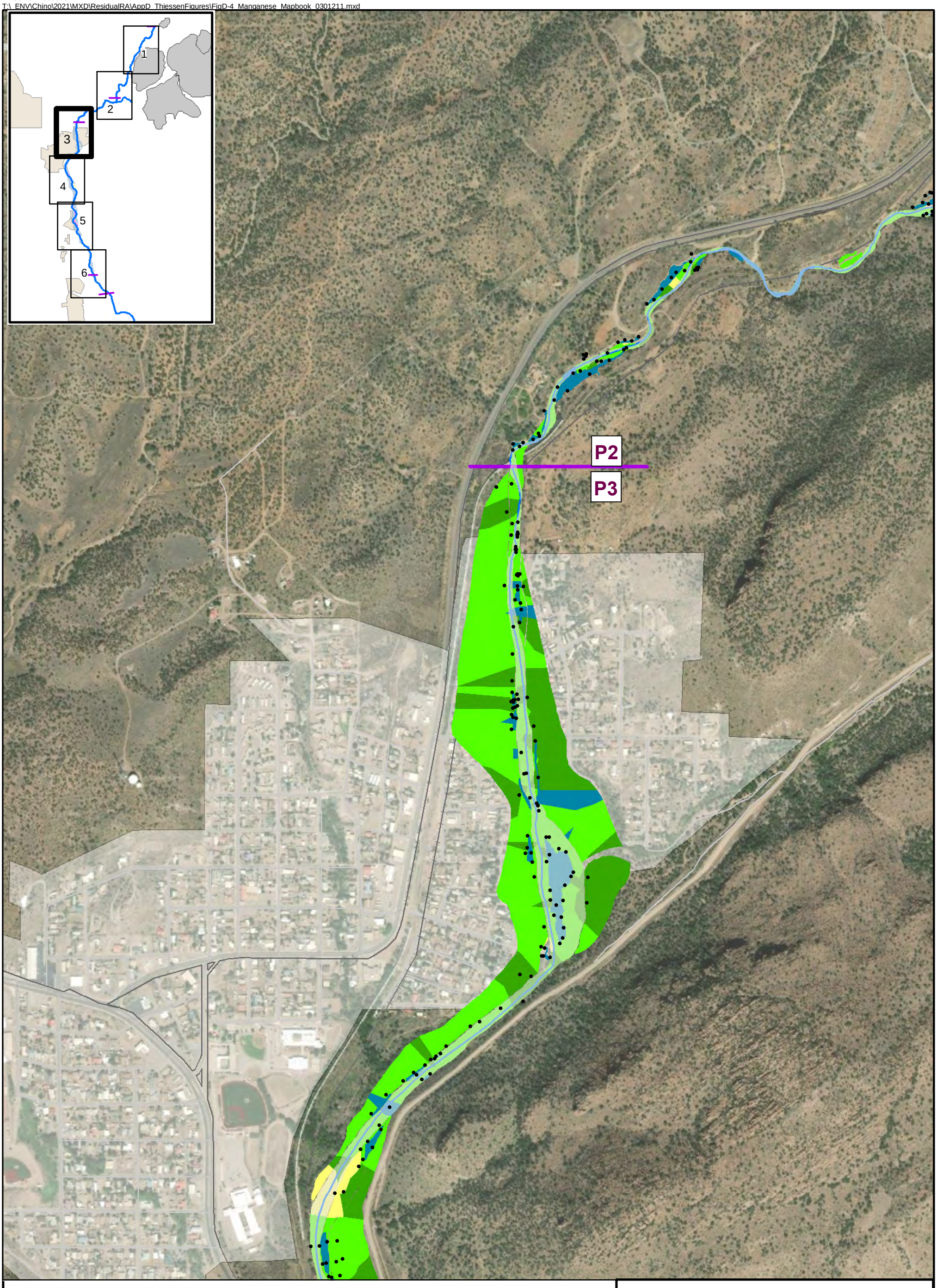
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - MANGANESE
SHEET 2

ARCADIS

FIGURE
D-4b

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-4_Manganese_Mapbook_0301211.mxd



Legend

Manganese (Sieved to 250 µm)

- > 3,200 mg/kg
- 2,000 - 3,200 mg/kg
- 1,000 - 2,000 mg/kg
- 500 - 1,000 mg/kg
- < 500 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - MANGANESE
SHEET 3

ARCADIS

FIGURE
D-4c

PROJECT# 30050314
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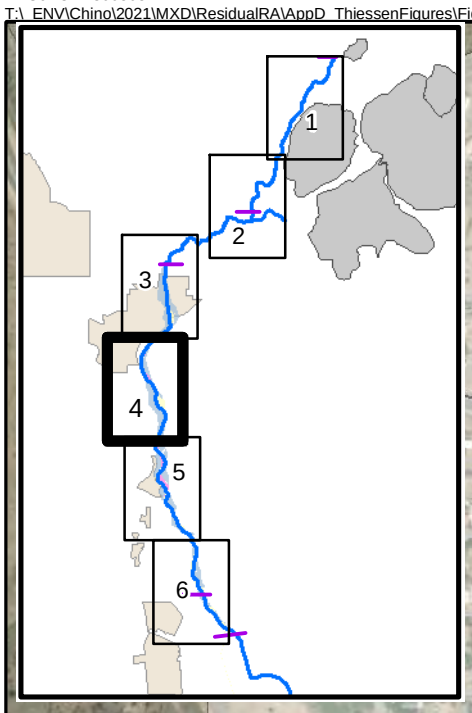


P3

Legend

Manganese (Sieved to 250 µm)

- > 3,200 mg/kg
- 2,000 - 3,200 mg/kg
- 1,000 - 2,000 mg/kg
- 500 - 1,000 mg/kg
- < 500 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

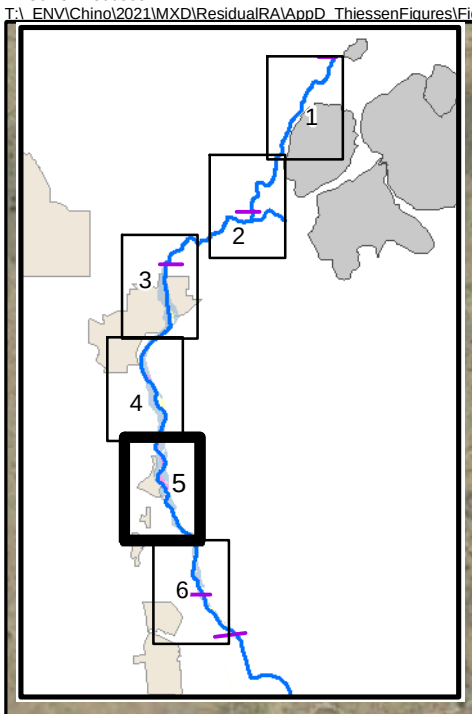
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - MANGANESE
SHEET 4

ARCADIS

FIGURE
D-4d

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-4_Manganese_Mapbook_0301211.mxd



P3

Legend

Manganese (Sieved to 250 µm)

- > 3,200 mg/kg
- 2,000 - 3,200 mg/kg
- 1,000 - 2,000 mg/kg
- 500 - 1,000 mg/kg
- < 500 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

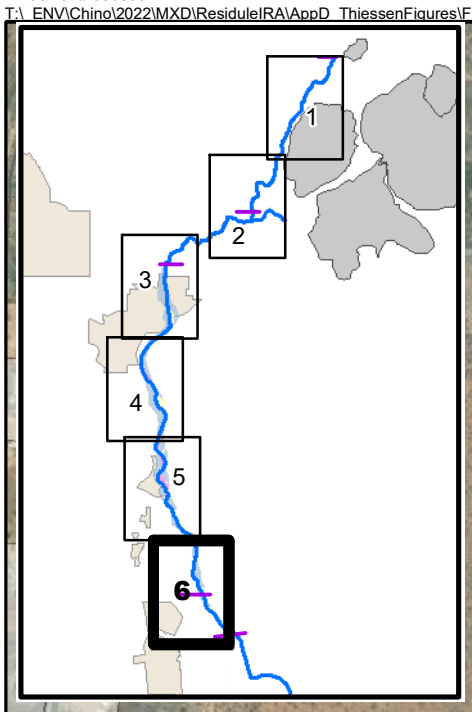
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - MANGANESE
SHEET 5

ARCADIS

FIGURE
D-4e

PROJECT# 30050314
T:_ENV\Chino\2022\MXD\ResiduleIRA\AppD_ThiessenFigures\FigD-4_Manganese_Mapbook_July22.mxd



P3

P4

P4

P5

Legend

Manganese (Sieved to 250 µm)

- > 3,200 mg/kg
- 2,000 - 3,200 mg/kg
- 1,000 - 2,000 mg/kg
- 500 - 1,000 mg/kg
- < 500 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 500 1,000

Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 7/22/2022.

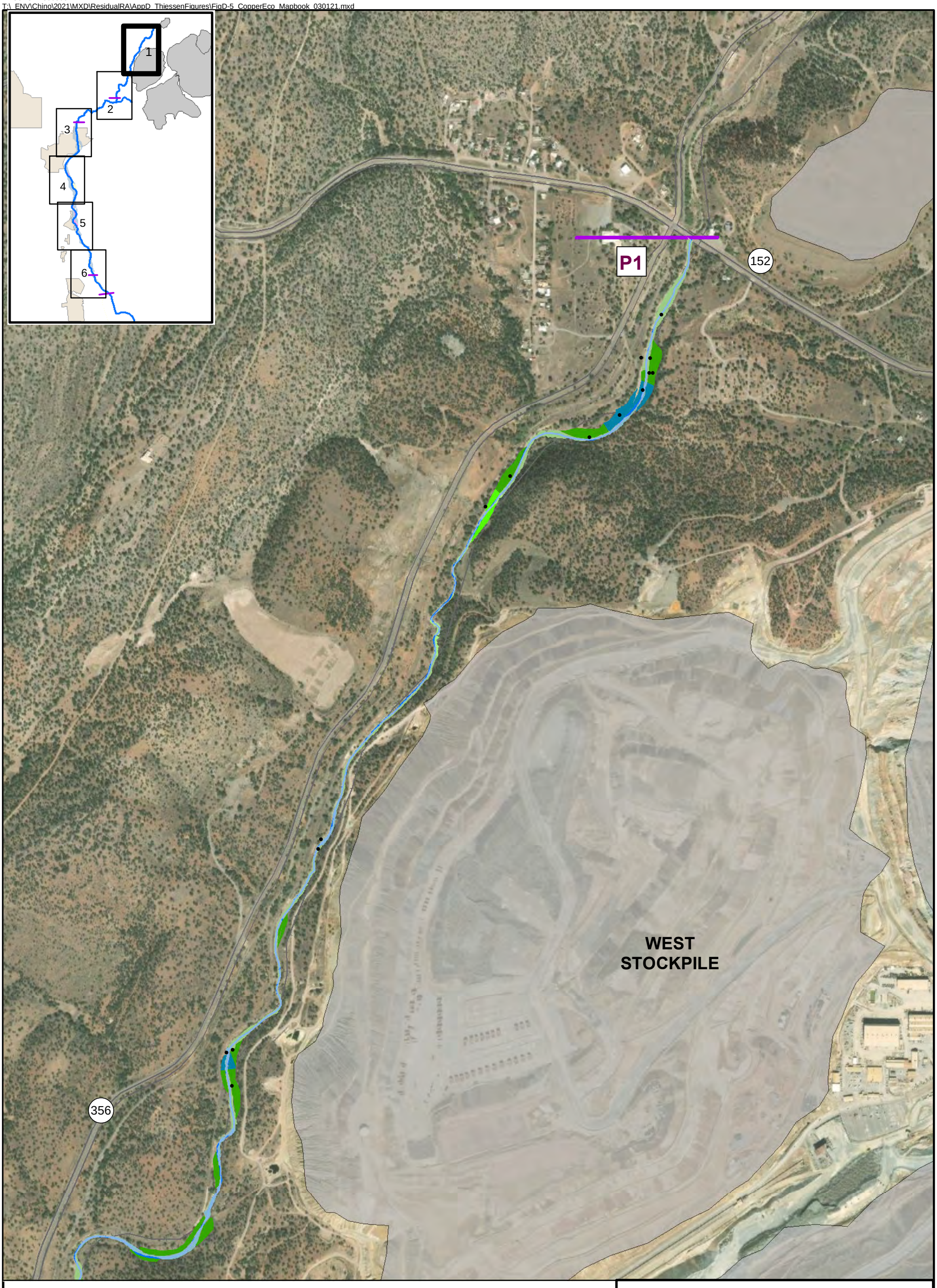
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - MANGANESE
SHEET 6

ARCADIS

FIGURE
D-4f

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-5_CopperEco_Mapbook_030121.mxd



Legend

Copper (Sieved to 2,000 µm)

- > 3,000 mg/kg
- 1,600 - 3,000 mg/kg
- 800 - 1,600 mg/kg
- 400 - 800 mg/kg
- < 400 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

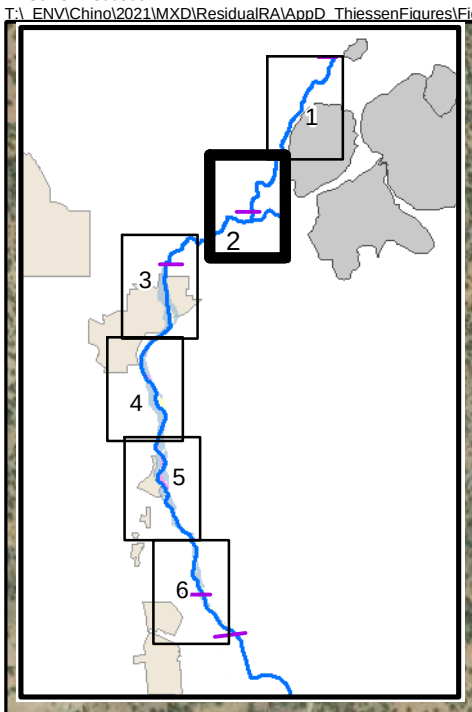
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS
COPPER (ECOLOGICAL) - SHEET 1

ARCADIS

FIGURE
D-5a

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-5_CopperEco_Mapbook_030121.mxd



356

P1

P2

Legend

Copper (Sieved to 2,000 µm)

- > 3,000 mg/kg
- 1,600 - 3,000 mg/kg
- 800 - 1,600 mg/kg
- 400 - 800 mg/kg
- < 400 mg/kg

- Sample Locations
- Physical Reach (P1)
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS
COPPER (ECOLOGICAL) - SHEET 2

ARCADIS

FIGURE
D-5b

PROJECT# 30050314
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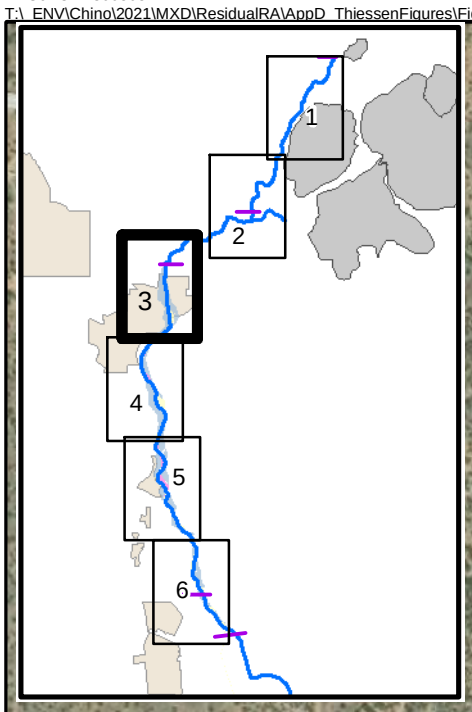


P2

P3

Legend

Copper (Sieved to 2,000 µm)

- > 3,000 mg/kg
- 1,600 - 3,000 mg/kg
- 800 - 1,600 mg/kg
- 400 - 800 mg/kg
- < 400 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

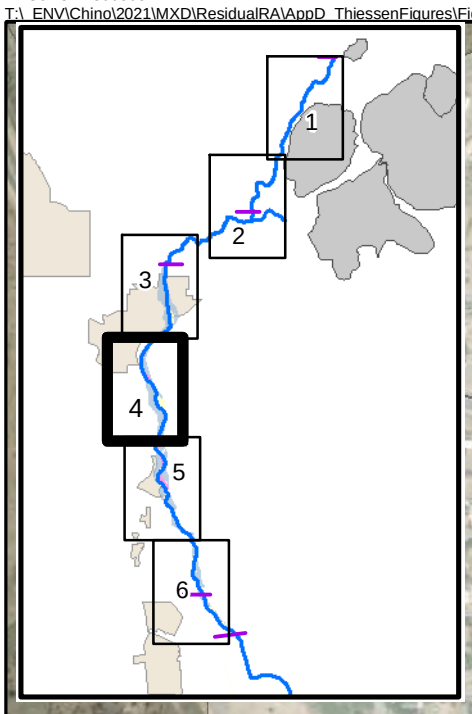
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS
COPPER (ECOLOGICAL) - SHEET 3

ARCADIS

FIGURE
D-5c

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-5_CopperEco_Mapbook_030121.mxd



P3

Legend

Copper (Sieved to 2,000 µm)

- > 3,000 mg/kg
- 1,600 - 3,000 mg/kg
- 800 - 1,600 mg/kg
- 400 - 800 mg/kg
- < 400 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

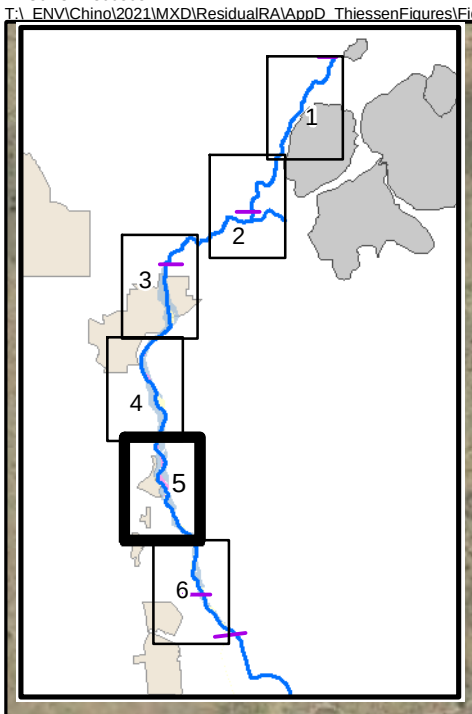
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS
COPPER (ECOLOGICAL) - SHEET 4

ARCADIS

FIGURE
D-5d

PROJECT# 30050314
T:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-5_CopperEco_Mapbook_030121.mxd



P3

Legend

Copper (Sieved to 2,000 µm)

- > 3,000 mg/kg
- 1,600 - 3,000 mg/kg
- 800 - 1,600 mg/kg
- 400 - 800 mg/kg
- < 400 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 250 500
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 5/5/2021.

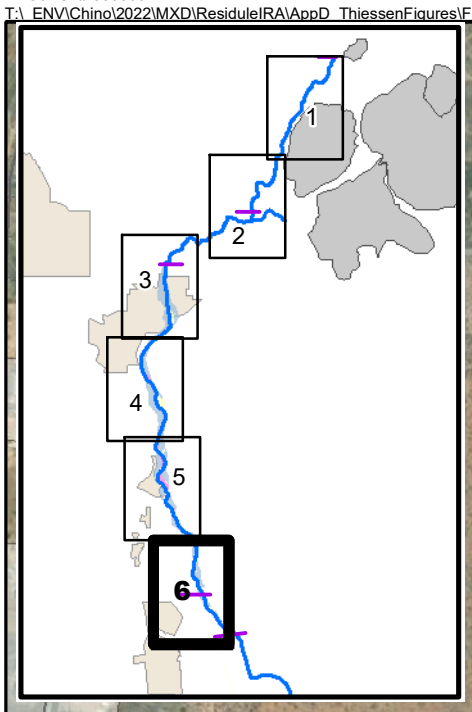
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS
COPPER (ECOLOGICAL) - SHEET 5

ARCADIS

FIGURE
D-5e

PROJECT# 30050314
T:_ENV\Chino\2022\MXD\ResiduleIRA\AppD_ThiessenFigures\FigD-5_CopperEco_Mapbook_July22.mxd



P3

P4

P4

P5

Legend

Copper (Sieved to 2,000 µm)

- > 3,000 mg/kg
- 1,600 - 3,000 mg/kg
- 800 - 1,600 mg/kg
- 400 - 800 mg/kg
- < 400 mg/kg

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel
- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 500 1,000

Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 7/22/2022.

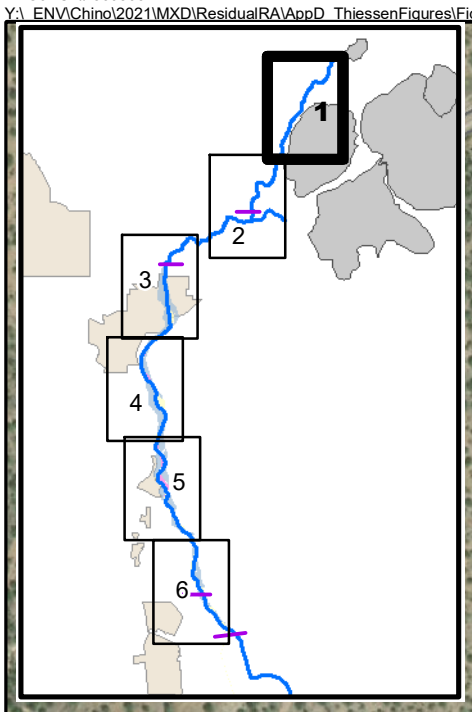
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS
COPPER (ECOLOGICAL) - SHEET 6

ARCADIS

FIGURE
D-5f

PROJECT# 30050314
Y:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-6_pCuEco_Mapbook_030121.mxd



P1

152

WEST
STOCKPILE

Legend

pCu

- < 5
- 5 - 6
- 6 - 7
- > 7

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel

- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 500 1,000
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 3/3/2021.

FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
tHIESSEN POLYGONS - pCu
SHEET 1

ARCADIS

FIGURE
D-6a

PROJECT# 30050314
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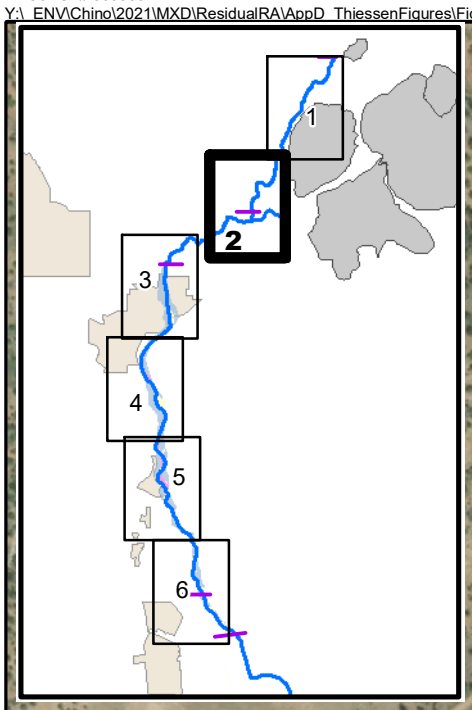


356

P1

P2

Legend

pCu

- < 5
- 5 - 6
- 6 - 7
- > 7

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel

- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 500 1,000

Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 3/3/2021.

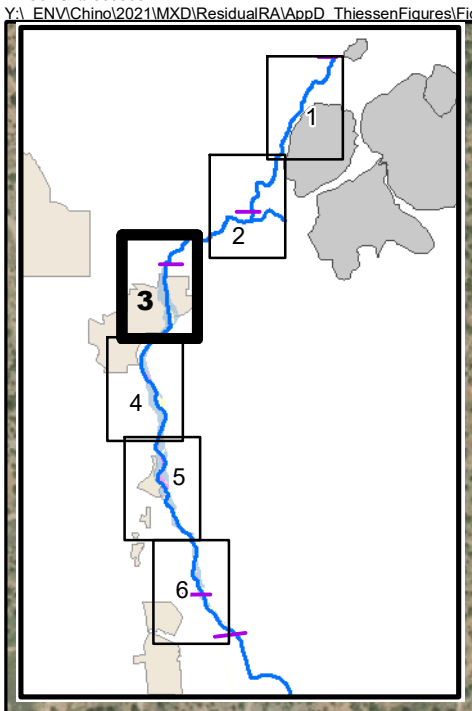
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
tHIESSEN POLYGONS - pCu
SHEET 2

ARCADIS

FIGURE
D-6b

PROJECT# 30050314
Y:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-6_pCuEco_Mapbook_030121.mxd



P2

P3

Legend

pCu

- < 5
- 5 - 6
- 6 - 7
- > 7

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel

- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 500 1,000
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 3/3/2021.

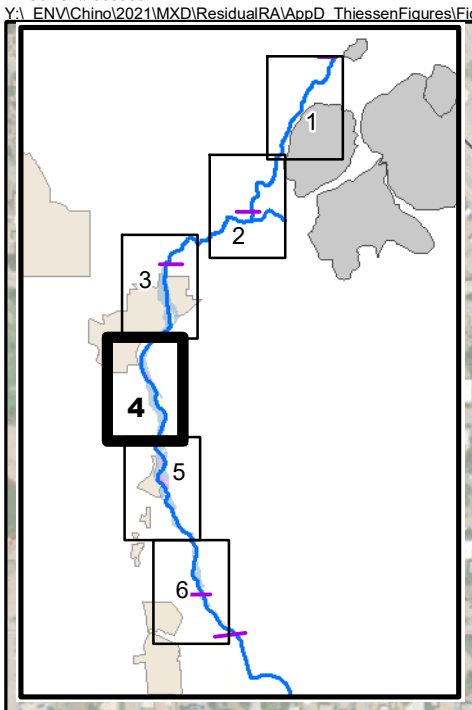
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
tHIESSEN POLYGONS - pCu
SHEET 3

ARCADIS

FIGURE
D-6c

PROJECT# 30050314
Y:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-6_pCuEco_Mapbook_030121.mxd



P3

Legend

pCu

- < 5
- 5 - 6
- 6 - 7
- > 7

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel

- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 500 1,000
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 3/3/2021.

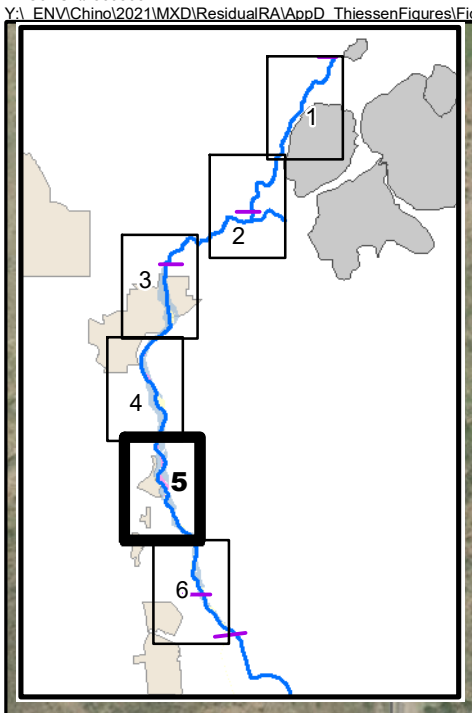
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
tHIESSEN POLYGONS - pCu
SHEET 4

ARCADIS

FIGURE
D-6d

PROJECT# 30050314
Y:_ENV\Chino\2021\MXD\ResidualRA\AppD_ThiessenFigures\FigD-6_pCuEco_Mapbook_030121.mxd



P3

Legend

pCu

- < 5
- 5 - 6
- 6 - 7
- > 7

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel

- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 500 1,000
Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 3/3/2021.

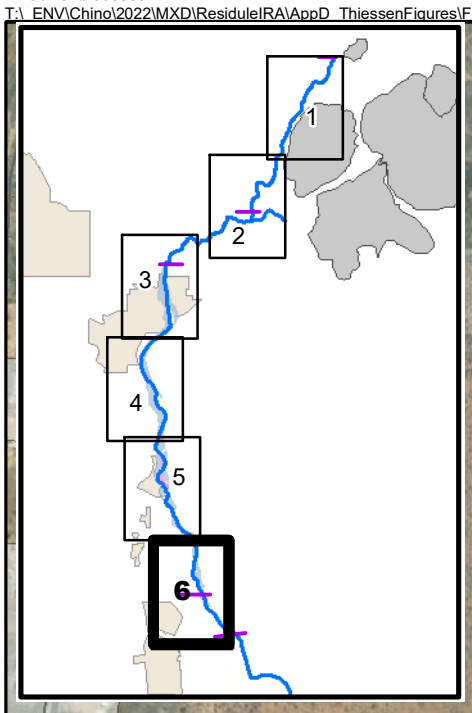
FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
tHIESSEN POLYGONS - pCu
SHEET 5

ARCADIS

FIGURE
D-6e

PROJECT# 30050314
T:_ENV\Chino\2022\MXD\ResiduleIRA\AppD_ThiessenFigures\FigD-6_pCuEco_Mapbook_July22.mxd



P3

P4

P4

P5

Legend

pCu

- < 5
- 5 - 6
- 6 - 7
- > 7

- Sample Locations
- P1 Physical Reach
- HWC Centerline
- HWC Channel

- Major Roads
- Railroad
- Town Roads
- Stockpiles

N

0 500 1,000

Feet

Stream Geomorphic Units: Golder. 2000. AOC Phase I RI Report.
Aerial Basemap: ESRI ArcGIS Online World Imagery Map Service, accessed via ESRI ArcGIS Desktop on 7/22/2022.

FREEPORT-MCMORAN -- CHINO MINES COMPANY
VANADIUM, NM
RESIDUAL RISK ASSESSMENT - APPENDIX D

HANOVER-WHITEWATER CREEK
THIESSEN POLYGONS - pCu
SHEET 6

ARCADIS

FIGURE
D-6f

APPENDIX E

Full Summary Statistics with Method and Statistical Output

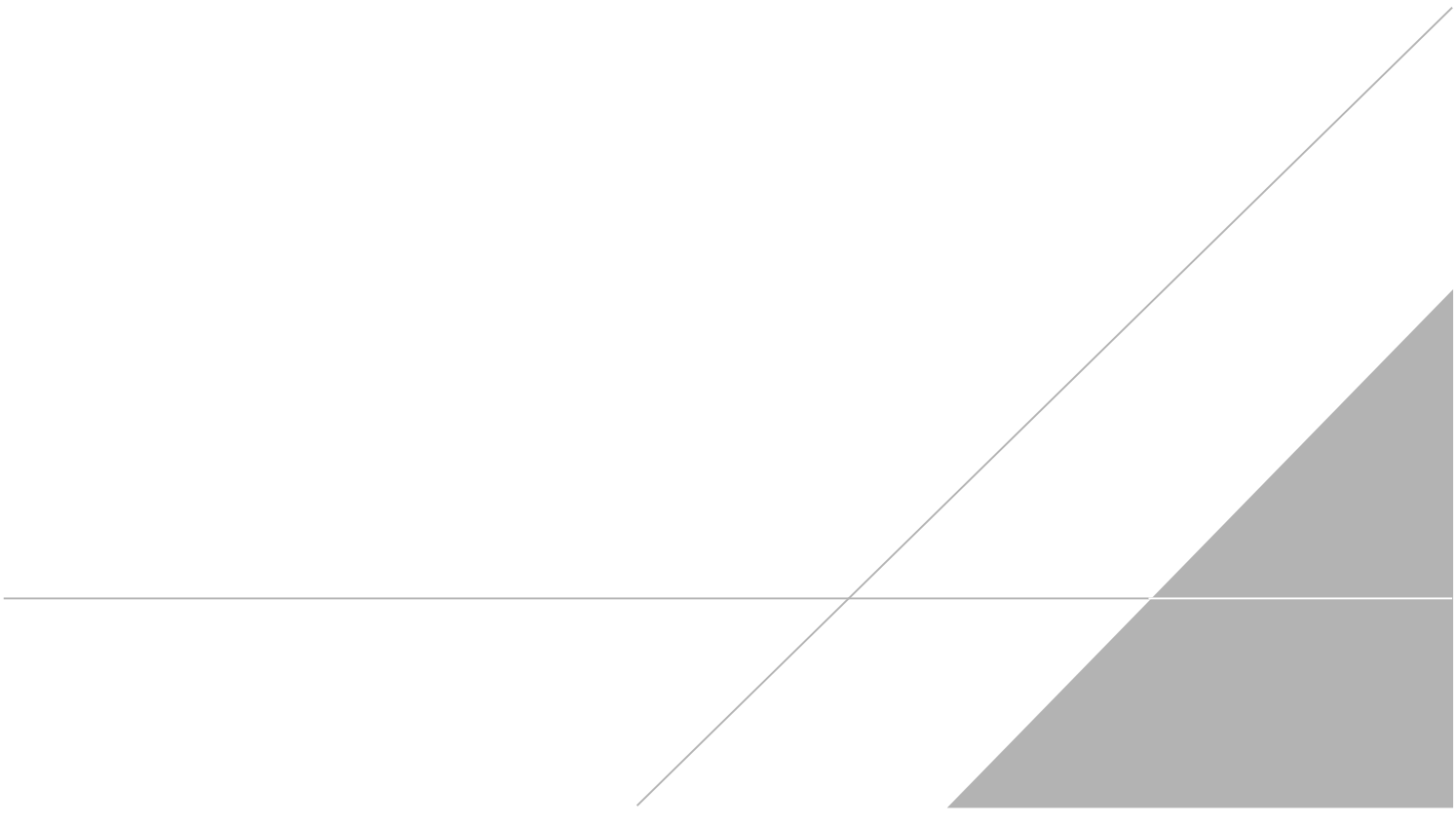


Table E-1. Physical Reaches 1 and 4 - Summary Statistics and 95% Upper Confidence Limits

Analyte	Physical Reach 1 Bar + Overbank							Physical Reach 4 Bar + Overbank					
	N	Average	Min	Max	SD	95UCL	95% UCL Method	N	Average	Min	SD	95UCL	95% UCL Method
Sieve Size <250 µm													
Arsenic	32	7.0	2.8	19.0	4.4	8.2	95% H-UCL	13	5.2	2.7	1.3	5.8	95% Student's-t UCL
Cadmium	32	4.2	1.2	10.6	1.9	4.8	95% KM (t) UCL	13	2.2	1.1	0.7	2.6	95% Student's-t UCL
Copper	32	568	332	1153	164	617	95% Student's-t UCL	13	1124	536	739	1527	95% H-UCL
Iron	32	57655	35612	92401	13996	61850	95% Student's-t UCL	13	32521	16400	9387	37162	95% Student's-t UCL
Lead	32	290	127	1845	300	333	95% H-UCL	13	134	31.0	70	169	95% Student's-t UCL
Manganese	32	1792	815	2780	490	1939	95% Student's-t UCL	13	991	368	413	1490	95% Chebyshev (Mean, Sd) UCL
Sieve Size <2000 µm													
Copper	32	482	271	1040	153	528	95% Student's-t UCL	13	1100	479	718	1537	95% Adjusted Gamma UCL
pCu	32	7.2	4.6	8.2	0.8	7.4	95% Student's-t UCL	13	6.5	5.4	0.5	6.8	95% Student's-t UCL

Table E-2. Physical Reach 2 - Summary Statistics and 95% Upper Confidence Limits

Analyte	Bar							Overbank					
	N	Average	Min	Max	SD	95UCL	95% UCL Method	N	Average	Min	SD	95UCL	95% UCL Method
Sieve Size <250 µm													
Arsenic	110	5.1	1.4	14	2.4	5.5	95% Student's-t UCL	48	4.7	1.8	2.7	5.4	95% Adjusted Gamma UCL
Cadmium	110	3.0	0.4	22	2.4	3.5	95% H-UCL	48	2.7	0.7	1.2	2.9	95% KM (t) UCL
Copper	110	1279	67	11400	1368	1847	95% Chebyshev (Mean, Sd) UCL	48	560	54	536	681	95% Adjusted Gamma UCL
Iron	110	74923	12300	272000	45254	83486	95% H-UCL	48	39378	9432	17025	43501	95% Student's-t UCL
Lead	110	268	47	1014	167	292	95% Approximate Gamma UCL	48	209	24	126	288	95% Chebyshev (Mean, Sd) UCL
Manganese	110	1078	171	4009	628	1177	95% Student's-t UCL	48	1298	182	613	1683	95% Chebyshev (Mean, Sd) UCL
Sieve Size <2000 µm													
Copper	110	1147	48	7800	1139	1621	95% Chebyshev (Mean, Sd) UCL	48	476	89	517	600	95% Adjusted Gamma UCL
pCu	110	5.4	1.8	10.1	1.5	5.7	95% Student's-t UCL	48	7.3	3.4	1.4	7.6	95% Student's-t UCL

Table E-3. Physical Reach 3 - Summary Statistics and 95% Upper Confidence Limits

Analyte	Bar							Overbank					
	N	Average	Min	Max	SD	95UCL	95% UCL Method	N	Average	Min	SD	95UCL	95% UCL Method
Sieve Size <250 µm													
Arsenic	167	6.4	2.2	18	3.5	6.8	95% Student's-t UCL	203	5.6	0.3	1.1	6.6	95% KM (Chebyshev) UCL
Cadmium	167	2.1	0.5	5.5	1.0	2.2	5% KM Approximate Gamma UC	203	2.2	0.3	1.1	2.2	95% KM Approximate Gamma UCL
Copper	167	601	129	1850	297	701	95% Chebyshev (Mean, Sd) UCL	203	663	65	342	769	95% Chebyshev (Mean, Sd) UCL
Iron	167	52393	9432	110192	19729	59048	95% Chebyshev (Mean, Sd) UCL	203	44962	5246	21293	47479	95% Approximate Gamma UCL
Lead	167	210	24	528	99	243	95% Chebyshev (Mean, Sd) UCL	203	196	0.1	115	231	95% Chebyshev (Mean, Sd) UCL
Manganese	167	182	182	3493	432	1182	95% Student's-t UCL	203	1053	202	388	1095	95% Student's-t UCL
Sieve Size <2000 µm													
Copper	167	524	97	2160	280	619	95% Chebyshev (Mean, Sd) UCL	203	586	46	317	684	95% Chebyshev (Mean, Sd) UCL
pCu	167	6.7	3.9	9.2	1.1	6.8	95% Student's-t UCL	203	6.6	2.8	1.3	6.8	95% Student's-t UCL

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.12/23/2021 8:54:50 PM
From File	ProUCL input 2021.02.23.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Copper - 2000um Sieve, Physical Reach 1

General Statistics

Total Number of Observations	32	Number of Distinct Observations	31
		Number of Missing Observations	3
Minimum	271	Mean	481.7
Maximum	1040	Median	453
SD	152.9	Std. Error of Mean	27.03
Coefficient of Variation	0.317	Skewness	1.663

Normal GOF Test

Shapiro Wilk Test Statistic	0.886	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.93	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.135	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.154	Data appear Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	527.6	95% Adjusted-CLT UCL (Chen-1995)	534.7
		95% Modified-t UCL (Johnson-1978)	528.9

Gamma GOF Test

A-D Test Statistic	0.289	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.746	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0933	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.155	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	12.02	k star (bias corrected MLE)	10.91
Theta hat (MLE)	40.08	Theta star (bias corrected MLE)	44.14
nu hat (MLE)	769.3	nu star (bias corrected)	698.5
MLE Mean (bias corrected)	481.7	MLE Sd (bias corrected)	145.8
		Approximate Chi Square Value (0.05)	638.2
Adjusted Level of Significance	0.0416	Adjusted Chi Square Value	635.1

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	527.3	95% Adjusted Gamma UCL (use when n<50)	529.8

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.979	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.93	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0844	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.154	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	5.602	Mean of logged Data	6.135
Maximum of Logged Data	6.947	SD of logged Data	0.288

Assuming Lognormal Distribution

95% H-UCL	528.1	90% Chebyshev (MVUE) UCL	555.4
95% Chebyshev (MVUE) UCL	589.2	97.5% Chebyshev (MVUE) UCL	636.1
99% Chebyshev (MVUE) UCL	728.3		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	526.2	95% Jackknife UCL	527.6
95% Standard Bootstrap UCL	525.7	95% Bootstrap-t UCL	535.3

95% Hall's Bootstrap UCL	550	95% Percentile Bootstrap UCL	529.1
95% BCA Bootstrap UCL	534.2		
90% Chebyshev(Mean, Sd) UCL	562.8	95% Chebyshev(Mean, Sd) UCL	599.6
97.5% Chebyshev(Mean, Sd) UCL	650.5	99% Chebyshev(Mean, Sd) UCL	750.7

Suggested UCL to Use

95% Student's-t UCL 527.6

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Copper - 2000um Sieve, Physical Reach 2

General Statistics

Total Number of Observations	158	Number of Distinct Observations	145
		Number of Missing Observations	0
Minimum	47.68	Mean	948.5
Maximum	7800	Median	669.5
SD	1036	Std. Error of Mean	82.38
Coefficient of Variation	1.092	Skewness	3.663

Normal GOF Test

Shapiro Wilk Test Statistic	0.649	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.234	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0709	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1085	95% Adjusted-CLT UCL (Chen-1995)	1110
		95% Modified-t UCL (Johnson-1978)	1089

Gamma GOF Test

A-D Test Statistic	2.464	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.771	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.12	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0759	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.508	k star (bias corrected MLE)	1.484
Theta hat (MLE)	628.9	Theta star (bias corrected MLE)	639.3
nu hat (MLE)	476.6	nu star (bias corrected)	468.9
MLE Mean (bias corrected)	948.5	MLE Sd (bias corrected)	778.7
		Approximate Chi Square Value (0.05)	419.6
Adjusted Level of Significance	0.0485	Adjusted Chi Square Value	419.2

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1060	95% Adjusted Gamma UCL (use when n<50)	1061

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.978	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0.281	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0676	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.0709	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.865	Mean of logged Data	6.488
Maximum of Logged Data	8.962	SD of logged Data	0.858

Assuming Lognormal Distribution

95% H-UCL	1096	90% Chebyshev (MVUE) UCL	1172
95% Chebyshev (MVUE) UCL	1274	97.5% Chebyshev (MVUE) UCL	1415
99% Chebyshev (MVUE) UCL	1692		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1084	95% Jackknife UCL	1085
95% Standard Bootstrap UCL	1082	95% Bootstrap-t UCL	1136
95% Hall's Bootstrap UCL	1131	95% Percentile Bootstrap UCL	1100
95% BCA Bootstrap UCL	1112		
90% Chebyshev(Mean, Sd) UCL	1196	95% Chebyshev(Mean, Sd) UCL	1308
97.5% Chebyshev(Mean, Sd) UCL	1463	99% Chebyshev(Mean, Sd) UCL	1768

Suggested UCL to Use

95% H-UCL 1096

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Copper - 2000um Sieve, Physical Reach 3

General Statistics

Total Number of Observations	371	Number of Distinct Observations	272
		Number of Missing Observations	0
Minimum	46.4	Mean	558.8
Maximum	2240	Median	494
SD	302.1	Std. Error of Mean	15.68
Coefficient of Variation	0.541	Skewness	1.484

Normal GOF Test

Shapiro Wilk Test Statistic	0.901	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.115	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0464	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	584.7	95% Adjusted-CLT UCL (Chen-1995)	585.9
		95% Modified-t UCL (Johnson-1978)	584.9

Gamma GOF Test

A-D Test Statistic	6.233	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.76	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.121	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0475	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.255	k star (bias corrected MLE)	3.23
Theta hat (MLE)	171.7	Theta star (bias corrected MLE)	173
nu hat (MLE)	2415	nu star (bias corrected)	2397
MLE Mean (bias corrected)	558.8	MLE Sd (bias corrected)	310.9
		Approximate Chi Square Value (0.05)	2284
Adjusted Level of Significance	0.0494	Adjusted Chi Square Value	2284

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	586.4	95% Adjusted Gamma UCL (use when n<50)	586.5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.895	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.157	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.0464	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.837	Mean of logged Data	6.164
Maximum of Logged Data	7.714	SD of logged Data	0.625

Assuming Lognormal Distribution

95% H-UCL	614	90% Chebyshev (MVUE) UCL	638.9
95% Chebyshev (MVUE) UCL	666.7	97.5% Chebyshev (MVUE) UCL	705.2
99% Chebyshev (MVUE) UCL	780.9		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	584.6	95% Jackknife UCL	584.7
95% Standard Bootstrap UCL	583.7	95% Bootstrap-t UCL	586.8
95% Hall's Bootstrap UCL	586.7	95% Percentile Bootstrap UCL	584.5
95% BCA Bootstrap UCL	585.4		
90% Chebyshev(Mean, Sd) UCL	605.9	95% Chebyshev(Mean, Sd) UCL	627.2
97.5% Chebyshev(Mean, Sd) UCL	656.8	99% Chebyshev(Mean, Sd) UCL	714.9

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL 627.2

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Copper - 2000um Sieve, Physical Reach 4

General Statistics

Total Number of Observations	13	Number of Distinct Observations	13
		Number of Missing Observations	0
Minimum	479	Mean	1100
Maximum	3030	Median	936
SD	718.4	Std. Error of Mean	199.2
Coefficient of Variation	0.653	Skewness	2.042

Normal GOF Test

Shapiro Wilk Test Statistic	0.744	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.866	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.302	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.234	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1455	95% Adjusted-CLT UCL (Chen-1995)	1548
		95% Modified-t UCL (Johnson-1978)	1474

Gamma GOF Test

A-D Test Statistic	0.723	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.738	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.224	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.238	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.668	k star (bias corrected MLE)	2.872
Theta hat (MLE)	299.9	Theta star (bias corrected MLE)	383
nu hat (MLE)	95.36	nu star (bias corrected)	74.68
MLE Mean (bias corrected)	1100	MLE Sd (bias corrected)	649.1
		Approximate Chi Square Value (0.05)	55.78
Adjusted Level of Significance	0.0301	Adjusted Chi Square Value	53.46

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	1473	95% Adjusted Gamma UCL (use when n<50)	1537

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.916	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.866	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.187	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.234	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	6.172	Mean of logged Data	6.861
Maximum of Logged Data	8.016	SD of logged Data	0.518

Assuming Lognormal Distribution

95% H-UCL	1501	90% Chebyshev (MVUE) UCL	1557
95% Chebyshev (MVUE) UCL	1774	97.5% Chebyshev (MVUE) UCL	2074
99% Chebyshev (MVUE) UCL	2665		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1428	95% Jackknife UCL	1455
95% Standard Bootstrap UCL	1419	95% Bootstrap-t UCL	1989
95% Hall's Bootstrap UCL	3275	95% Percentile Bootstrap UCL	1452
95% BCA Bootstrap UCL	1523		
90% Chebyshev(Mean, Sd) UCL	1698	95% Chebyshev(Mean, Sd) UCL	1969
97.5% Chebyshev(Mean, Sd) UCL	2344	99% Chebyshev(Mean, Sd) UCL	3082

Suggested UCL to Use

95% Adjusted Gamma UCL	1537

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Copper - 250um Sieve, Physical Reach 1

General Statistics

Total Number of Observations	32	Number of Distinct Observations	31
		Number of Missing Observations	3
Minimum	332.3	Mean	567.9

Maximum	1153	Median	534.4
SD	163.6	Std. Error of Mean	28.92
Coefficient of Variation	0.288	Skewness	1.555

Normal GOF Test

Shapiro Wilk Test Statistic	0.898	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.93	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.114	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.154	Data appear Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	616.9	95% Adjusted-CLT UCL (Chen-1995)	624
		95% Modified-t UCL (Johnson-1978)	618.2

Gamma GOF Test

A-D Test Statistic	0.284	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.746	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0793	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.155	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	14.35	k star (bias corrected MLE)	13.02
Theta hat (MLE)	39.58	Theta star (bias corrected MLE)	43.61
nu hat (MLE)	918.2	nu star (bias corrected)	833.5
MLE Mean (bias corrected)	567.9	MLE Sd (bias corrected)	157.4
		Approximate Chi Square Value (0.05)	767.5
Adjusted Level of Significance	0.0416	Adjusted Chi Square Value	764.1

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	616.7	95% Adjusted Gamma UCL (use when n<50)	619.5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.981	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.93	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0632	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.154	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	5.806	Mean of logged Data	6.307
Maximum of Logged Data	7.05	SD of logged Data	0.264

Assuming Lognormal Distribution

95% H-UCL	617.5	90% Chebyshev (MVUE) UCL	647.4
95% Chebyshev (MVUE) UCL	683.8	97.5% Chebyshev (MVUE) UCL	734.3
99% Chebyshev (MVUE) UCL	833.6		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	615.5	95% Jackknife UCL	616.9
95% Standard Bootstrap UCL	613.9	95% Bootstrap-t UCL	629.1
95% Hall's Bootstrap UCL	637.8	95% Percentile Bootstrap UCL	616.1
95% BCA Bootstrap UCL	627.5		
90% Chebyshev(Mean, Sd) UCL	654.6	95% Chebyshev(Mean, Sd) UCL	693.9
97.5% Chebyshev(Mean, Sd) UCL	748.5	99% Chebyshev(Mean, Sd) UCL	855.6

Suggested UCL to Use

95% Student's-t UCL 616.9

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Copper - 250um Sieve, Physical Reach 2

General Statistics

Total Number of Observations	158	Number of Distinct Observations	149
		Number of Missing Observations	0
Minimum	54	Mean	1060
Maximum	11400	Median	782.9
SD	1223	Std. Error of Mean	97.29
Coefficient of Variation	1.153	Skewness	4.947

Normal GOF Test

Shapiro Wilk Test Statistic	0.599	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.245	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0709	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	1221	95% Adjusted-CLT UCL (Chen-1995)	1261
		95% Modified-t UCL (Johnson-1978)	1228

Gamma GOF Test

A-D Test Statistic	2.605	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.77	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.13	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0758	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.531	k star (bias corrected MLE)	1.506
Theta hat (MLE)	692.5	Theta star (bias corrected MLE)	703.9
nu hat (MLE)	483.8	nu star (bias corrected)	476
MLE Mean (bias corrected)	1060	MLE Sd (bias corrected)	863.9
		Approximate Chi Square Value (0.05)	426.4
Adjusted Level of Significance	0.0485	Adjusted Chi Square Value	426

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1184	95% Adjusted Gamma UCL (use when n<50)	1185

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.973	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0.093	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.081	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.0709	Data Not Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.989	Mean of logged Data	6.605
Maximum of Logged Data	9.341	SD of logged Data	0.852

Assuming Lognormal Distribution

95% H-UCL	1225	90% Chebyshev (MVUE) UCL	1309
95% Chebyshev (MVUE) UCL	1422	97.5% Chebyshev (MVUE) UCL	1579
99% Chebyshev (MVUE) UCL	1887		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1220	95% Jackknife UCL	1221
95% Standard Bootstrap UCL	1223	95% Bootstrap-t UCL	1292
95% Hall's Bootstrap UCL	1354	95% Percentile Bootstrap UCL	1237
95% BCA Bootstrap UCL	1269		
90% Chebyshev(Mean, Sd) UCL	1352	95% Chebyshev(Mean, Sd) UCL	1484
97.5% Chebyshev(Mean, Sd) UCL	1668	99% Chebyshev(Mean, Sd) UCL	2028

Suggested UCL to Use

95% H-UCL	1225

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Copper - 250um Sieve, Physical Reach 3

General Statistics

Total Number of Observations	371	Number of Distinct Observations	302
		Number of Missing Observations	0
Minimum	64.94	Mean	636.1
Maximum	2344	Median	573.6
SD	323.6	Std. Error of Mean	16.8
Coefficient of Variation	0.509	Skewness	1.133

Normal GOF Test

Shapiro Wilk Test Statistic	0.926	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.109	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0464	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	663.8	95% Adjusted-CLT UCL (Chen-1995)	664.7
		95% Modified-t UCL (Johnson-1978)	663.9

Gamma GOF Test

A-D Test Statistic	5.694	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.759	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.11	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0474	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.568	k star (bias corrected MLE)	3.541
Theta hat (MLE)	178.3	Theta star (bias corrected MLE)	179.6
nu hat (MLE)	2647	nu star (bias corrected)	2627
MLE Mean (bias corrected)	636.1	MLE Sd (bias corrected)	338
		Approximate Chi Square Value (0.05)	2509
Adjusted Level of Significance	0.0494	Adjusted Chi Square Value	2509

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	666	95% Adjusted Gamma UCL (use when n<50)	666.1

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.902	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.146	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.0464	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	4.174	Mean of logged Data	6.309
Maximum of Logged Data	7.76	SD of logged Data	0.591

Assuming Lognormal Distribution

95% H-UCL	692.3	90% Chebyshev (MVUE) UCL	719
95% Chebyshev (MVUE) UCL	748.5	97.5% Chebyshev (MVUE) UCL	789.4
99% Chebyshev (MVUE) UCL	869.9		

Nonparametric Distribution Free UCL Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	663.7	95% Jackknife UCL	663.8
95% Standard Bootstrap UCL	662.8	95% Bootstrap-t UCL	665.5

95% Hall's Bootstrap UCL	664.9	95% Percentile Bootstrap UCL	663.4
95% BCA Bootstrap UCL	662.8		
90% Chebyshev(Mean, Sd) UCL	686.5	95% Chebyshev(Mean, Sd) UCL	709.3
97.5% Chebyshev(Mean, Sd) UCL	741	99% Chebyshev(Mean, Sd) UCL	803.2

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL 709.3

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Copper - 250um Sieve, Physical Reach 4

General Statistics

Total Number of Observations	13	Number of Distinct Observations	13
		Number of Missing Observations	0
Minimum	536	Mean	1124
Maximum	3100	Median	993
SD	738.8	Std. Error of Mean	204.9
Coefficient of Variation	0.657	Skewness	2.073

Normal GOF Test

Shapiro Wilk Test Statistic	0.718	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.866	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.347	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.234	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1489	95% Adjusted-CLT UCL (Chen-1995)	1587
		95% Modified-t UCL (Johnson-1978)	1509

Gamma GOF Test

A-D Test Statistic	0.897	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.738	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.278	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.238	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.682	k star (bias corrected MLE)	2.884
Theta hat (MLE)	305.3	Theta star (bias corrected MLE)	389.8
nu hat (MLE)	95.73	nu star (bias corrected)	74.97
MLE Mean (bias corrected)	1124	MLE Sd (bias corrected)	661.9
		Approximate Chi Square Value (0.05)	56.03
Adjusted Level of Significance	0.0301	Adjusted Chi Square Value	53.7

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1504	95% Adjusted Gamma UCL (use when n<50)	1569

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.882	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.866	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.239	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.234	Data Not Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	6.284	Mean of logged Data	6.883
Maximum of Logged Data	8.039	SD of logged Data	0.514

Assuming Lognormal Distribution

95% H-UCL	1527	90% Chebyshev (MVUE) UCL	1585
95% Chebyshev (MVUE) UCL	1804	97.5% Chebyshev (MVUE) UCL	2109
99% Chebyshev (MVUE) UCL	2706		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1461	95% Jackknife UCL	1489
95% Standard Bootstrap UCL	1442	95% Bootstrap-t UCL	2182
95% Hall's Bootstrap UCL	3559	95% Percentile Bootstrap UCL	1487
95% BCA Bootstrap UCL	1545		
90% Chebyshev(Mean, Sd) UCL	1739	95% Chebyshev(Mean, Sd) UCL	2017
97.5% Chebyshev(Mean, Sd) UCL	2404	99% Chebyshev(Mean, Sd) UCL	3163

Suggested UCL to Use

95% H-UCL 1527

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.

H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.

It is therefore recommended to avoid the use of H-statistic based 95% UCLs.

Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Iron - 250um Sieve, Physical Reach 1

General Statistics

Total Number of Observations	32	Number of Distinct Observations	32
		Number of Missing Observations	3
Minimum	35612	Mean	57655
Maximum	92401	Median	54614
SD	13996	Std. Error of Mean	2474
Coefficient of Variation	0.243	Skewness	0.716

Normal GOF Test

Shapiro Wilk Test Statistic	0.954	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.93	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.116	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.154	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	61850	95% Adjusted-CLT UCL (Chen-1995)	62060
		95% Modified-t UCL (Johnson-1978)	61903

Gamma GOF Test

A-D Test Statistic	0.202	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.745	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0899	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.155	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	18.37	k star (bias corrected MLE)	16.67
Theta hat (MLE)	3139	Theta star (bias corrected MLE)	3459
nu hat (MLE)	1176	nu star (bias corrected)	1067
MLE Mean (bias corrected)	57655	MLE Sd (bias corrected)	14122
		Approximate Chi Square Value (0.05)	992
Adjusted Level of Significance	0.0416	Adjusted Chi Square Value	988.1

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	62004	95% Adjusted Gamma UCL (use when n<50)	62245

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.984	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.93	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0753	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.154	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	10.48	Mean of logged Data	10.93
Maximum of Logged Data	11.43	SD of logged Data	0.237

Assuming Lognormal Distribution

95% H-UCL	62177	90% Chebyshev (MVUE) UCL	64953
95% Chebyshev (MVUE) UCL	68267	97.5% Chebyshev (MVUE) UCL	72867
99% Chebyshev (MVUE) UCL	81902		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	61725	95% Jackknife UCL	61850
95% Standard Bootstrap UCL	61663	95% Bootstrap-t UCL	62163
95% Hall's Bootstrap UCL	62044	95% Percentile Bootstrap UCL	61543
95% BCA Bootstrap UCL	61987		
90% Chebyshev(Mean, Sd) UCL	65078	95% Chebyshev(Mean, Sd) UCL	68440
97.5% Chebyshev(Mean, Sd) UCL	73107	99% Chebyshev(Mean, Sd) UCL	82273

Suggested UCL to Use

95% Student's-t UCL 61850

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Iron - 250um Sieve, Physical Reach 2

General Statistics

Total Number of Observations	158	Number of Distinct Observations	149
		Number of Missing Observations	0
Minimum	9432	Mean	64124
Maximum	272000	Median	52337
SD	42160	Std. Error of Mean	3354
Coefficient of Variation	0.657	Skewness	1.99

Normal GOF Test

Shapiro Wilk Test Statistic	0.828	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.178	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0709	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	69674	95% Adjusted-CLT UCL (Chen-1995)	70209
		95% Modified-t UCL (Johnson-1978)	69763

Gamma GOF Test

A-D Test Statistic	1.713	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.76	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0984	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.075	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.928	k star (bias corrected MLE)	2.877
Theta hat (MLE)	21898	Theta star (bias corrected MLE)	22289
nu hat (MLE)	925.4	nu star (bias corrected)	909.1
MLE Mean (bias corrected)	64124	MLE Sd (bias corrected)	37806
		Approximate Chi Square Value (0.05)	840.1
Adjusted Level of Significance	0.0485	Adjusted Chi Square Value	839.5

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	69390	95% Adjusted Gamma UCL (use when n<50)	69439

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.975	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0.145	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.077	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.0709	Data Not Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	9.152	Mean of logged Data	10.89
Maximum of Logged Data	12.51	SD of logged Data	0.607

Assuming Lognormal Distribution

95% H-UCL	70600	90% Chebyshev (MVUE) UCL	74397
95% Chebyshev (MVUE) UCL	78970	97.5% Chebyshev (MVUE) UCL	85318
99% Chebyshev (MVUE) UCL	97787		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	69641	95% Jackknife UCL	69674
95% Standard Bootstrap UCL	69696	95% Bootstrap-t UCL	70266
95% Hall's Bootstrap UCL	70478	95% Percentile Bootstrap UCL	69536
95% BCA Bootstrap UCL	69889		
90% Chebyshev(Mean, Sd) UCL	74187	95% Chebyshev(Mean, Sd) UCL	78745
97.5% Chebyshev(Mean, Sd) UCL	85071	99% Chebyshev(Mean, Sd) UCL	97497

Suggested UCL to Use

95% H-UCL 70600

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Iron - 250um Sieve, Physical Reach 3

General Statistics

Total Number of Observations	371	Number of Distinct Observations	294
		Number of Missing Observations	0
Minimum	5246	Mean	48226
Maximum	155859	Median	48766
SD	20949	Std. Error of Mean	1088
Coefficient of Variation	0.434	Skewness	0.473

Normal GOF Test

Shapiro Wilk Test Statistic	0.973	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	0.00403	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.0402	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0464	Data appear Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	50020	95% Adjusted-CLT UCL (Chen-1995)	50044
		95% Modified-t UCL (Johnson-1978)	50024

Gamma GOF Test

A-D Test Statistic	5.641	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.758	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0967	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0474	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.286	k star (bias corrected MLE)	4.253
Theta hat (MLE)	11253	Theta star (bias corrected MLE)	11340
nu hat (MLE)	3180	nu star (bias corrected)	3156
MLE Mean (bias corrected)	48226	MLE Sd (bias corrected)	23385
		Approximate Chi Square Value (0.05)	3026
Adjusted Level of Significance	0.0494	Adjusted Chi Square Value	3026

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	50291	95% Adjusted Gamma UCL (use when n<50)	50299

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.892	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.127	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.0464	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	8.565	Mean of logged Data	10.66
Maximum of Logged Data	11.96	SD of logged Data	0.546

Assuming Lognormal Distribution

95% H-UCL	52220	90% Chebyshev (MVUE) UCL	54082
95% Chebyshev (MVUE) UCL	56126	97.5% Chebyshev (MVUE) UCL	58963
99% Chebyshev (MVUE) UCL	64536		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	50015	95% Jackknife UCL	50020
95% Standard Bootstrap UCL	50038	95% Bootstrap-t UCL	50075
95% Hall's Bootstrap UCL	50087	95% Percentile Bootstrap UCL	49993
95% BCA Bootstrap UCL	49961		
90% Chebyshev(Mean, Sd) UCL	51489	95% Chebyshev(Mean, Sd) UCL	52967
97.5% Chebyshev(Mean, Sd) UCL	55018	99% Chebyshev(Mean, Sd) UCL	59048

Suggested UCL to Use

95% Student's-t UCL 50020

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Iron - 250um Sieve, Physical Reach 4

General Statistics

Total Number of Observations	13	Number of Distinct Observations	13
		Number of Missing Observations	0
Minimum	16400	Mean	32521
Maximum	45052	Median	34300
SD	9387	Std. Error of Mean	2604
Coefficient of Variation	0.289	Skewness	-0.404

Normal GOF Test

Shapiro Wilk Test Statistic	0.924	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.167	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.234	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	37162	95% Adjusted-CLT UCL (Chen-1995)	36492
		95% Modified-t UCL (Johnson-1978)	37113

Gamma GOF Test

A-D Test Statistic	0.599	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.734	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.195	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.237	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	11.37	k star (bias corrected MLE)	8.799
Theta hat (MLE)	2860	Theta star (bias corrected MLE)	3696
nu hat (MLE)	295.7	nu star (bias corrected)	228.8
MLE Mean (bias corrected)	32521	MLE Sd (bias corrected)	10963
		Approximate Chi Square Value (0.05)	194.8
Adjusted Level of Significance	0.0301	Adjusted Chi Square Value	190.3

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	38200	95% Adjusted Gamma UCL (use when n<50)	39098

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.891	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.866	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.213	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.234	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	9.705	Mean of logged Data	10.35
Maximum of Logged Data	10.72	SD of logged Data	0.323

Assuming Lognormal Distribution

95% H-UCL	39239	90% Chebyshev (MVUE) UCL	41516
95% Chebyshev (MVUE) UCL	45539	97.5% Chebyshev (MVUE) UCL	51122
99% Chebyshev (MVUE) UCL	62090		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	36804	95% Jackknife UCL	37162
95% Standard Bootstrap UCL	36653	95% Bootstrap-t UCL	36838
95% Hall's Bootstrap UCL	36262	95% Percentile Bootstrap UCL	36622
95% BCA Bootstrap UCL	36469		
90% Chebyshev(Mean, Sd) UCL	40332	95% Chebyshev(Mean, Sd) UCL	43870
97.5% Chebyshev(Mean, Sd) UCL	48781	99% Chebyshev(Mean, Sd) UCL	58427

Suggested UCL to Use

95% Student's-t UCL 37162

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

Lead - 250um Sieve, Physical Reach 1

General Statistics

Total Number of Observations	32	Number of Distinct Observations	32
		Number of Missing Observations	3
Minimum	126.7	Mean	290.2
Maximum	1845	Median	212.8
SD	300.4	Std. Error of Mean	53.1
Coefficient of Variation	1.035	Skewness	4.736

Normal GOF Test

Shapiro Wilk Test Statistic	0.459	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.93	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.293	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.154	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	380.3	95% Adjusted-CLT UCL (Chen-1995)	425.1
		95% Modified-t UCL (Johnson-1978)	387.7

Gamma GOF Test

A-D Test Statistic	1.974	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.755	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.174	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.157	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.624	k star (bias corrected MLE)	2.399
Theta hat (MLE)	110.6	Theta star (bias corrected MLE)	121
nu hat (MLE)	167.9	nu star (bias corrected)	153.5
MLE Mean (bias corrected)	290.2	MLE Sd (bias corrected)	187.4
		Approximate Chi Square Value (0.05)	125.9
Adjusted Level of Significance	0.0416	Adjusted Chi Square Value	124.6

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	354	95% Adjusted Gamma UCL (use when n<50)	357.8

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.853	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.93	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.125	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.154	Data appear Lognormal at 5% Significance Level	

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	4.842	Mean of logged Data	5.468
Maximum of Logged Data	7.52	SD of logged Data	0.542

Assuming Lognormal Distribution

95% H-UCL	332.5	90% Chebyshev (MVUE) UCL	355.8
95% Chebyshev (MVUE) UCL	393.2	97.5% Chebyshev (MVUE) UCL	445.1
99% Chebyshev (MVUE) UCL	547.2		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	377.6	95% Jackknife UCL	380.3
95% Standard Bootstrap UCL	378.7	95% Bootstrap-t UCL	522.5
95% Hall's Bootstrap UCL	712.2	95% Percentile Bootstrap UCL	391.3
95% BCA Bootstrap UCL	453.2		
90% Chebyshev(Mean, Sd) UCL	449.5	95% Chebyshev(Mean, Sd) UCL	521.7
97.5% Chebyshev(Mean, Sd) UCL	621.9	99% Chebyshev(Mean, Sd) UCL	818.6

Suggested UCL to Use

95% H-UCL	332.5

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Lead - 250um Sieve, Physical Reach 2

General Statistics

Total Number of Observations	158	Number of Distinct Observations	136
		Number of Missing Observations	0
Minimum	23.9	Mean	249.6
Maximum	1014	Median	210.8
SD	157.5	Std. Error of Mean	12.53
Coefficient of Variation	0.631	Skewness	2.084

Normal GOF Test

Shapiro Wilk Test Statistic	0.83	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.139	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0709	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	270.3	95% Adjusted-CLT UCL (Chen-1995)	272.4
		95% Modified-t UCL (Johnson-1978)	270.7

Gamma GOF Test

A-D Test Statistic	1.87	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.76	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0808	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.075	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.93	k star (bias corrected MLE)	2.878
Theta hat (MLE)	85.2	Theta star (bias corrected MLE)	86.72
nu hat (MLE)	925.8	nu star (bias corrected)	909.6
MLE Mean (bias corrected)	249.6	MLE Sd (bias corrected)	147.1
		Approximate Chi Square Value (0.05)	840.6
Adjusted Level of Significance	0.0485	Adjusted Chi Square Value	840

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	270.1	95% Adjusted Gamma UCL (use when n<50)	270.3

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.933	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	1.6748E-8	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.116	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.0709	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.174	Mean of logged Data	5.34
Maximum of Logged Data	6.922	SD of logged Data	0.639

Assuming Lognormal Distribution

95% H-UCL	281.9	90% Chebyshev (MVUE) UCL	297.7
95% Chebyshev (MVUE) UCL	317	97.5% Chebyshev (MVUE) UCL	343.7
99% Chebyshev (MVUE) UCL	396.1		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	270.2	95% Jackknife UCL	270.3
95% Standard Bootstrap UCL	269.8	95% Bootstrap-t UCL	273.6
95% Hall's Bootstrap UCL	273.8	95% Percentile Bootstrap UCL	269.9
95% BCA Bootstrap UCL	272.5		
90% Chebyshev(Mean, Sd) UCL	287.2	95% Chebyshev(Mean, Sd) UCL	304.2
97.5% Chebyshev(Mean, Sd) UCL	327.9	99% Chebyshev(Mean, Sd) UCL	374.3

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	304.2

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Lead - 250um Sieve, Physical Reach 3

General Statistics

Total Number of Observations	371	Number of Distinct Observations	256
		Number of Missing Observations	0
Minimum	0.081	Mean	201.9
Maximum	559.4	Median	205
SD	108.3	Std. Error of Mean	5.622
Coefficient of Variation	0.536	Skewness	0.39

Normal GOF Test

Shapiro Wilk Test Statistic	0.953	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	1.290E-12	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.0569	**Lilliefors GOF Test**

5% Lilliefors Critical Value	0.0464	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	211.2	95% Adjusted-CLT UCL (Chen-1995)	211.3
		95% Modified-t UCL (Johnson-1978)	211.2

Gamma GOF Test

A-D Test Statistic	13.09	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.765	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.15	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0477	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.222	k star (bias corrected MLE)	2.206
Theta hat (MLE)	90.87	Theta star (bias corrected MLE)	91.53
nu hat (MLE)	1649	nu star (bias corrected)	1637
MLE Mean (bias corrected)	201.9	MLE Sd (bias corrected)	135.9
		Approximate Chi Square Value (0.05)	1544
Adjusted Level of Significance	0.0494	Adjusted Chi Square Value	1543

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	214	95% Adjusted Gamma UCL (use when n<50)	214.1

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.792	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.2	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.0464	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-2.513	Mean of logged Data	5.066
Maximum of Logged Data	6.327	SD of logged Data	0.887

Assuming Lognormal Distribution

95% H-UCL	258.1	90% Chebyshev (MVUE) UCL	272.6
95% Chebyshev (MVUE) UCL	289.9	97.5% Chebyshev (MVUE) UCL	313.8
99% Chebyshev (MVUE) UCL	360.8		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	211.1	95% Jackknife UCL	211.2
95% Standard Bootstrap UCL	211.3	95% Bootstrap-t UCL	211.1
95% Hall's Bootstrap UCL	211.2	95% Percentile Bootstrap UCL	210.9
95% BCA Bootstrap UCL	211.8		
90% Chebyshev(Mean, Sd) UCL	218.8	95% Chebyshev(Mean, Sd) UCL	226.4
97.5% Chebyshev(Mean, Sd) UCL	237	99% Chebyshev(Mean, Sd) UCL	257.8

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL 226.4

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Lead - 250um Sieve, Physical Reach 4

General Statistics

Total Number of Observations	13	Number of Distinct Observations	13
		Number of Missing Observations	0
Minimum	30.96	Mean	134.4
Maximum	214	Median	156.4

SD	70.01	Std. Error of Mean	19.42
Coefficient of Variation	0.521	Skewness	-0.546

Normal GOF Test

Shapiro Wilk Test Statistic	0.849	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.186	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.234	Data appear Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	169	95% Adjusted-CLT UCL (Chen-1995)	163.2
		95% Modified-t UCL (Johnson-1978)	168.5

Gamma GOF Test

A-D Test Statistic	1.147	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.74	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.242	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.239	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.675	k star (bias corrected MLE)	2.109
Theta hat (MLE)	50.25	Theta star (bias corrected MLE)	63.73
nu hat (MLE)	69.56	nu star (bias corrected)	54.84
MLE Mean (bias corrected)	134.4	MLE Sd (bias corrected)	92.56
		Approximate Chi Square Value (0.05)	38.82
Adjusted Level of Significance	0.0301	Adjusted Chi Square Value	36.91

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	189.9	95% Adjusted Gamma UCL (use when n<50)	199.7

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.789	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.866	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.273	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.234	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.433	Mean of logged Data	4.703
Maximum of Logged Data	5.366	SD of logged Data	0.734

Assuming Lognormal Distribution

95% H-UCL	241.1	90% Chebyshev (MVUE) UCL	231.1
95% Chebyshev (MVUE) UCL	272	97.5% Chebyshev (MVUE) UCL	328.8
99% Chebyshev (MVUE) UCL	440.3		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	166.4	95% Jackknife UCL	169
95% Standard Bootstrap UCL	165.2	95% Bootstrap-t UCL	165.5
95% Hall's Bootstrap UCL	161.4	95% Percentile Bootstrap UCL	164.5
95% BCA Bootstrap UCL	163.5		
90% Chebyshev(Mean, Sd) UCL	192.7	95% Chebyshev(Mean, Sd) UCL	219.1
97.5% Chebyshev(Mean, Sd) UCL	255.7	99% Chebyshev(Mean, Sd) UCL	327.6

Suggested UCL to Use

95% Student's-t UCL 169

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test

When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

Manganese - 250um Sieve, Physical Reach 1

General Statistics

Total Number of Observations	32	Number of Distinct Observations	30
		Number of Missing Observations	3
Minimum	814.7	Mean	1792
Maximum	2780	Median	1721
SD	490.1	Std. Error of Mean	86.64
Coefficient of Variation	0.273	Skewness	-0.0466

Normal GOF Test

Shapiro Wilk Test Statistic	0.979	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.93	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0888	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.154	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1939	95% Adjusted-CLT UCL (Chen-1995)	1934
		95% Modified-t UCL (Johnson-1978)	1939

Gamma GOF Test

A-D Test Statistic	0.365	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.746	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.103	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.155	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	12.4	k star (bias corrected MLE)	11.26
Theta hat (MLE)	144.6	Theta star (bias corrected MLE)	159.2
nu hat (MLE)	793.6	nu star (bias corrected)	720.5
MLE Mean (bias corrected)	1792	MLE Sd (bias corrected)	534.2
		Approximate Chi Square Value (0.05)	659.2
Adjusted Level of Significance	0.0416	Adjusted Chi Square Value	656.1

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1959	95% Adjusted Gamma UCL (use when n<50)	1968

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.937	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.93	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.125	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.154	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	6.703	Mean of logged Data	7.45
Maximum of Logged Data	7.93	SD of logged Data	0.302

Assuming Lognormal Distribution

95% H-UCL	1985	90% Chebyshev (MVUE) UCL	2091
95% Chebyshev (MVUE) UCL	2224	97.5% Chebyshev (MVUE) UCL	2409
99% Chebyshev (MVUE) UCL	2771		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1935	95% Jackknife UCL	1939
95% Standard Bootstrap UCL	1932	95% Bootstrap-t UCL	1937
95% Hall's Bootstrap UCL	1941	95% Percentile Bootstrap UCL	1933
95% BCA Bootstrap UCL	1930		
90% Chebyshev(Mean, Sd) UCL	2052	95% Chebyshev(Mean, Sd) UCL	2170
97.5% Chebyshev(Mean, Sd) UCL	2333	99% Chebyshev(Mean, Sd) UCL	2654

Suggested UCL to Use

95% Student's-t UCL 1939

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

Manganese - 250um Sieve, Physical Reach 2

General Statistics

Total Number of Observations	158	Number of Distinct Observations	144
		Number of Missing Observations	0
Minimum	171.1	Mean	1145
Maximum	4009	Median	1109
SD	629.4	Std. Error of Mean	50.08
Coefficient of Variation	0.55	Skewness	1.147

Normal GOF Test

Shapiro Wilk Test Statistic	0.924	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	1.784E-10	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.068	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0709	Data appear Normal at 5% Significance Level	

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1227	95% Adjusted-CLT UCL (Chen-1995)	1232
		95% Modified-t UCL (Johnson-1978)	1228

Gamma GOF Test

A-D Test Statistic	1.644	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.759	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.085	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.075	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.05	k star (bias corrected MLE)	2.996
Theta hat (MLE)	375.3	Theta star (bias corrected MLE)	382.1
nu hat (MLE)	963.7	nu star (bias corrected)	946.7
MLE Mean (bias corrected)	1145	MLE Sd (bias corrected)	661.3
		Approximate Chi Square Value (0.05)	876.3
Adjusted Level of Significance	0.0485	Adjusted Chi Square Value	875.7

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1237	95% Adjusted Gamma UCL (use when n<50)	1237

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.928	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk P Value	1.1969E-9	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.108	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.0709	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	5.142	Mean of logged Data	6.87
Maximum of Logged Data	8.296	SD of logged Data	0.64

Assuming Lognormal Distribution

95% H-UCL	1303	90% Chebyshev (MVUE) UCL	1376
95% Chebyshev (MVUE) UCL	1465	97.5% Chebyshev (MVUE) UCL	1589
99% Chebyshev (MVUE) UCL	1832		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1227	95% Jackknife UCL	1227
95% Standard Bootstrap UCL	1227	95% Bootstrap-t UCL	1232
95% Hall's Bootstrap UCL	1235	95% Percentile Bootstrap UCL	1225
95% BCA Bootstrap UCL	1227		
90% Chebyshev(Mean, Sd) UCL	1295	95% Chebyshev(Mean, Sd) UCL	1363
97.5% Chebyshev(Mean, Sd) UCL	1457	99% Chebyshev(Mean, Sd) UCL	1643

Suggested UCL to Use

95% Student's-t UCL 1227

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Manganese - 250um Sieve, Physical Reach 3

General Statistics

Total Number of Observations	371	Number of Distinct Observations	248
		Number of Missing Observations	0
Minimum	181.8	Mean	1084
Maximum	3493	Median	1063
SD	410	Std. Error of Mean	21.28
Coefficient of Variation	0.378	Skewness	0.807

Normal GOF Test

Shapiro Wilk Test Statistic	0.962	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	1.8465E-7	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0398	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0464	Data appear Normal at 5% Significance Level	

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1119	95% Adjusted-CLT UCL (Chen-1995)	1120
		95% Modified-t UCL (Johnson-1978)	1120

Gamma GOF Test

A-D Test Statistic	3.483	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.071	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.0473	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	6.395	k star (bias corrected MLE)	6.345
Theta hat (MLE)	169.6	Theta star (bias corrected MLE)	170.9
nu hat (MLE)	4745	nu star (bias corrected)	4708
MLE Mean (bias corrected)	1084	MLE Sd (bias corrected)	430.5
		Approximate Chi Square Value (0.05)	4550
Adjusted Level of Significance	0.0494	Adjusted Chi Square Value	4549

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1122	95% Adjusted Gamma UCL (use when n<50)	1122

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.933	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0969	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.0464	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	5.203	Mean of logged Data	6.909
Maximum of Logged Data	8.159	SD of logged Data	0.427

Assuming Lognormal Distribution

95% H-UCL	1140	90% Chebyshev (MVUE) UCL	1172
95% Chebyshev (MVUE) UCL	1206	97.5% Chebyshev (MVUE) UCL	1254
99% Chebyshev (MVUE) UCL	1348		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1119	95% Jackknife UCL	1119
95% Standard Bootstrap UCL	1119	95% Bootstrap-t UCL	1121
95% Hall's Bootstrap UCL	1120	95% Percentile Bootstrap UCL	1118
95% BCA Bootstrap UCL	1120		
90% Chebyshev(Mean, Sd) UCL	1148	95% Chebyshev(Mean, Sd) UCL	1177
97.5% Chebyshev(Mean, Sd) UCL	1217	99% Chebyshev(Mean, Sd) UCL	1296

Suggested UCL to Use

95% Student's-t UCL 1119

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Manganese - 250um Sieve, Physical Reach 4

General Statistics

Total Number of Observations	13	Number of Distinct Observations	13
		Number of Missing Observations	0
Minimum	368	Mean	990.8
Maximum	1470	Median	1180
SD	412.6	Std. Error of Mean	114.4
Coefficient of Variation	0.416	Skewness	-0.726

Normal GOF Test

Shapiro Wilk Test Statistic	0.785	**Shapiro Wilk GOF Test**	

5% Shapiro Wilk Critical Value	0.866	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.333	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.234	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1195	95% Adjusted-CLT UCL (Chen-1995)	1154
		95% Modified-t UCL (Johnson-1978)	1191

Gamma GOF Test

A-D Test Statistic	1.689	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.736	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.37	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.238	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.584	k star (bias corrected MLE)	3.577
Theta hat (MLE)	216.2	Theta star (bias corrected MLE)	277
nu hat (MLE)	119.2	nu star (bias corrected)	93.01
MLE Mean (bias corrected)	990.8	MLE Sd (bias corrected)	523.9
		Approximate Chi Square Value (0.05)	71.77
Adjusted Level of Significance	0.0301	Adjusted Chi Square Value	69.11

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1284	95% Adjusted Gamma UCL (use when n<50)	1333

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.736	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.866	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.373	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.234	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	5.908	Mean of logged Data	6.786
Maximum of Logged Data	7.293	SD of logged Data	0.537

Assuming Lognormal Distribution

95% H-UCL	1429	90% Chebyshev (MVUE) UCL	1475
95% Chebyshev (MVUE) UCL	1685	97.5% Chebyshev (MVUE) UCL	1978
99% Chebyshev (MVUE) UCL	2552		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	1179	95% Jackknife UCL	1195
95% Standard Bootstrap UCL	1177	95% Bootstrap-t UCL	1176

95% Hall's Bootstrap UCL	1150	95% Percentile Bootstrap UCL	1158
95% BCA Bootstrap UCL	1166		
90% Chebyshev(Mean, Sd) UCL	1334	95% Chebyshev(Mean, Sd) UCL	1490
97.5% Chebyshev(Mean, Sd) UCL	1706	99% Chebyshev(Mean, Sd) UCL	2129

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL 1490

Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.12/18/2023 2:02:22 PM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

pCu - 2000um Sieve, Physical Reach 1

General Statistics

Total Number of Observations	32	Number of Distinct Observations	32
		Number of Missing Observations	3
Minimum	4.559	Mean	7.187
Maximum	8.245	Median	7.297
SD	0.817	Std. Error of Mean	0.144
Coefficient of Variation	0.114	Skewness	-2.125

Normal GOF Test

Shapiro Wilk Test Statistic	0.749	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.93	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.268	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.154	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	7.432	95% Adjusted-CLT UCL (Chen-1995)	7.367
		95% Modified-t UCL (Johnson-1978)	7.423

Gamma GOF Test

A-D Test Statistic	3.377	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.745	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.288	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.155	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	66.01	k star (bias corrected MLE)	59.85

Theta hat (MLE)	0.109	Theta star (bias corrected MLE)	0.12
nu hat (MLE)	4225	nu star (bias corrected)	3830
MLE Mean (bias corrected)	7.187	MLE Sd (bias corrected)	0.929
		Approximate Chi Square Value (0.05)	3687
Adjusted Level of Significance	0.0416	Adjusted Chi Square Value	3680

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	7.465	95% Adjusted Gamma UCL (use when n<50)	7.48

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.681	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.93	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.297	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.154	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	1.517	Mean of logged Data	1.965
Maximum of Logged Data	2.11	SD of logged Data	0.132

Assuming Lognormal Distribution

95% H-UCL	7.492	90% Chebyshev (MVUE) UCL	7.696
95% Chebyshev (MVUE) UCL	7.924	97.5% Chebyshev (MVUE) UCL	8.241
99% Chebyshev (MVUE) UCL	8.863		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	7.425	95% Jackknife UCL	7.432
95% Standard Bootstrap UCL	7.423	95% Bootstrap-t UCL	7.389
95% Hall's Bootstrap UCL	7.381	95% Percentile Bootstrap UCL	7.403
95% BCA Bootstrap UCL	7.382		
90% Chebyshev(Mean, Sd) UCL	7.62	95% Chebyshev(Mean, Sd) UCL	7.817
97.5% Chebyshev(Mean, Sd) UCL	8.089	99% Chebyshev(Mean, Sd) UCL	8.625

Suggested UCL to Use

95% Student's-t UCL	7.432	or 95% Modified-t UCL	7.423

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

pCu - 2000um Sieve, Physical Reach 2

General Statistics

Total Number of Observations	158	Number of Distinct Observations	155
		Number of Missing Observations	0
Minimum	1.777	Mean	5.995
Maximum	10.15	Median	6.091
SD	1.696	Std. Error of Mean	0.135
Coefficient of Variation	0.283	Skewness	0.038

Normal GOF Test

Shapiro Wilk Test Statistic	0.974	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	0.128	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.066	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0709	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	6.218	95% Adjusted-CLT UCL (Chen-1995)	6.217
		95% Modified-t UCL (Johnson-1978)	6.218

Gamma GOF Test

A-D Test Statistic	1.036	**Anderson-Darling Gamma GOF Test**	

5% A-D Critical Value	0.751	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0844	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.0744	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	11.56	k star (bias corrected MLE)	11.35
Theta hat (MLE)	0.518	Theta star (bias corrected MLE)	0.528
nu hat (MLE)	3654	nu star (bias corrected)	3586
MLE Mean (bias corrected)	5.995	MLE Sd (bias corrected)	1.78
		Approximate Chi Square Value (0.05)	3448
Adjusted Level of Significance	0.0485	Adjusted Chi Square Value	3446

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	6.235	95% Adjusted Gamma UCL (use when n<50)	6.237

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.958	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk P Value	9.4980E-4	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0908	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.0709	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.575	Mean of logged Data	1.747
Maximum of Logged Data	2.317	SD of logged Data	0.307

Assuming Lognormal Distribution

95% H-UCL	6.276	90% Chebyshev (MVUE) UCL	6.463
95% Chebyshev (MVUE) UCL	6.667	97.5% Chebyshev (MVUE) UCL	6.951
99% Chebyshev (MVUE) UCL	7.507		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	6.217	95% Jackknife UCL	6.218
95% Standard Bootstrap UCL	6.217	95% Bootstrap-t UCL	6.211
95% Hall's Bootstrap UCL	6.217	95% Percentile Bootstrap UCL	6.214
95% BCA Bootstrap UCL	6.212		
90% Chebyshev(Mean, Sd) UCL	6.4	95% Chebyshev(Mean, Sd) UCL	6.583
97.5% Chebyshev(Mean, Sd) UCL	6.837	99% Chebyshev(Mean, Sd) UCL	7.337

Suggested UCL to Use

95% Student's-t UCL	6.218

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

pCu - 2000um Sieve, Physical Reach 3

General Statistics

Total Number of Observations	371	Number of Distinct Observations	359
		Number of Missing Observations	0
Minimum	2.84	Mean	6.653
Maximum	10.27	Median	6.801
SD	1.199	Std. Error of Mean	0.0623
Coefficient of Variation	0.18	Skewness	-0.404

Normal GOF Test

Shapiro Wilk Test Statistic	0.971	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	9.9888E-4	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0783	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0464	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	6.756	95% Adjusted-CLT UCL (Chen-1995)	6.754

		95% Modified-t UCL (Johnson-1978)	6.755

Gamma GOF Test

A-D Test Statistic	5.782	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.752	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.105	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0471	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	27.72	k star (bias corrected MLE)	27.5
Theta hat (MLE)	0.24	Theta star (bias corrected MLE)	0.242
nu hat (MLE)	20571	nu star (bias corrected)	20406
MLE Mean (bias corrected)	6.653	MLE Sd (bias corrected)	1.269
		Approximate Chi Square Value (0.05)	20075
Adjusted Level of Significance	0.0494	Adjusted Chi Square Value	20073

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	6.763	95% Adjusted Gamma UCL (use when n<50)	6.763

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.926	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.117	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.0464	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	1.044	Mean of logged Data	1.877
Maximum of Logged Data	2.33	SD of logged Data	0.197

Assuming Lognormal Distribution

95% H-UCL	6.778	90% Chebyshev (MVUE) UCL	6.868
95% Chebyshev (MVUE) UCL	6.962	97.5% Chebyshev (MVUE) UCL	7.092
99% Chebyshev (MVUE) UCL	7.347		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	6.755	95% Jackknife UCL	6.756
95% Standard Bootstrap UCL	6.757	95% Bootstrap-t UCL	6.754
95% Hall's Bootstrap UCL	6.753	95% Percentile Bootstrap UCL	6.753
95% BCA Bootstrap UCL	6.761		
90% Chebyshev(Mean, Sd) UCL	6.84	95% Chebyshev(Mean, Sd) UCL	6.924
97.5% Chebyshev(Mean, Sd) UCL	7.042	99% Chebyshev(Mean, Sd) UCL	7.272

Suggested UCL to Use

95% Student's-t UCL	6.756	or 95% Modified-t UCL	6.755

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

pCu - 2000um Sieve, Physical Reach 4

General Statistics

Total Number of Observations	13	Number of Distinct Observations	13
		Number of Missing Observations	0
Minimum	5.375	Mean	6.511
Maximum	7.218	Median	6.49
SD	0.547	Std. Error of Mean	0.152
Coefficient of Variation	0.084	Skewness	-0.609

Normal GOF Test

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.172	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.234	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	6.782	95% Adjusted-CLT UCL (Chen-1995)	6.733
		95% Modified-t UCL (Johnson-1978)	6.777

Gamma GOF Test

A-D Test Statistic	0.376	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.732	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.183	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.236	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	148.1	k star (bias corrected MLE)	114
Theta hat (MLE)	0.044	Theta star (bias corrected MLE)	0.0571
nu hat (MLE)	3850	nu star (bias corrected)	2963
MLE Mean (bias corrected)	6.511	MLE Sd (bias corrected)	0.61
		Approximate Chi Square Value (0.05)	2838
Adjusted Level of Significance	0.0301	Adjusted Chi Square Value	2820

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	6.799	95% Adjusted Gamma UCL (use when n<50)	6.841

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.929	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.866	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.176	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.234	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	1.682	Mean of logged Data	1.87
Maximum of Logged Data	1.977	SD of logged Data	0.0864

Assuming Lognormal Distribution

95% H-UCL	N/A	90% Chebyshev (MVUE) UCL	6.98
95% Chebyshev (MVUE) UCL	7.192	97.5% Chebyshev (MVUE) UCL	7.487
99% Chebyshev (MVUE) UCL	8.065		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	6.761	95% Jackknife UCL	6.782
95% Standard Bootstrap UCL	6.755	95% Bootstrap-t UCL	6.771
95% Hall's Bootstrap UCL	6.726	95% Percentile Bootstrap UCL	6.74
95% BCA Bootstrap UCL	6.741		
90% Chebyshev(Mean, Sd) UCL	6.966	95% Chebyshev(Mean, Sd) UCL	7.172
97.5% Chebyshev(Mean, Sd) UCL	7.459	99% Chebyshev(Mean, Sd) UCL	8.021

Suggested UCL to Use

95% Student's-t UCL 6.782

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

Arsenic - 250um Sieve, Physical Reach 1

General Statistics

Total Number of Observations	32	Number of Distinct Observations	31
		Number of Missing Observations	3
Minimum	2.834	Mean	6.973
Maximum	18.99	Median	5.642
SD	4.445	Std. Error of Mean	0.786
Coefficient of Variation	0.637	Skewness	1.812

Normal GOF Test

Shapiro Wilk Test Statistic	0.751	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.93	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.225	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.154	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	8.305	95% Adjusted-CLT UCL (Chen-1995)	8.535
		95% Modified-t UCL (Johnson-1978)	8.347

Gamma GOF Test

A-D Test Statistic	1.386	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.752	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.162	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.156	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.569	k star (bias corrected MLE)	3.255
Theta hat (MLE)	1.954	Theta star (bias corrected MLE)	2.142
nu hat (MLE)	228.4	nu star (bias corrected)	208.3
MLE Mean (bias corrected)	6.973	MLE Sd (bias corrected)	3.865
		Approximate Chi Square Value (0.05)	175.9
Adjusted Level of Significance	0.0416	Adjusted Chi Square Value	174.3

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	8.257	95% Adjusted Gamma UCL (use when n<50)	8.333

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.911	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.93	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.141	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.154	Data appear Lognormal at 5% Significance Level	

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	1.042	Mean of logged Data	1.795
Maximum of Logged Data	2.944	SD of logged Data	0.517

Assuming Lognormal Distribution

95% H-UCL	8.246	90% Chebyshev (MVUE) UCL	8.82
95% Chebyshev (MVUE) UCL	9.711	97.5% Chebyshev (MVUE) UCL	10.95
99% Chebyshev (MVUE) UCL	13.38		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	8.266	95% Jackknife UCL	8.305
95% Standard Bootstrap UCL	8.24	95% Bootstrap-t UCL	8.824
95% Hall's Bootstrap UCL	8.488	95% Percentile Bootstrap UCL	8.33
95% BCA Bootstrap UCL	8.575		
90% Chebyshev(Mean, Sd) UCL	9.331	95% Chebyshev(Mean, Sd) UCL	10.4
97.5% Chebyshev(Mean, Sd) UCL	11.88	99% Chebyshev(Mean, Sd) UCL	14.79

Suggested UCL to Use

95% H-UCL	8.246

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Arsenic - 250um Sieve, Physical Reach 2

General Statistics

Total Number of Observations	158	Number of Distinct Observations	149
		Number of Missing Observations	0
Minimum	1.36	Mean	5.025
Maximum	17.54	Median	4.205
SD	2.526	Std. Error of Mean	0.201
Coefficient of Variation	0.503	Skewness	1.742

Normal GOF Test

Shapiro Wilk Test Statistic	0.861	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.179	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0709	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	5.357	95% Adjusted-CLT UCL (Chen-1995)	5.385
		95% Modified-t UCL (Johnson-1978)	5.362

Gamma GOF Test

A-D Test Statistic	2.338	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.755	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.131	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.0746	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.883	k star (bias corrected MLE)	4.795
Theta hat (MLE)	1.029	Theta star (bias corrected MLE)	1.048
nu hat (MLE)	1543	nu star (bias corrected)	1515
MLE Mean (bias corrected)	5.025	MLE Sd (bias corrected)	2.295
		Approximate Chi Square Value (0.05)	1426
Adjusted Level of Significance	0.0485	Adjusted Chi Square Value	1425

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	5.34	95% Adjusted Gamma UCL (use when n<50)	5.343

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.976	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk P Value	0.193	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.101	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.0709	Data Not Lognormal at 5% Significance Level	

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.307	Mean of logged Data	1.509
Maximum of Logged Data	2.865	SD of logged Data	0.454

Assuming Lognormal Distribution

95% H-UCL	5.35	90% Chebyshev (MVUE) UCL	5.576
95% Chebyshev (MVUE) UCL	5.833	97.5% Chebyshev (MVUE) UCL	6.191
99% Chebyshev (MVUE) UCL	6.892		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	5.356	95% Jackknife UCL	5.357
95% Standard Bootstrap UCL	5.355	95% Bootstrap-t UCL	5.397
95% Hall's Bootstrap UCL	5.385	95% Percentile Bootstrap UCL	5.378
95% BCA Bootstrap UCL	5.378		
90% Chebyshev(Mean, Sd) UCL	5.628	95% Chebyshev(Mean, Sd) UCL	5.901
97.5% Chebyshev(Mean, Sd) UCL	6.28	99% Chebyshev(Mean, Sd) UCL	7.025

Suggested UCL to Use

95% Student's-t UCL	5.357	or 95% Modified-t UCL	5.362
or 95% H-UCL	5.35		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Arsenic - 250um Sieve, Physical Reach 3

General Statistics

Total Number of Observations	371	Number of Distinct Observations	283
Number of Detects	367	Number of Non-Detects	4
Number of Distinct Detects	282	Number of Distinct Non-Detects	1
Minimum Detect	0.334	Minimum Non-Detect	2.88
Maximum Detect	17.54	Maximum Non-Detect	2.88
Variance Detects	11.42	Percent Non-Detects	1.078%
Mean Detects	5.984	SD Detects	3.38
Median Detects	5.13	CV Detects	0.565
Skewness Detects	2.088	Kurtosis Detects	4.708
Mean of Logged Detects	1.666	SD of Logged Detects	0.487

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.764	**Normal GOF Test on Detected Observations Only**	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.167	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0466	Detected Data Not Normal at 5% Significance Level	

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	5.945	KM Standard Error of Mean	0.176
KM SD	3.379	95% KM (BCA) UCL	6.25
95% KM (t) UCL	6.235	95% KM (Percentile Bootstrap) UCL	6.247
95% KM (z) UCL	6.234	95% KM Bootstrap t UCL	6.251
90% KM Chebyshev UCL	6.472	95% KM Chebyshev UCL	6.711
97.5% KM Chebyshev UCL	7.042	99% KM Chebyshev UCL	7.693

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	7.509	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.758	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.102	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.0476	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	4.235	k star (bias corrected MLE)	4.202
Theta hat (MLE)	1.413	Theta star (bias corrected MLE)	1.424
nu hat (MLE)	3108	nu star (bias corrected)	3084
Mean (detects)	5.984		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.334	Mean	5.936
Maximum	17.54	Median	5.12
SD	3.394	CV	0.572
k hat (MLE)	4.046	k star (bias corrected MLE)	4.015
Theta hat (MLE)	1.467	Theta star (bias corrected MLE)	1.478
nu hat (MLE)	3002	nu star (bias corrected)	2979
Adjusted Level of Significance (β)	0.0494		
Approximate Chi Square Value (N/A, α)	2853	Adjusted Chi Square Value (N/A, β)	2853
95% Gamma Approximate UCL (use when n>=50)	6.197	95% Gamma Adjusted UCL (use when n<50)	6.198

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	5.945	SD (KM)	3.379
Variance (KM)	11.42	SE of Mean (KM)	0.176
k hat (KM)	3.096	k star (KM)	3.073
nu hat (KM)	2297	nu star (KM)	2280
theta hat (KM)	1.92	theta star (KM)	1.935
80% gamma percentile (KM)	8.455	90% gamma percentile (KM)	10.49
95% gamma percentile (KM)	12.39	99% gamma percentile (KM)	16.5

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (N/A, α)	2170	Adjusted Chi Square Value (N/A, β)	2170
95% Gamma Approximate KM-UCL (use when n>=50)	6.246	95% Gamma Adjusted KM-UCL (use when n<50)	6.247

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.956	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	1.643E-10	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0685	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0466	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	5.944	Mean in Log Scale	1.657
SD in Original Scale	3.384	SD in Log Scale	0.492
95% t UCL (assumes normality of ROS data)	6.234	95% Percentile Bootstrap UCL	6.252
95% BCA Bootstrap UCL	6.258	95% Bootstrap t UCL	6.25
95% H-UCL (Log ROS)	6.198		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	1.657	KM Geo Mean	5.244
KM SD (logged)	0.493	95% Critical H Value (KM-Log)	1.791
KM Standard Error of Mean (logged)	0.0258	95% H-UCL (KM -Log)	6.201
KM SD (logged)	0.493	95% Critical H Value (KM-Log)	1.791
KM Standard Error of Mean (logged)	0.0258		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	5.935	Mean in Log Scale	1.652
SD in Original Scale	3.394	SD in Log Scale	0.502
95% t UCL (Assumes normality)	6.226	95% H-Stat UCL	6.206

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	6.235	KM H-UCL	6.201
95% KM (BCA) UCL	6.25		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Arsenic - 250um Sieve, Physical Reach 4

General Statistics

Total Number of Observations	13	Number of Distinct Observations	13
		Number of Missing Observations	0
Minimum	2.717	Mean	5.151
Maximum	6.95	Median	4.93
SD	1.322	Std. Error of Mean	0.367
Coefficient of Variation	0.257	Skewness	-0.158

Normal GOF Test

Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.162	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.234	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	5.804	95% Adjusted-CLT UCL (Chen-1995)	5.737
		95% Modified-t UCL (Johnson-1978)	5.802

Gamma GOF Test

A-D Test Statistic	0.346	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.734	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.159	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.236	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	15.11	k star (bias corrected MLE)	11.67
Theta hat (MLE)	0.341	Theta star (bias corrected MLE)	0.441
nu hat (MLE)	392.8	nu star (bias corrected)	303.5
MLE Mean (bias corrected)	5.151	MLE Sd (bias corrected)	1.508
		Approximate Chi Square Value (0.05)	264.2
Adjusted Level of Significance	0.0301	Adjusted Chi Square Value	258.9

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	5.918	95% Adjusted Gamma UCL (use when n<50)	6.038

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.929	**Shapiro Wilk Lognormal GOF Test**

5% Shapiro Wilk Critical Value	0.866	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.15	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.234	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.999	Mean of logged Data	1.606
Maximum of Logged Data	1.939	SD of logged Data	0.277

Assuming Lognormal Distribution

95% H-UCL	6.021	90% Chebyshev (MVUE) UCL	6.36
95% Chebyshev (MVUE) UCL	6.904	97.5% Chebyshev (MVUE) UCL	7.658
99% Chebyshev (MVUE) UCL	9.14		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	5.754	95% Jackknife UCL	5.804
95% Standard Bootstrap UCL	5.723	95% Bootstrap-t UCL	5.772
95% Hall's Bootstrap UCL	5.692	95% Percentile Bootstrap UCL	5.713
95% BCA Bootstrap UCL	5.691		
90% Chebyshev(Mean, Sd) UCL	6.251	95% Chebyshev(Mean, Sd) UCL	6.749
97.5% Chebyshev(Mean, Sd) UCL	7.44	99% Chebyshev(Mean, Sd) UCL	8.798

Suggested UCL to Use

95% Student's-t UCL	5.804

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

Cadmium - 250um Sieve, Physical Reach 1

General Statistics

Total Number of Observations	32	Number of Distinct Observations	30
		Number of Missing Observations	3
Number of Detects	30	Number of Non-Detects	2
Number of Distinct Detects	29	Number of Distinct Non-Detects	1
Minimum Detect	1.193	Minimum Non-Detect	2.601
Maximum Detect	10.64	Maximum Non-Detect	2.601
Variance Detects	3.615	Percent Non-Detects	6.25%
Mean Detects	4.341	SD Detects	1.901
Median Detects	4.211	CV Detects	0.438
Skewness Detects	0.978	Kurtosis Detects	3.007
Mean of Logged Detects	1.365	SD of Logged Detects	0.492

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.932	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.927	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.104	**Lilliefors GOF Test**

5% Lilliefors Critical Value	0.159	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	4.161	KM Standard Error of Mean	0.349
KM SD	1.941	95% KM (BCA) UCL	4.717
95% KM (t) UCL	4.753	95% KM (Percentile Bootstrap) UCL	4.75
95% KM (z) UCL	4.735	95% KM Bootstrap t UCL	4.815
90% KM Chebyshev UCL	5.209	95% KM Chebyshev UCL	5.683
97.5% KM Chebyshev UCL	6.342	99% KM Chebyshev UCL	7.636

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.558	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.746	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.129	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.16	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.006	k star (bias corrected MLE)	4.527
Theta hat (MLE)	0.867	Theta star (bias corrected MLE)	0.959
nu hat (MLE)	300.3	nu star (bias corrected)	271.6
Mean (detects)	4.341		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	1.193	Mean	4.182
Maximum	10.64	Median	4.086
SD	1.943	CV	0.465
k hat (MLE)	4.505	k star (bias corrected MLE)	4.103
Theta hat (MLE)	0.928	Theta star (bias corrected MLE)	1.019
nu hat (MLE)	288.3	nu star (bias corrected)	262.6
Adjusted Level of Significance (β)	0.0416		
Approximate Chi Square Value (262.60, α)	226.1	Adjusted Chi Square Value (262.60, β)	224.3
95% Gamma Approximate UCL (use when n>=50)	4.858	95% Gamma Adjusted UCL (use when n<50)	4.897

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	4.161	SD (KM)	1.941
Variance (KM)	3.767	SE of Mean (KM)	0.349
k hat (KM)	4.596	k star (KM)	4.186
nu hat (KM)	294.2	nu star (KM)	267.9
theta hat (KM)	0.905	theta star (KM)	0.994
80% gamma percentile (KM)	5.707	90% gamma percentile (KM)	6.886
95% gamma percentile (KM)	7.969	99% gamma percentile (KM)	10.28

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (267.92, α)	231	Adjusted Chi Square Value (267.92, β)	229.2
95% Gamma Approximate KM-UCL (use when n>=50)	4.825	95% Gamma Adjusted KM-UCL (use when n<50)	4.864

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.918	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.927	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.156	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.159	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	4.184	Mean in Log Scale	1.317
SD in Original Scale	1.94	SD in Log Scale	0.512
95% t UCL (assumes normality of ROS data)	4.766	95% Percentile Bootstrap UCL	4.732
95% BCA Bootstrap UCL	4.828	95% Bootstrap t UCL	4.827
95% H-UCL (Log ROS)	5.088		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	1.302	KM Geo Mean	3.677
KM SD (logged)	0.53	95% Critical H Value (KM-Log)	1.955
KM Standard Error of Mean (logged)	0.0958	95% H-UCL (KM -Log)	5.095
KM SD (logged)	0.53	95% Critical H Value (KM-Log)	1.955

KM Standard Error of Mean (logged)	0.0958

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	4.151	Mean in Log Scale	1.296
SD in Original Scale	1.985	SD in Log Scale	0.548
95% t UCL (Assumes normality)	4.746	95% H-Stat UCL	5.153

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	4.753

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Cadmium - 250um Sieve, Physical Reach 2

General Statistics

Total Number of Observations	158	Number of Distinct Observations	131
Number of Detects	154	Number of Non-Detects	4
Number of Distinct Detects	130	Number of Distinct Non-Detects	1
Minimum Detect	0.43	Minimum Non-Detect	2.601
Maximum Detect	21.6	Maximum Non-Detect	2.601
Variance Detects	4.705	Percent Non-Detects	2.532%
Mean Detects	2.936	SD Detects	2.169
Median Detects	2.815	CV Detects	0.739
Skewness Detects	4.583	Kurtosis Detects	35.95
Mean of Logged Detects	0.883	SD of Logged Detects	0.638

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.712	**Normal GOF Test on Detected Observations Only**	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.182	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0718	Detected Data Not Normal at 5% Significance Level	

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	2.9	KM Standard Error of Mean	0.172
KM SD	2.148	95% KM (BCA) UCL	3.236
95% KM (t) UCL	3.184	95% KM (Percentile Bootstrap) UCL	3.204
95% KM (z) UCL	3.182	95% KM Bootstrap t UCL	3.281
90% KM Chebyshev UCL	3.415	95% KM Chebyshev UCL	3.648
97.5% KM Chebyshev UCL	3.972	99% KM Chebyshev UCL	4.607

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.305	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.761	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.101	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.0762	Detected Data Not Gamma Distributed at 5% Significance Level	

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.728	k star (bias corrected MLE)	2.679
Theta hat (MLE)	1.076	Theta star (bias corrected MLE)	1.096
nu hat (MLE)	840.2	nu star (bias corrected)	825.2
Mean (detects)	2.936		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.43	Mean	2.898
Maximum	21.6	Median	2.773
SD	2.156	CV	0.744
k hat (MLE)	2.704	k star (bias corrected MLE)	2.657

Theta hat (MLE)	1.071	Theta star (bias corrected MLE)	1.09
nu hat (MLE)	854.6	nu star (bias corrected)	839.7
Adjusted Level of Significance (β)	0.0485		
Approximate Chi Square Value (839.72, α)	773.5	Adjusted Chi Square Value (839.72, β)	772.9
95% Gamma Approximate UCL (use when n>=50)	3.146	95% Gamma Adjusted UCL (use when n<50)	3.148

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.9	SD (KM)	2.148
Variance (KM)	4.613	SE of Mean (KM)	0.172
k hat (KM)	1.823	k star (KM)	1.793
nu hat (KM)	576.1	nu star (KM)	566.5
theta hat (KM)	1.591	theta star (KM)	1.618
80% gamma percentile (KM)	4.398	90% gamma percentile (KM)	5.789
95% gamma percentile (KM)	7.124	99% gamma percentile (KM)	10.11

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (566.47, α)	512.3	Adjusted Chi Square Value (566.47, β)	511.8
95% Gamma Approximate KM-UCL (use when n>=50)	3.207	95% Gamma Adjusted KM-UCL (use when n<50)	3.21

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.963	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	0.00698	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.107	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0718	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2.9	Mean in Log Scale	0.87
SD in Original Scale	2.154	SD in Log Scale	0.635
95% t UCL (assumes normality of ROS data)	3.183	95% Percentile Bootstrap UCL	3.215
95% BCA Bootstrap UCL	3.265	95% Bootstrap t UCL	3.26
95% H-UCL (Log ROS)	3.219		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	0.869	KM Geo Mean	2.384
KM SD (logged)	0.637	95% Critical H Value (KM-Log)	1.919
KM Standard Error of Mean (logged)	0.0512	95% H-UCL (KM -Log)	3.22
KM SD (logged)	0.637	95% Critical H Value (KM-Log)	1.919
KM Standard Error of Mean (logged)	0.0512		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	2.894	Mean in Log Scale	0.867
SD in Original Scale	2.157	SD in Log Scale	0.637
95% t UCL (Assumes normality)	3.178	95% H-Stat UCL	3.213

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	3.648

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Cadmium - 250um Sieve, Physical Reach 3

General Statistics

Total Number of Observations	371	Number of Distinct Observations	258
Number of Detects	337	Number of Non-Detects	34
Number of Distinct Detects	257	Number of Distinct Non-Detects	1
Minimum Detect	0.269	Minimum Non-Detect	2.601
Maximum Detect	7.184	Maximum Non-Detect	2.601
Variance Detects	1.285	Percent Non-Detects	9.164%
Mean Detects	2.102	SD Detects	1.134
Median Detects	1.888	CV Detects	0.539
Skewness Detects	0.937	Kurtosis Detects	1.038
Mean of Logged Detects	0.593	SD of Logged Detects	0.568

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.93	**Normal GOF Test on Detected Observations Only**	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0913	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0487	Detected Data Not Normal at 5% Significance Level	

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	2.045	KM Standard Error of Mean	0.0583
KM SD	1.107	95% KM (BCA) UCL	2.144
95% KM (t) UCL	2.142	95% KM (Percentile Bootstrap) UCL	2.145
95% KM (z) UCL	2.141	95% KM Bootstrap t UCL	2.143
90% KM Chebyshev UCL	2.22	95% KM Chebyshev UCL	2.3
97.5% KM Chebyshev UCL	2.41	99% KM Chebyshev UCL	2.626

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.923	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.759	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0423	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.0498	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.483	k star (bias corrected MLE)	3.454
Theta hat (MLE)	0.603	Theta star (bias corrected MLE)	0.609
nu hat (MLE)	2348	nu star (bias corrected)	2328
Mean (detects)	2.102		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.269	Mean	2.047
Maximum	7.184	Median	1.83
SD	1.107	CV	0.541
k hat (MLE)	3.522	k star (bias corrected MLE)	3.496
Theta hat (MLE)	0.581	Theta star (bias corrected MLE)	0.586
nu hat (MLE)	2614	nu star (bias corrected)	2594
Adjusted Level of Significance (β)	0.0494		
Approximate Chi Square Value (N/A, α)	2476	Adjusted Chi Square Value (N/A, β)	2476
95% Gamma Approximate UCL (use when n>=50)	2.144	95% Gamma Adjusted UCL (use when n<50)	2.144

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.045	SD (KM)	1.107
Variance (KM)	1.225	SE of Mean (KM)	0.0583
k hat (KM)	3.414	k star (KM)	3.389
nu hat (KM)	2534	nu star (KM)	2514
theta hat (KM)	0.599	theta star (KM)	0.604
80% gamma percentile (KM)	2.875	90% gamma percentile (KM)	3.535
95% gamma percentile (KM)	4.147	99% gamma percentile (KM)	5.465

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (N/A, α)	2399	Adjusted Chi Square Value (N/A, β)	2398
95% Gamma Approximate KM-UCL (use when n>=50)	2.144	95% Gamma Adjusted KM-UCL (use when n<50)	2.144

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.975	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	0.0218	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0475	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0487	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2.043	Mean in Log Scale	0.567
SD in Original Scale	1.106	SD in Log Scale	0.558
95% t UCL (assumes normality of ROS data)	2.138	95% Percentile Bootstrap UCL	2.143
95% BCA Bootstrap UCL	2.145	95% Bootstrap t UCL	2.15
95% H-UCL (Log ROS)	2.173		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	0.567	KM Geo Mean	1.762
KM SD (logged)	0.562	95% Critical H Value (KM-Log)	1.826
KM Standard Error of Mean (logged)	0.0301	95% H-UCL (KM -Log)	2.177
KM SD (logged)	0.562	95% Critical H Value (KM-Log)	1.826
KM Standard Error of Mean (logged)	0.0301		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	2.029	Mean in Log Scale	0.562
SD in Original Scale	1.105	SD in Log Scale	0.549
95% t UCL (Assumes normality)	2.123	95% H-Stat UCL	2.149

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM Approximate Gamma UCL	2.144	95% GROS Approximate Gamma UCL	2.144

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Cadmium - 250um Sieve, Physical Reach 4

General Statistics

Total Number of Observations	13	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	1.081	Mean	2.199
Maximum	3.23	Median	2.37
SD	0.743	Std. Error of Mean	0.206
Coefficient of Variation	0.338	Skewness	-0.284

Normal GOF Test

Shapiro Wilk Test Statistic	0.929	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.866	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.146	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.234	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	2.566	95% Adjusted-CLT UCL (Chen-1995)	2.52
		95% Modified-t UCL (Johnson-1978)	2.563

Gamma GOF Test

A-D Test Statistic	0.527	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.735	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.169	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.237	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	8.19	k star (bias corrected MLE)	6.351

Theta hat (MLE)	0.268	Theta star (bias corrected MLE)	0.346
nu hat (MLE)	212.9	nu star (bias corrected)	165.1
MLE Mean (bias corrected)	2.199	MLE Sd (bias corrected)	0.872
		Approximate Chi Square Value (0.05)	136.4
Adjusted Level of Significance	0.0301	Adjusted Chi Square Value	132.7

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	2.661	95% Adjusted Gamma UCL (use when n<50)	2.736

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.884	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.866	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.178	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.234	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.0774	Mean of logged Data	0.726
Maximum of Logged Data	1.172	SD of logged Data	0.384

Assuming Lognormal Distribution

95% H-UCL	2.772	90% Chebyshev (MVUE) UCL	2.929
95% Chebyshev (MVUE) UCL	3.254	97.5% Chebyshev (MVUE) UCL	3.705
99% Chebyshev (MVUE) UCL	4.592		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	2.537	95% Jackknife UCL	2.566
95% Standard Bootstrap UCL	2.53	95% Bootstrap-t UCL	2.553
95% Hall's Bootstrap UCL	2.506	95% Percentile Bootstrap UCL	2.526
95% BCA Bootstrap UCL	2.504		
90% Chebyshev(Mean, Sd) UCL	2.817	95% Chebyshev(Mean, Sd) UCL	3.096
97.5% Chebyshev(Mean, Sd) UCL	3.485	99% Chebyshev(Mean, Sd) UCL	4.248

Suggested UCL to Use

95% Student's-t UCL	2.566

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

Copper - 2000um Sieve, Physical Reach 2, Bar feature

General Statistics

Total Number of Observations	110	Number of Distinct Observations	102
		Number of Missing Observations	0
Minimum	47.68	Mean	1147
Maximum	7800	Median	860
SD	1139	Std. Error of Mean	108.6
Coefficient of Variation	0.993	Skewness	3.42

Normal GOF Test

Shapiro Wilk Test Statistic	0.655	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.252	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0848	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1327	95% Adjusted-CLT UCL (Chen-1995)	1364
		95% Modified-t UCL (Johnson-1978)	1333

Gamma GOF Test

A-D Test Statistic	2.831	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.15	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0882	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.795	k star (bias corrected MLE)	1.752
Theta hat (MLE)	639	Theta star (bias corrected MLE)	654.7
nu hat (MLE)	394.9	nu star (bias corrected)	385.5
MLE Mean (bias corrected)	1147	MLE Sd (bias corrected)	866.6
		Approximate Chi Square Value (0.05)	341
Adjusted Level of Significance	0.0478	Adjusted Chi Square Value	340.4

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1297	95% Adjusted Gamma UCL (use when n<50)	1299

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.954	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0.00374	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0994	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.0848	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.865	Mean of logged Data	6.741
Maximum of Logged Data	8.962	SD of logged Data	0.783

Assuming Lognormal Distribution

95% H-UCL	1339	90% Chebyshev (MVUE) UCL	1436
95% Chebyshev (MVUE) UCL	1568	97.5% Chebyshev (MVUE) UCL	1750
99% Chebyshev (MVUE) UCL	2108		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	1326	95% Jackknife UCL	1327
95% Standard Bootstrap UCL	1328	95% Bootstrap-t UCL	1390
95% Hall's Bootstrap UCL	1398	95% Percentile Bootstrap UCL	1339
95% BCA Bootstrap UCL	1367		
90% Chebyshev(Mean, Sd) UCL	1473	95% Chebyshev(Mean, Sd) UCL	1621
97.5% Chebyshev(Mean, Sd) UCL	1826	99% Chebyshev(Mean, Sd) UCL	2228

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL 1621

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Copper - 2000um Sieve, Physical Reach 2, Overbank feature

General Statistics

Total Number of Observations	48	Number of Distinct Observations	46
		Number of Missing Observations	0
Minimum	89.3	Mean	493.6
Maximum	3390	Median	383.6
SD	517.1	Std. Error of Mean	74.63
Coefficient of Variation	1.047	Skewness	4.116

Normal GOF Test

Shapiro Wilk Test Statistic	0.605	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.231	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	618.9	95% Adjusted-CLT UCL (Chen-1995)	663.8
		95% Modified-t UCL (Johnson-1978)	626.3

Gamma GOF Test

A-D Test Statistic	0.998	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.764	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.117	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.13	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.851	k star (bias corrected MLE)	1.75
Theta hat (MLE)	266.6	Theta star (bias corrected MLE)	282.2
nu hat (MLE)	177.7	nu star (bias corrected)	168
MLE Mean (bias corrected)	493.6	MLE Sd (bias corrected)	373.2
		Approximate Chi Square Value (0.05)	139
Adjusted Level of Significance	0.045	Adjusted Chi Square Value	138.2

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	596.5	95% Adjusted Gamma UCL (use when n<50)	600

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.966	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.947	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0904	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.127	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	4.492	Mean of logged Data	5.908
Maximum of Logged Data	8.129	SD of logged Data	0.739

Assuming Lognormal Distribution

95% H-UCL	604.4	90% Chebyshev (MVUE) UCL	649.5
95% Chebyshev (MVUE) UCL	726.3	97.5% Chebyshev (MVUE) UCL	832.8
99% Chebyshev (MVUE) UCL	1042		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	616.4	95% Jackknife UCL	618.9
95% Standard Bootstrap UCL	616.1	95% Bootstrap-t UCL	733.8
95% Hall's Bootstrap UCL	1175	95% Percentile Bootstrap UCL	633.3
95% BCA Bootstrap UCL	680.3		
90% Chebyshev(Mean, Sd) UCL	717.5	95% Chebyshev(Mean, Sd) UCL	818.9
97.5% Chebyshev(Mean, Sd) UCL	959.7	99% Chebyshev(Mean, Sd) UCL	1236

Suggested UCL to Use

95% Adjusted Gamma UCL	600

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test

When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Copper - 250um Sieve, Physical Reach 2, Bar feature

General Statistics

Total Number of Observations	110	Number of Distinct Observations	106
		Number of Missing Observations	0
Minimum	66.6	Mean	1279
Maximum	11400	Median	954.9
SD	1368	Std. Error of Mean	130.5
Coefficient of Variation	1.07	Skewness	4.628

Normal GOF Test

Shapiro Wilk Test Statistic	0.594	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.244	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0848	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1495	95% Adjusted-CLT UCL (Chen-1995)	1555
		95% Modified-t UCL (Johnson-1978)	1505

Gamma GOF Test

A-D Test Statistic	3.195	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.16	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0882	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.829	k star (bias corrected MLE)	1.785
Theta hat (MLE)	699	Theta star (bias corrected MLE)	716.2
nu hat (MLE)	402.4	nu star (bias corrected)	392.8
MLE Mean (bias corrected)	1279	MLE Sd (bias corrected)	957
		Approximate Chi Square Value (0.05)	347.9
Adjusted Level of Significance	0.0478	Adjusted Chi Square Value	347.3

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1444	95% Adjusted Gamma UCL (use when n<50)	1446

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.96	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0.0146	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.103	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.0848	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	4.199	Mean of logged Data	6.856
Maximum of Logged Data	9.341	SD of logged Data	0.756

Assuming Lognormal Distribution

95% H-UCL	1462	90% Chebyshev (MVUE) UCL	1565
95% Chebyshev (MVUE) UCL	1704	97.5% Chebyshev (MVUE) UCL	1896
99% Chebyshev (MVUE) UCL	2273		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	1493	95% Jackknife UCL	1495
95% Standard Bootstrap UCL	1494	95% Bootstrap-t UCL	1621
95% Hall's Bootstrap UCL	1775	95% Percentile Bootstrap UCL	1515
95% BCA Bootstrap UCL	1598		

90% Chebyshev(Mean, Sd) UCL	1670	95% Chebyshev(Mean, Sd) UCL	1847
97.5% Chebyshev(Mean, Sd) UCL	2093	99% Chebyshev(Mean, Sd) UCL	2577

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL 1847

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Copper - 250um Sieve, Physical Reach 2, Overbank feature

General Statistics

Total Number of Observations	48	Number of Distinct Observations	46
		Number of Missing Observations	0
Minimum	54	Mean	559.7
Maximum	3439	Median	458.2
SD	535.6	Std. Error of Mean	77.31
Coefficient of Variation	0.957	Skewness	3.657

Normal GOF Test

Shapiro Wilk Test Statistic	0.67	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.217	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	689.4	95% Adjusted-CLT UCL (Chen-1995)	730.4
		95% Modified-t UCL (Johnson-1978)	696.2

Gamma GOF Test

A-D Test Statistic	0.69	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.764	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.113	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.13	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.838	k star (bias corrected MLE)	1.737
Theta hat (MLE)	304.5	Theta star (bias corrected MLE)	322.2
nu hat (MLE)	176.4	nu star (bias corrected)	166.7
MLE Mean (bias corrected)	559.7	MLE Sd (bias corrected)	424.7
		Approximate Chi Square Value (0.05)	137.9
Adjusted Level of Significance	0.045	Adjusted Chi Square Value	137.1

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	676.8	95% Adjusted Gamma UCL (use when n<50)	680.8

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.972	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.947	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.106	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.127	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.989	Mean of logged Data	6.031
Maximum of Logged Data	8.143	SD of logged Data	0.786

Assuming Lognormal Distribution

95% H-UCL	722.8	90% Chebyshev (MVUE) UCL	775.8
95% Chebyshev (MVUE) UCL	872.5	97.5% Chebyshev (MVUE) UCL	1007
99% Chebyshev (MVUE) UCL	1270		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	686.8	95% Jackknife UCL	689.4
95% Standard Bootstrap UCL	684.8	95% Bootstrap-t UCL	773.5
95% Hall's Bootstrap UCL	1281	95% Percentile Bootstrap UCL	693.9
95% BCA Bootstrap UCL	749		
90% Chebyshev(Mean, Sd) UCL	791.6	95% Chebyshev(Mean, Sd) UCL	896.7
97.5% Chebyshev(Mean, Sd) UCL	1042	99% Chebyshev(Mean, Sd) UCL	1329

Suggested UCL to Use

95% Adjusted Gamma UCL 680.8

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Iron - 250um Sieve, Physical Reach 2, Bar feature

General Statistics

Total Number of Observations	110	Number of Distinct Observations	106
		Number of Missing Observations	0
Minimum	12300	Mean	74923
Maximum	272000	Median	61680
SD	45254	Std. Error of Mean	4315
Coefficient of Variation	0.604	Skewness	1.747

Normal GOF Test

Shapiro Wilk Test Statistic	0.849	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.168	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0848	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	82081	95% Adjusted-CLT UCL (Chen-1995)	82788
		95% Modified-t UCL (Johnson-1978)	82201

Gamma GOF Test

A-D Test Statistic	1.44	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.758	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.106	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.0874	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.33	k star (bias corrected MLE)	3.246
Theta hat (MLE)	22497	Theta star (bias corrected MLE)	23085
nu hat (MLE)	732.7	nu star (bias corrected)	714
MLE Mean (bias corrected)	74923	MLE Sd (bias corrected)	41588
		Approximate Chi Square Value (0.05)	653
Adjusted Level of Significance	0.0478	Adjusted Chi Square Value	652.2

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	81922	95% Adjusted Gamma UCL (use when n<50)	82018

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.967	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk P Value	0.0677	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0814	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.0848	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	9.417	Mean of logged Data	11.07
Maximum of Logged Data	12.51	SD of logged Data	0.571

Assuming Lognormal Distribution

95% H-UCL	83486	90% Chebyshev (MVUE) UCL	88383
95% Chebyshev (MVUE) UCL	94350	97.5% Chebyshev (MVUE) UCL	102632
99% Chebyshev (MVUE) UCL	118901		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	82020	95% Jackknife UCL	82081
95% Standard Bootstrap UCL	81766	95% Bootstrap-t UCL	82633
95% Hall's Bootstrap UCL	82899	95% Percentile Bootstrap UCL	81792
95% BCA Bootstrap UCL	82929		
90% Chebyshev(Mean, Sd) UCL	87867	95% Chebyshev(Mean, Sd) UCL	93731
97.5% Chebyshev(Mean, Sd) UCL	101869	99% Chebyshev(Mean, Sd) UCL	117854

Suggested UCL to Use

95% H-UCL 83486

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Iron - 250um Sieve, Physical Reach 2, Overbank feature

General Statistics

Total Number of Observations	48	Number of Distinct Observations	45
		Number of Missing Observations	0
Minimum	9432	Mean	39378
Maximum	96427	Median	39757
SD	17025	Std. Error of Mean	2457
Coefficient of Variation	0.432	Skewness	0.739

Normal GOF Test

Shapiro Wilk Test Statistic	0.962	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.947	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.0865	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.127	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL	**95% UCLs (Adjusted for Skewness)**
95% Student's-t UCL 43501	95% Adjusted-CLT UCL (Chen-1995) 43700
	95% Modified-t UCL (Johnson-1978) 43545

Gamma GOF Test

A-D Test Statistic	0.428	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0877	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.128	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.083	k star (bias corrected MLE)	4.779
Theta hat (MLE)	7747	Theta star (bias corrected MLE)	8239
nu hat (MLE)	488	nu star (bias corrected)	458.8
MLE Mean (bias corrected)	39378	MLE Sd (bias corrected)	18012
		Approximate Chi Square Value (0.05)	410.2
Adjusted Level of Significance	0.045	Adjusted Chi Square Value	408.7

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	44050	95% Adjusted Gamma UCL (use when n<50)	44203

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.956	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.947	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.116	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.127	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	9.152	Mean of logged Data	10.48
Maximum of Logged Data	11.48	SD of logged Data	0.48

Assuming Lognormal Distribution

95% H-UCL	45517	90% Chebyshev (MVUE) UCL	48477
95% Chebyshev (MVUE) UCL	52400	97.5% Chebyshev (MVUE) UCL	57846
99% Chebyshev (MVUE) UCL	68542		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	43420	95% Jackknife UCL	43501
95% Standard Bootstrap UCL	43347	95% Bootstrap-t UCL	43945
95% Hall's Bootstrap UCL	43932	95% Percentile Bootstrap UCL	43482
95% BCA Bootstrap UCL	43508		
90% Chebyshev(Mean, Sd) UCL	46750	95% Chebyshev(Mean, Sd) UCL	50089
97.5% Chebyshev(Mean, Sd) UCL	54724	99% Chebyshev(Mean, Sd) UCL	63828

Suggested UCL to Use

95% Student's-t UCL	43501

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Lead - 250um Sieve, Physical Reach 2, Bar feature

General Statistics

Total Number of Observations	110	Number of Distinct Observations	101
		Number of Missing Observations	0
Minimum	47.4	Mean	267.5
Maximum	1014	Median	227.5
SD	166.8	Std. Error of Mean	15.9
Coefficient of Variation	0.623	Skewness	2.192

Normal GOF Test

Shapiro Wilk Test Statistic	0.802	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.161	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0848	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	293.9	95% Adjusted-CLT UCL (Chen-1995)	297.2
		95% Modified-t UCL (Johnson-1978)	294.5

Gamma GOF Test

A-D Test Statistic	1.456	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.758	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.087	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.0874	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.417	k star (bias corrected MLE)	3.33
Theta hat (MLE)	78.3	Theta star (bias corrected MLE)	80.35
nu hat (MLE)	751.7	nu star (bias corrected)	732.6
MLE Mean (bias corrected)	267.5	MLE Sd (bias corrected)	146.6
		Approximate Chi Square Value (0.05)	670.8
Adjusted Level of Significance	0.0478	Adjusted Chi Square Value	670

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	292.2	95% Adjusted Gamma UCL (use when n<50)	292.5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.97	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk P Value	0.123	Data appear Lognormal at 5% Significance Level	

Lilliefors Test Statistic	0.0658	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.0848	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.859	Mean of logged Data	5.436
Maximum of Logged Data	6.922	SD of logged Data	0.554

Assuming Lognormal Distribution

95% H-UCL	295.4	90% Chebyshev (MVUE) UCL	312.4
95% Chebyshev (MVUE) UCL	332.9	97.5% Chebyshev (MVUE) UCL	361.3
99% Chebyshev (MVUE) UCL	417.2		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	293.7	95% Jackknife UCL	293.9
95% Standard Bootstrap UCL	293.4	95% Bootstrap-t UCL	298.9
95% Hall's Bootstrap UCL	299.2	95% Percentile Bootstrap UCL	294.1
95% BCA Bootstrap UCL	298.1		
90% Chebyshev(Mean, Sd) UCL	315.2	95% Chebyshev(Mean, Sd) UCL	336.8
97.5% Chebyshev(Mean, Sd) UCL	366.8	99% Chebyshev(Mean, Sd) UCL	425.7

Suggested UCL to Use

95% Approximate Gamma UCL	292.2

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Lead - 250um Sieve, Physical Reach 2, Overbank feature

General Statistics

Total Number of Observations	48	Number of Distinct Observations	43
		Number of Missing Observations	0
Minimum	23.9	Mean	208.5
Maximum	646	Median	184
SD	126.3	Std. Error of Mean	18.23
Coefficient of Variation	0.606	Skewness	1.184

Normal GOF Test

Shapiro Wilk Test Statistic	0.915	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.171	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	239.1	95% Adjusted-CLT UCL (Chen-1995)	241.8
		95% Modified-t UCL (Johnson-1978)	239.6

Gamma GOF Test

A-D Test Statistic	1.025	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.76	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.155	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.129	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.417	k star (bias corrected MLE)	2.28
Theta hat (MLE)	86.28	Theta star (bias corrected MLE)	91.47
nu hat (MLE)	232	nu star (bias corrected)	218.9
MLE Mean (bias corrected)	208.5	MLE Sd (bias corrected)	138.1
		Approximate Chi Square Value (0.05)	185.6
Adjusted Level of Significance	0.045	Adjusted Chi Square Value	184.7

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	245.9	95% Adjusted Gamma UCL (use when n<50)	247.1

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.878	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.947	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.2	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.127	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.174	Mean of logged Data	5.119
Maximum of Logged Data	6.471	SD of logged Data	0.762

Assuming Lognormal Distribution

95% H-UCL	281.9	90% Chebyshev (MVUE) UCL	302.8
95% Chebyshev (MVUE) UCL	339.5	97.5% Chebyshev (MVUE) UCL	390.5
99% Chebyshev (MVUE) UCL	490.6		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	238.5	95% Jackknife UCL	239.1
95% Standard Bootstrap UCL	237.8	95% Bootstrap-t UCL	244.1
95% Hall's Bootstrap UCL	244.4	95% Percentile Bootstrap UCL	238.2
95% BCA Bootstrap UCL	242.2		
90% Chebyshev(Mean, Sd) UCL	263.2	95% Chebyshev(Mean, Sd) UCL	288
97.5% Chebyshev(Mean, Sd) UCL	322.3	99% Chebyshev(Mean, Sd) UCL	389.9

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	288

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Manganese - 250um Sieve, Physical Reach 2, Bar feature

General Statistics

Total Number of Observations	110	Number of Distinct Observations	107
		Number of Missing Observations	0
Minimum	171.1	Mean	1078
Maximum	4009	Median	985.5
SD	627.7	Std. Error of Mean	59.85
Coefficient of Variation	0.582	Skewness	1.588

Normal GOF Test

Shapiro Wilk Test Statistic	0.899	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	4.125E-10	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.0743	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0848	Data appear Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1177	95% Adjusted-CLT UCL (Chen-1995)	1186
		95% Modified-t UCL (Johnson-1978)	1179

Gamma GOF Test

A-D Test Statistic	0.305	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.758	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.045	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0874	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.124	k star (bias corrected MLE)	3.045
Theta hat (MLE)	345	Theta star (bias corrected MLE)	354

nu hat (MLE)	687.2	nu star (bias corrected)	669.8
MLE Mean (bias corrected)	1078	MLE Sd (bias corrected)	617.6
		Approximate Chi Square Value (0.05)	610.8
Adjusted Level of Significance	0.0478	Adjusted Chi Square Value	610

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1182	95% Adjusted Gamma UCL (use when n<50)	1183

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.967	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk P Value	0.0669	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0827	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.0848	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	5.142	Mean of logged Data	6.814
Maximum of Logged Data	8.296	SD of logged Data	0.612

Assuming Lognormal Distribution

95% H-UCL	1228	90% Chebyshev (MVUE) UCL	1304
95% Chebyshev (MVUE) UCL	1398	97.5% Chebyshev (MVUE) UCL	1528
99% Chebyshev (MVUE) UCL	1785		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1176	95% Jackknife UCL	1177
95% Standard Bootstrap UCL	1175	95% Bootstrap-t UCL	1191
95% Hall's Bootstrap UCL	1199	95% Percentile Bootstrap UCL	1178
95% BCA Bootstrap UCL	1189		
90% Chebyshev(Mean, Sd) UCL	1257	95% Chebyshev(Mean, Sd) UCL	1339
97.5% Chebyshev(Mean, Sd) UCL	1451	99% Chebyshev(Mean, Sd) UCL	1673

Suggested UCL to Use

95% Student's-t UCL 1177

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Manganese - 250um Sieve, Physical Reach 2, Overbank feature

General Statistics

Total Number of Observations	48	Number of Distinct Observations	43
		Number of Missing Observations	0
Minimum	181.8	Mean	1298
Maximum	3370	Median	1451
SD	612.5	Std. Error of Mean	88.41
Coefficient of Variation	0.472	Skewness	0.26

Normal GOF Test

Shapiro Wilk Test Statistic	0.918	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.155	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1446	95% Adjusted-CLT UCL (Chen-1995)	1447
		95% Modified-t UCL (Johnson-1978)	1447

Gamma GOF Test

A-D Test Statistic	3.052	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level	

K-S Test Statistic	0.233	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.129	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.091	k star (bias corrected MLE)	2.912
Theta hat (MLE)	419.9	Theta star (bias corrected MLE)	445.7
nu hat (MLE)	296.7	nu star (bias corrected)	279.5
MLE Mean (bias corrected)	1298	MLE Sd (bias corrected)	760.6
		Approximate Chi Square Value (0.05)	241.8
Adjusted Level of Significance	0.045	Adjusted Chi Square Value	240.7

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1500	95% Adjusted Gamma UCL (use when n<50)	1507

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.796	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.947	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.257	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.127	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	5.203	Mean of logged Data	6.998
Maximum of Logged Data	8.123	SD of logged Data	0.688

Assuming Lognormal Distribution

95% H-UCL	1700	90% Chebyshev (MVUE) UCL	1827
95% Chebyshev (MVUE) UCL	2030	97.5% Chebyshev (MVUE) UCL	2311
99% Chebyshev (MVUE) UCL	2865		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	1443	95% Jackknife UCL	1446
95% Standard Bootstrap UCL	1444	95% Bootstrap-t UCL	1449
95% Hall's Bootstrap UCL	1453	95% Percentile Bootstrap UCL	1438
95% BCA Bootstrap UCL	1442		
90% Chebyshev(Mean, Sd) UCL	1563	95% Chebyshev(Mean, Sd) UCL	1683
97.5% Chebyshev(Mean, Sd) UCL	1850	99% Chebyshev(Mean, Sd) UCL	2178

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	1683

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

pCu - 2000um Sieve, Physical Reach 2, Bar feature

General Statistics

Total Number of Observations	110	Number of Distinct Observations	109
		Number of Missing Observations	0
Minimum	1.777	Mean	5.442
Maximum	10.15	Median	5.377
SD	1.529	Std. Error of Mean	0.146
Coefficient of Variation	0.281	Skewness	0.377

Normal GOF Test

Shapiro Wilk Test Statistic	0.977	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	0.358	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0823	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0848	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	5.684	95% Adjusted-CLT UCL (Chen-1995)	5.688
		95% Modified-t UCL (Johnson-1978)	5.685

Gamma GOF Test

A-D Test Statistic	0.461	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.752	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0768	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0868	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	12.34	k star (bias corrected MLE)	12.01
Theta hat (MLE)	0.441	Theta star (bias corrected MLE)	0.453
nu hat (MLE)	2716	nu star (bias corrected)	2643
MLE Mean (bias corrected)	5.442	MLE Sd (bias corrected)	1.57
		Approximate Chi Square Value (0.05)	2525
Adjusted Level of Significance	0.0478	Adjusted Chi Square Value	2523

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	5.698	95% Adjusted Gamma UCL (use when n<50)	5.701

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.977	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0.326	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.089	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.0848	Data Not Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.575	Mean of logged Data	1.653
Maximum of Logged Data	2.317	SD of logged Data	0.295

Assuming Lognormal Distribution

95% H-UCL	5.728	90% Chebyshev (MVUE) UCL	5.921
95% Chebyshev (MVUE) UCL	6.133	97.5% Chebyshev (MVUE) UCL	6.428
99% Chebyshev (MVUE) UCL	7.007		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	5.682	95% Jackknife UCL	5.684
95% Standard Bootstrap UCL	5.683	95% Bootstrap-t UCL	5.698
95% Hall's Bootstrap UCL	5.682	95% Percentile Bootstrap UCL	5.676
95% BCA Bootstrap UCL	5.693		
90% Chebyshev(Mean, Sd) UCL	5.88	95% Chebyshev(Mean, Sd) UCL	6.078
97.5% Chebyshev(Mean, Sd) UCL	6.353	99% Chebyshev(Mean, Sd) UCL	6.893

Suggested UCL to Use

95% Student's-t UCL	5.684

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

pCu - 2000um Sieve, Physical Reach 2, Overbank feature

General Statistics

Total Number of Observations	48	Number of Distinct Observations	46
		Number of Missing Observations	0
Minimum	3.403	Mean	7.261
Maximum	9.335	Median	7.497
SD	1.354	Std. Error of Mean	0.195
Coefficient of Variation	0.186	Skewness	-0.887

Normal GOF Test

Shapiro Wilk Test Statistic	0.931	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.154	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	7.589	95% Adjusted-CLT UCL (Chen-1995)	7.556
		95% Modified-t UCL (Johnson-1978)	7.585

Gamma GOF Test

A-D Test Statistic	1.591	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.186	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.128	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	24.74	k star (bias corrected MLE)	23.21
Theta hat (MLE)	0.293	Theta star (bias corrected MLE)	0.313
nu hat (MLE)	2375	nu star (bias corrected)	2228
MLE Mean (bias corrected)	7.261	MLE Sd (bias corrected)	1.507
		Approximate Chi Square Value (0.05)	2119
Adjusted Level of Significance	0.045	Adjusted Chi Square Value	2116

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	7.633	95% Adjusted Gamma UCL (use when n<50)	7.645

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.864	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.947	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.203	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.127	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	1.225	Mean of logged Data	1.962
Maximum of Logged Data	2.234	SD of logged Data	0.214

Assuming Lognormal Distribution

95% H-UCL	7.702	90% Chebyshev (MVUE) UCL	7.959
95% Chebyshev (MVUE) UCL	8.268	97.5% Chebyshev (MVUE) UCL	8.697
99% Chebyshev (MVUE) UCL	9.54		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	7.582	95% Jackknife UCL	7.589
95% Standard Bootstrap UCL	7.579	95% Bootstrap-t UCL	7.576
95% Hall's Bootstrap UCL	7.574	95% Percentile Bootstrap UCL	7.574
95% BCA Bootstrap UCL	7.565		
90% Chebyshev(Mean, Sd) UCL	7.847	95% Chebyshev(Mean, Sd) UCL	8.113
97.5% Chebyshev(Mean, Sd) UCL	8.481	99% Chebyshev(Mean, Sd) UCL	9.205

Suggested UCL to Use

95% Student's-t UCL	7.589	or 95% Modified-t UCL	7.585

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.12/23/2021 9:28:05 PM
From File	ProUCL input 2021.02.23_b.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic - 250um Sieve, Physical Reach 2, Bar feature

General Statistics

Total Number of Observations	110	Number of Distinct Observations	105
		Number of Missing Observations	0
Minimum	1.36	Mean	5.145
Maximum	14.3	Median	4.231
SD	2.43	Std. Error of Mean	0.232
Coefficient of Variation	0.472	Skewness	1.402

Normal GOF Test

Shapiro Wilk Test Statistic	0.87	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	3.642E-14	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.187	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0848	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	5.53	95% Adjusted-CLT UCL (Chen-1995)	5.56
		95% Modified-t UCL (Johnson-1978)	5.535

Gamma GOF Test

A-D Test Statistic	2.299	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.754	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.138	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.087	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.315	k star (bias corrected MLE)	5.176
Theta hat (MLE)	0.968	Theta star (bias corrected MLE)	0.994
nu hat (MLE)	1169	nu star (bias corrected)	1139
MLE Mean (bias corrected)	5.145	MLE Sd (bias corrected)	2.262
		Approximate Chi Square Value (0.05)	1061
Adjusted Level of Significance	0.0478	Adjusted Chi Square Value	1060

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	5.52	95% Adjusted Gamma UCL (use when n<50)	5.525

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.963	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0.0302	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.111	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.0848	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.307	Mean of logged Data	1.541
Maximum of Logged Data	2.66	SD of logged Data	0.437

Assuming Lognormal Distribution

95% H-UCL	5.541	90% Chebyshev (MVUE) UCL	5.804
95% Chebyshev (MVUE) UCL	6.107	97.5% Chebyshev (MVUE) UCL	6.528
99% Chebyshev (MVUE) UCL	7.356		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	5.526	95% Jackknife UCL	5.53
95% Standard Bootstrap UCL	5.536	95% Bootstrap-t UCL	5.588
95% Hall's Bootstrap UCL	5.561	95% Percentile Bootstrap UCL	5.539
95% BCA Bootstrap UCL	5.553		
90% Chebyshev(Mean, Sd) UCL	5.84	95% Chebyshev(Mean, Sd) UCL	6.155
97.5% Chebyshev(Mean, Sd) UCL	6.592	99% Chebyshev(Mean, Sd) UCL	7.45

Suggested UCL to Use

95% Student's-t UCL	5.53	or 95% Modified-t UCL	5.535

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Arsenic - 250um Sieve, Physical Reach 2, Overbank feature

General Statistics

Total Number of Observations	48	Number of Distinct Observations	46
		Number of Missing Observations	0
Minimum	1.77	Mean	4.749
Maximum	17.54	Median	4.175
SD	2.742	Std. Error of Mean	0.396
Coefficient of Variation	0.577	Skewness	2.438

Normal GOF Test

Shapiro Wilk Test Statistic	0.798	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.187	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	5.413	95% Adjusted-CLT UCL (Chen-1995)	5.549
		95% Modified-t UCL (Johnson-1978)	5.436

Gamma GOF Test

A-D Test Statistic	0.674	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.13	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.128	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.193	k star (bias corrected MLE)	3.945
Theta hat (MLE)	1.133	Theta star (bias corrected MLE)	1.204
nu hat (MLE)	402.5	nu star (bias corrected)	378.7
MLE Mean (bias corrected)	4.749	MLE Sd (bias corrected)	2.391
		Approximate Chi Square Value (0.05)	334.6
Adjusted Level of Significance	0.045	Adjusted Chi Square Value	333.3

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	5.375	95% Adjusted Gamma UCL (use when n<50)	5.395

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.97	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.947	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0946	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.127	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.571	Mean of logged Data	1.434
Maximum of Logged Data	2.865	SD of logged Data	0.486

Assuming Lognormal Distribution

95% H-UCL	5.395	90% Chebyshev (MVUE) UCL	5.748
95% Chebyshev (MVUE) UCL	6.219	97.5% Chebyshev (MVUE) UCL	6.872
99% Chebyshev (MVUE) UCL	8.156		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	5.4	95% Jackknife UCL	5.413
95% Standard Bootstrap UCL	5.394	95% Bootstrap-t UCL	5.564
95% Hall's Bootstrap UCL	5.95	95% Percentile Bootstrap UCL	5.444
95% BCA Bootstrap UCL	5.55		
90% Chebyshev(Mean, Sd) UCL	5.936	95% Chebyshev(Mean, Sd) UCL	6.474
97.5% Chebyshev(Mean, Sd) UCL	7.22	99% Chebyshev(Mean, Sd) UCL	8.687

Suggested UCL to Use

95% Adjusted Gamma UCL 5.395

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Cadmium - 250um Sieve, Physical Reach 2, Bar feature

General Statistics

Total Number of Observations	110	Number of Distinct Observations	94
		Number of Missing Observations	0
Minimum	0.43	Mean	3.013
Maximum	21.6	Median	2.773
SD	2.448	Std. Error of Mean	0.233
Coefficient of Variation	0.813	Skewness	4.409

Normal GOF Test

Shapiro Wilk Test Statistic	0.691	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.198	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0848	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	3.4	95% Adjusted-CLT UCL (Chen-1995)	3.502
		95% Modified-t UCL (Johnson-1978)	3.417

Gamma GOF Test

A-D Test Statistic	1.015	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.763	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.106	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0878	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.379	k star (bias corrected MLE)	2.321
Theta hat (MLE)	1.266	Theta star (bias corrected MLE)	1.298
nu hat (MLE)	523.5	nu star (bias corrected)	510.5
MLE Mean (bias corrected)	3.013	MLE Sd (bias corrected)	1.978
		Approximate Chi Square Value (0.05)	459.1
Adjusted Level of Significance	0.0478	Adjusted Chi Square Value	458.5

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	3.351	95% Adjusted Gamma UCL (use when n<50)	3.355

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.966	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0.0592	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.101	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.0848	Data Not Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-0.844	Mean of logged Data	0.878
Maximum of Logged Data	3.072	SD of logged Data	0.682

Assuming Lognormal Distribution

95% H-UCL	3.45	90% Chebyshev (MVUE) UCL	3.679
95% Chebyshev (MVUE) UCL	3.973	97.5% Chebyshev (MVUE) UCL	4.382
99% Chebyshev (MVUE) UCL	5.185		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	3.397	95% Jackknife UCL	3.4

95% Standard Bootstrap UCL	3.393	95% Bootstrap-t UCL	3.57
95% Hall's Bootstrap UCL	5.071	95% Percentile Bootstrap UCL	3.414
95% BCA Bootstrap UCL	3.511		
90% Chebyshev(Mean, Sd) UCL	3.714	95% Chebyshev(Mean, Sd) UCL	4.031
97.5% Chebyshev(Mean, Sd) UCL	4.471	99% Chebyshev(Mean, Sd) UCL	5.336

Suggested UCL to Use

95% H-UCL 3.45

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Cadmium - 250um Sieve, Physical Reach 2, Overbank feature

General Statistics

Total Number of Observations	48	Number of Distinct Observations	44
Number of Detects	44	Number of Non-Detects	4
Number of Distinct Detects	43	Number of Distinct Non-Detects	1
Minimum Detect	0.744	Minimum Non-Detect	2.601
Maximum Detect	6.066	Maximum Non-Detect	2.601
Variance Detects	1.492	Percent Non-Detects	8.333%
Mean Detects	2.742	SD Detects	1.222
Median Detects	2.876	CV Detects	0.445
Skewness Detects	0.33	Kurtosis Detects	-0.0863
Mean of Logged Detects	0.893	SD of Logged Detects	0.518

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.967	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.944	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.0781	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.132	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	2.65	KM Standard Error of Mean	0.178
KM SD	1.206	95% KM (BCA) UCL	2.94
95% KM (t) UCL	2.949	95% KM (Percentile Bootstrap) UCL	2.945
95% KM (z) UCL	2.943	95% KM Bootstrap t UCL	2.956
90% KM Chebyshev UCL	3.184	95% KM Chebyshev UCL	3.426
97.5% KM Chebyshev UCL	3.761	99% KM Chebyshev UCL	4.42

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.582	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.122	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.134	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	4.486	k star (bias corrected MLE)	4.196
Theta hat (MLE)	0.611	Theta star (bias corrected MLE)	0.654
nu hat (MLE)	394.8	nu star (bias corrected)	369.2
Mean (detects)	2.742		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.744	Mean	2.657
Maximum	6.066	Median	2.633
SD	1.207	CV	0.454
k hat (MLE)	4.501	k star (bias corrected MLE)	4.233
Theta hat (MLE)	0.59	Theta star (bias corrected MLE)	0.628

nu hat (MLE)	432.1	nu star (bias corrected)	406.4
Adjusted Level of Significance (β)	0.045		
Approximate Chi Square Value (406.42, α)	360.7	Adjusted Chi Square Value (406.42, β)	359.4
95% Gamma Approximate UCL (use when n>=50)	2.994	95% Gamma Adjusted UCL (use when n<50)	3.005

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.65	SD (KM)	1.206
Variance (KM)	1.454	SE of Mean (KM)	0.178
k hat (KM)	4.83	k star (KM)	4.542
nu hat (KM)	463.6	nu star (KM)	436
theta hat (KM)	0.549	theta star (KM)	0.584
80% gamma percentile (KM)	3.601	90% gamma percentile (KM)	4.316
95% gamma percentile (KM)	4.971	99% gamma percentile (KM)	6.36

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (436.00, α)	388.6	Adjusted Chi Square Value (436.00, β)	387.2
95% Gamma Approximate KM-UCL (use when n>=50)	2.974	95% Gamma Adjusted KM-UCL (use when n<50)	2.984

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.934	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.944	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.146	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.132	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2.65	Mean in Log Scale	0.858
SD in Original Scale	1.213	SD in Log Scale	0.513
95% t UCL (assumes normality of ROS data)	2.943	95% Percentile Bootstrap UCL	2.929
95% BCA Bootstrap UCL	2.945	95% Bootstrap t UCL	2.974
95% H-UCL (Log ROS)	3.099		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	0.855	KM Geo Mean	2.35
KM SD (logged)	0.518	95% Critical H Value (KM-Log)	1.9
KM Standard Error of Mean (logged)	0.0776	95% H-UCL (KM -Log)	3.103
KM SD (logged)	0.518	95% Critical H Value (KM-Log)	1.9
KM Standard Error of Mean (logged)	0.0776		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	2.622	Mean in Log Scale	0.841
SD in Original Scale	1.236	SD in Log Scale	0.526
95% t UCL (Assumes normality)	2.922	95% H-Stat UCL	3.08

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	2.949

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.12/23/2021 9:17:56 PM
From File	ProUCL input 2021.02.23_c.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Copper - 2000um Sieve, Physical Reach 3, Bar feature

General Statistics

Total Number of Observations	167	Number of Distinct Observations	130

		Number of Missing Observations	0
Minimum	97.12	Mean	524.3
Maximum	2160	Median	476
SD	280	Std. Error of Mean	21.67
Coefficient of Variation	0.534	Skewness	1.837

Normal GOF Test

Shapiro Wilk Test Statistic	0.864	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.169	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.069	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	560.2	95% Adjusted-CLT UCL (Chen-1995)	563.3
		95% Modified-t UCL (Johnson-1978)	560.7

Gamma GOF Test

A-D Test Statistic	4.849	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.758	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.16	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0725	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.606	k star (bias corrected MLE)	3.546
Theta hat (MLE)	145.4	Theta star (bias corrected MLE)	147.9
nu hat (MLE)	1205	nu star (bias corrected)	1184
MLE Mean (bias corrected)	524.3	MLE Sd (bias corrected)	278.5
		Approximate Chi Square Value (0.05)	1105
Adjusted Level of Significance	0.0486	Adjusted Chi Square Value	1105

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	561.8	95% Adjusted Gamma UCL (use when n<50)	562.1

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.873	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.195	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.069	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	4.576	Mean of logged Data	6.117
Maximum of Logged Data	7.678	SD of logged Data	0.583

Assuming Lognormal Distribution

95% H-UCL	584.6	90% Chebyshev (MVUE) UCL	615.1
95% Chebyshev (MVUE) UCL	650.6	97.5% Chebyshev (MVUE) UCL	699.8
99% Chebyshev (MVUE) UCL	796.4		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	560	95% Jackknife UCL	560.2
95% Standard Bootstrap UCL	559.4	95% Bootstrap-t UCL	563.8
95% Hall's Bootstrap UCL	564.1	95% Percentile Bootstrap UCL	560.8
95% BCA Bootstrap UCL	563.2		
90% Chebyshev(Mean, Sd) UCL	589.3	95% Chebyshev(Mean, Sd) UCL	618.8
97.5% Chebyshev(Mean, Sd) UCL	659.6	99% Chebyshev(Mean, Sd) UCL	739.9

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL 618.8

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Copper - 2000um Sieve, Physical Reach 3, Overbank feature

General Statistics

Total Number of Observations	204	Number of Distinct Observations	178
		Number of Missing Observations	0
Minimum	46.4	Mean	587
Maximum	2240	Median	524.5
SD	316.9	Std. Error of Mean	22.19
Coefficient of Variation	0.54	Skewness	1.26

Normal GOF Test

Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	9.781E-13	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0825	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0625	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	623.7	95% Adjusted-CLT UCL (Chen-1995)	625.6
		95% Modified-t UCL (Johnson-1978)	624

Gamma GOF Test

A-D Test Statistic	2.758	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.76	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0966	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.0636	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.064	k star (bias corrected MLE)	3.022
Theta hat (MLE)	191.6	Theta star (bias corrected MLE)	194.3
nu hat (MLE)	1250	nu star (bias corrected)	1233
MLE Mean (bias corrected)	587	MLE Sd (bias corrected)	337.7
		Approximate Chi Square Value (0.05)	1152
Adjusted Level of Significance	0.0488	Adjusted Chi Square Value	1152

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	628.1	95% Adjusted Gamma UCL (use when n<50)	628.4

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.897	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.135	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.0625	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.837	Mean of logged Data	6.203
Maximum of Logged Data	7.714	SD of logged Data	0.656

Assuming Lognormal Distribution

95% H-UCL	668.6	90% Chebyshev (MVUE) UCL	704.6
95% Chebyshev (MVUE) UCL	746.5	97.5% Chebyshev (MVUE) UCL	804.7
99% Chebyshev (MVUE) UCL	918.9		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	623.5	95% Jackknife UCL	623.7
95% Standard Bootstrap UCL	622.6	95% Bootstrap-t UCL	627.4
95% Hall's Bootstrap UCL	626.4	95% Percentile Bootstrap UCL	622.3
95% BCA Bootstrap UCL	626.1		
90% Chebyshev(Mean, Sd) UCL	653.6	95% Chebyshev(Mean, Sd) UCL	683.8
97.5% Chebyshev(Mean, Sd) UCL	725.6	99% Chebyshev(Mean, Sd) UCL	807.8

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	683.8

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Copper - 250um Sieve, Physical Reach 3, Bar feature

General Statistics

Total Number of Observations	167	Number of Distinct Observations	146
		Number of Missing Observations	0
Minimum	128.6	Mean	600.7
Maximum	1850	Median	538.8
SD	296.6	Std. Error of Mean	22.95
Coefficient of Variation	0.494	Skewness	1.207

Normal GOF Test

Shapiro Wilk Test Statistic	0.89	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.15	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.069	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	638.7	95% Adjusted-CLT UCL (Chen-1995)	640.7
		95% Modified-t UCL (Johnson-1978)	639

Gamma GOF Test

A-D Test Statistic	4.724	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.148	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0725	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.974	k star (bias corrected MLE)	3.907
Theta hat (MLE)	151.1	Theta star (bias corrected MLE)	153.7
nu hat (MLE)	1327	nu star (bias corrected)	1305
MLE Mean (bias corrected)	600.7	MLE Sd (bias corrected)	303.9
		Approximate Chi Square Value (0.05)	1222
Adjusted Level of Significance	0.0486	Adjusted Chi Square Value	1221

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	641.4	95% Adjusted Gamma UCL (use when n<50)	641.8

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.874	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.181	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.069	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	4.857	Mean of logged Data	6.267
Maximum of Logged Data	7.523	SD of logged Data	0.552

Assuming Lognormal Distribution

95% H-UCL	664.1	90% Chebyshev (MVUE) UCL	697.2
95% Chebyshev (MVUE) UCL	735.3	97.5% Chebyshev (MVUE) UCL	788.1
99% Chebyshev (MVUE) UCL	892		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	638.5	95% Jackknife UCL	638.7
95% Standard Bootstrap UCL	637.9	95% Bootstrap-t UCL	641.3
95% Hall's Bootstrap UCL	643.8	95% Percentile Bootstrap UCL	637.1
95% BCA Bootstrap UCL	639.8		
90% Chebyshev(Mean, Sd) UCL	669.6	95% Chebyshev(Mean, Sd) UCL	700.7
97.5% Chebyshev(Mean, Sd) UCL	744	99% Chebyshev(Mean, Sd) UCL	829

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL 700.7

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Copper - 250um Sieve, Physical Reach 3, Overbank feature

General Statistics

Total Number of Observations	204	Number of Distinct Observations	183
		Number of Missing Observations	0
Minimum	64.94	Mean	665
Maximum	2344	Median	603.4
SD	342.2	Std. Error of Mean	23.96
Coefficient of Variation	0.515	Skewness	1.049

Normal GOF Test

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	1.3043E-8	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0781	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0625	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	704.6	95% Adjusted-CLT UCL (Chen-1995)	706.3
		95% Modified-t UCL (Johnson-1978)	704.9

Gamma GOF Test

A-D Test Statistic	2.441	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.759	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0856	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.0636	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.34	k star (bias corrected MLE)	3.294
Theta hat (MLE)	199.1	Theta star (bias corrected MLE)	201.9
nu hat (MLE)	1363	nu star (bias corrected)	1344
MLE Mean (bias corrected)	665	MLE Sd (bias corrected)	366.4
		Approximate Chi Square Value (0.05)	1260
Adjusted Level of Significance	0.0488	Adjusted Chi Square Value	1259

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	709.4	95% Adjusted Gamma UCL (use when n<50)	709.7

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.906	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.123	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.0625	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	4.174	Mean of logged Data	6.343
Maximum of Logged Data	7.76	SD of logged Data	0.621

Assuming Lognormal Distribution

95% H-UCL	747.5	90% Chebyshev (MVUE) UCL	785.8
95% Chebyshev (MVUE) UCL	830	97.5% Chebyshev (MVUE) UCL	891.4
99% Chebyshev (MVUE) UCL	1012		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	704.4	95% Jackknife UCL	704.6
95% Standard Bootstrap UCL	705.2	95% Bootstrap-t UCL	705.7
95% Hall's Bootstrap UCL	707.9	95% Percentile Bootstrap UCL	703.4
95% BCA Bootstrap UCL	705.8		

90% Chebyshev(Mean, Sd) UCL	736.9	95% Chebyshev(Mean, Sd) UCL	769.4
97.5% Chebyshev(Mean, Sd) UCL	814.6	99% Chebyshev(Mean, Sd) UCL	903.4

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL 769.4

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Iron - 250um Sieve, Physical Reach 3, Bar feature

General Statistics

Total Number of Observations	167	Number of Distinct Observations	140
		Number of Missing Observations	0
Minimum	9432	Mean	52393
Maximum	110192	Median	54325
SD	19729	Std. Error of Mean	1527
Coefficient of Variation	0.377	Skewness	-0.339

Normal GOF Test

Shapiro Wilk Test Statistic	0.949	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	1.2680E-5	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.114	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.069	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	54918	95% Adjusted-CLT UCL (Chen-1995)	54861
		95% Modified-t UCL (Johnson-1978)	54912

Gamma GOF Test

A-D Test Statistic	8.251	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.195	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0724	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.698	k star (bias corrected MLE)	4.617
Theta hat (MLE)	11153	Theta star (bias corrected MLE)	11347
nu hat (MLE)	1569	nu star (bias corrected)	1542
MLE Mean (bias corrected)	52393	MLE Sd (bias corrected)	24383
		Approximate Chi Square Value (0.05)	1452
Adjusted Level of Significance	0.0486	Adjusted Chi Square Value	1451

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	55648	95% Adjusted Gamma UCL (use when n<50)	55677

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.78	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.23	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.069	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	9.152	Mean of logged Data	10.76
Maximum of Logged Data	11.61	SD of logged Data	0.544

Assuming Lognormal Distribution

95% H-UCL	58791	90% Chebyshev (MVUE) UCL	61681
95% Chebyshev (MVUE) UCL	65000	97.5% Chebyshev (MVUE) UCL	69606
99% Chebyshev (MVUE) UCL	78655		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	54904	95% Jackknife UCL	54918
95% Standard Bootstrap UCL	54960	95% Bootstrap-t UCL	54882
95% Hall's Bootstrap UCL	54981	95% Percentile Bootstrap UCL	55028
95% BCA Bootstrap UCL	54791		
90% Chebyshev(Mean, Sd) UCL	56973	95% Chebyshev(Mean, Sd) UCL	59048
97.5% Chebyshev(Mean, Sd) UCL	61927	99% Chebyshev(Mean, Sd) UCL	67584

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL 59048

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

Iron - 250um Sieve, Physical Reach 3, Overbank feature

General Statistics

Total Number of Observations	204	Number of Distinct Observations	176
		Number of Missing Observations	0
Minimum	5246	Mean	44815
Maximum	155859	Median	42347
SD	21344	Std. Error of Mean	1494
Coefficient of Variation	0.476	Skewness	1.107

Normal GOF Test

Shapiro Wilk Test Statistic	0.948	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	2.7081E-7	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0636	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0625	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	47285	95% Adjusted-CLT UCL (Chen-1995)	47397
		95% Modified-t UCL (Johnson-1978)	47304

Gamma GOF Test

A-D Test Statistic	0.925	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0491	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.0634	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.171	k star (bias corrected MLE)	4.112
Theta hat (MLE)	10746	Theta star (bias corrected MLE)	10897
nu hat (MLE)	1702	nu star (bias corrected)	1678
MLE Mean (bias corrected)	44815	MLE Sd (bias corrected)	22099
		Approximate Chi Square Value (0.05)	1584
Adjusted Level of Significance	0.0488	Adjusted Chi Square Value	1583

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	47479	95% Adjusted Gamma UCL (use when n<50)	47498

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.943	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk P Value	9.3350E-9	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0787	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.0625	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	8.565	Mean of logged Data	10.59
Maximum of Logged Data	11.96	SD of logged Data	0.537

Assuming Lognormal Distribution

95% H-UCL	48950	90% Chebyshev (MVUE) UCL	51159

95% Chebyshev (MVUE) UCL	53648	97.5% Chebyshev (MVUE) UCL	57102
99% Chebyshev (MVUE) UCL	63888		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	47273	95% Jackknife UCL	47285
95% Standard Bootstrap UCL	47203	95% Bootstrap-t UCL	47495
95% Hall's Bootstrap UCL	47411	95% Percentile Bootstrap UCL	47280
95% BCA Bootstrap UCL	47452		
90% Chebyshev(Mean, Sd) UCL	49299	95% Chebyshev(Mean, Sd) UCL	51329
97.5% Chebyshev(Mean, Sd) UCL	54148	99% Chebyshev(Mean, Sd) UCL	59685

Suggested UCL to Use

95% Approximate Gamma UCL 47479

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Lead - 250um Sieve, Physical Reach 3, Bar feature

General Statistics

Total Number of Observations	167	Number of Distinct Observations	130
		Number of Missing Observations	0
Minimum	23.9	Mean	209.6
Maximum	528	Median	217
SD	99.45	Std. Error of Mean	7.696
Coefficient of Variation	0.475	Skewness	0.1

Normal GOF Test

Shapiro Wilk Test Statistic	0.94	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	1.6544E-7	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.0873	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.069	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	222.3	95% Adjusted-CLT UCL (Chen-1995)	222.3
		95% Modified-t UCL (Johnson-1978)	222.3

Gamma GOF Test

A-D Test Statistic	10.26	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.762	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.193	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0728	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.695	k star (bias corrected MLE)	2.651
Theta hat (MLE)	77.76	Theta star (bias corrected MLE)	79.06
nu hat (MLE)	900.2	nu star (bias corrected)	885.3
MLE Mean (bias corrected)	209.6	MLE Sd (bias corrected)	128.7
		Approximate Chi Square Value (0.05)	817.3
Adjusted Level of Significance	0.0486	Adjusted Chi Square Value	816.7

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	227	95% Adjusted Gamma UCL (use when n<50)	227.2

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.744	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.24	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.069	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.174	Mean of logged Data	5.148
Maximum of Logged Data	6.269	SD of logged Data	0.764

Assuming Lognormal Distribution

95% H-UCL	259.1	90% Chebyshev (MVUE) UCL	275.9
95% Chebyshev (MVUE) UCL	296.8	97.5% Chebyshev (MVUE) UCL	325.7
99% Chebyshev (MVUE) UCL	382.5		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	222.2	95% Jackknife UCL	222.3
95% Standard Bootstrap UCL	222.5	95% Bootstrap-t UCL	222.5
95% Hall's Bootstrap UCL	222.5	95% Percentile Bootstrap UCL	221.8
95% BCA Bootstrap UCL	221.8		
90% Chebyshev(Mean, Sd) UCL	232.7	95% Chebyshev(Mean, Sd) UCL	243.1
97.5% Chebyshev(Mean, Sd) UCL	257.6	99% Chebyshev(Mean, Sd) UCL	286.1

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL 243.1

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Lead - 250um Sieve, Physical Reach 3, Overbank feature

General Statistics

Total Number of Observations	204	Number of Distinct Observations	173
		Number of Missing Observations	0
Minimum	0.081	Mean	195.6
Maximum	559.4	Median	191.1
SD	114.9	Std. Error of Mean	8.042
Coefficient of Variation	0.587	Skewness	0.587

Normal GOF Test

Shapiro Wilk Test Statistic	0.951	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	1.9209E-6	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.0818	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0625	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	208.9	95% Adjusted-CLT UCL (Chen-1995)	209.2
		95% Modified-t UCL (Johnson-1978)	208.9

Gamma GOF Test

A-D Test Statistic	4.201	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.121	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.064	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.954	k star (bias corrected MLE)	1.929
Theta hat (MLE)	100.1	Theta star (bias corrected MLE)	101.4
nu hat (MLE)	797.3	nu star (bias corrected)	786.9
MLE Mean (bias corrected)	195.6	MLE Sd (bias corrected)	140.8
		Approximate Chi Square Value (0.05)	722.8
Adjusted Level of Significance	0.0488	Adjusted Chi Square Value	722.4

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	213	95% Adjusted Gamma UCL (use when n<50)	213.1

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.8	**Shapiro Wilk Lognormal GOF Test**

5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.17	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.0625	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-2.513	Mean of logged Data	4.999
Maximum of Logged Data	6.327	SD of logged Data	0.972

Assuming Lognormal Distribution

95% H-UCL	274.9	90% Chebyshev (MVUE) UCL	295.2
95% Chebyshev (MVUE) UCL	321.6	97.5% Chebyshev (MVUE) UCL	358.1
99% Chebyshev (MVUE) UCL	430		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	208.8	95% Jackknife UCL	208.9
95% Standard Bootstrap UCL	209	95% Bootstrap-t UCL	209.7
95% Hall's Bootstrap UCL	209.2	95% Percentile Bootstrap UCL	208.9
95% BCA Bootstrap UCL	208.9		
90% Chebyshev(Mean, Sd) UCL	219.7	95% Chebyshev(Mean, Sd) UCL	230.7
97.5% Chebyshev(Mean, Sd) UCL	245.8	99% Chebyshev(Mean, Sd) UCL	275.6

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL 230.7

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Manganese - 250um Sieve, Physical Reach 3, Bar feature

General Statistics

Total Number of Observations	167	Number of Distinct Observations	128
		Number of Missing Observations	0
Minimum	181.8	Mean	1126
Maximum	3493	Median	1089
SD	432.1	Std. Error of Mean	33.44
Coefficient of Variation	0.384	Skewness	1.027

Normal GOF Test

Shapiro Wilk Test Statistic	0.956	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	3.1539E-4	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0645	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.069	Data appear Normal at 5% Significance Level	

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1182	95% Adjusted-CLT UCL (Chen-1995)	1184
		95% Modified-t UCL (Johnson-1978)	1182

Gamma GOF Test

A-D Test Statistic	1.418	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.754	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0673	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.0722	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	6.331	k star (bias corrected MLE)	6.222
Theta hat (MLE)	177.9	Theta star (bias corrected MLE)	181
nu hat (MLE)	2115	nu star (bias corrected)	2078
MLE Mean (bias corrected)	1126	MLE Sd (bias corrected)	451.5
		Approximate Chi Square Value (0.05)	1973
Adjusted Level of Significance	0.0486	Adjusted Chi Square Value	1972

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1186	95% Adjusted Gamma UCL (use when n<50)	1187

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	9.827E-10	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0916	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.069	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	5.203	Mean of logged Data	6.946
Maximum of Logged Data	8.159	SD of logged Data	0.431

Assuming Lognormal Distribution

95% H-UCL	1210	90% Chebyshev (MVUE) UCL	1258
95% Chebyshev (MVUE) UCL	1312	97.5% Chebyshev (MVUE) UCL	1387
99% Chebyshev (MVUE) UCL	1534		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1181	95% Jackknife UCL	1182
95% Standard Bootstrap UCL	1180	95% Bootstrap-t UCL	1184
95% Hall's Bootstrap UCL	1184	95% Percentile Bootstrap UCL	1179
95% BCA Bootstrap UCL	1181		
90% Chebyshev(Mean, Sd) UCL	1227	95% Chebyshev(Mean, Sd) UCL	1272
97.5% Chebyshev(Mean, Sd) UCL	1335	99% Chebyshev(Mean, Sd) UCL	1459

Suggested UCL to Use

95% Student's-t UCL 1182

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Manganese - 250um Sieve, Physical Reach 3, Overbank feature

General Statistics

Total Number of Observations	204	Number of Distinct Observations	159
		Number of Missing Observations	0
Minimum	202.2	Mean	1050
Maximum	2819	Median	1045
SD	388.6	Std. Error of Mean	27.21
Coefficient of Variation	0.37	Skewness	0.52

Normal GOF Test

Shapiro Wilk Test Statistic	0.967	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	0.00484	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.0466	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0625	Data appear Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1095	95% Adjusted-CLT UCL (Chen-1995)	1096
		95% Modified-t UCL (Johnson-1978)	1095

Gamma GOF Test

A-D Test Statistic	2.602	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.755	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.094	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0633	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	6.537	k star (bias corrected MLE)	6.444

Theta hat (MLE)	160.7	Theta star (bias corrected MLE)	163
nu hat (MLE)	2667	nu star (bias corrected)	2629
MLE Mean (bias corrected)	1050	MLE Sd (bias corrected)	413.7
		Approximate Chi Square Value (0.05)	2511
Adjusted Level of Significance	0.0488	Adjusted Chi Square Value	2510

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1100	95% Adjusted Gamma UCL (use when n<50)	1100

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.933	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk P Value	7.944E-12	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.122	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.0625	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	5.309	Mean of logged Data	6.878
Maximum of Logged Data	7.944	SD of logged Data	0.421

Assuming Lognormal Distribution

95% H-UCL	1118	90% Chebyshev (MVUE) UCL	1158
95% Chebyshev (MVUE) UCL	1203	97.5% Chebyshev (MVUE) UCL	1264
99% Chebyshev (MVUE) UCL	1385		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1095	95% Jackknife UCL	1095
95% Standard Bootstrap UCL	1096	95% Bootstrap-t UCL	1094
95% Hall's Bootstrap UCL	1097	95% Percentile Bootstrap UCL	1095
95% BCA Bootstrap UCL	1096		
90% Chebyshev(Mean, Sd) UCL	1132	95% Chebyshev(Mean, Sd) UCL	1169
97.5% Chebyshev(Mean, Sd) UCL	1220	99% Chebyshev(Mean, Sd) UCL	1321

Suggested UCL to Use

95% Student's-t UCL 1095

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

pCu - 2000um Sieve, Physical Reach 3, Bar feature

General Statistics

Total Number of Observations	167	Number of Distinct Observations	163
		Number of Missing Observations	0
Minimum	3.868	Mean	6.692
Maximum	9.17	Median	6.803
SD	1.084	Std. Error of Mean	0.0839
Coefficient of Variation	0.162	Skewness	-0.252

Normal GOF Test

Shapiro Wilk Test Statistic	0.972	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	0.0714	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0761	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.069	Data Not Normal at 5% Significance Level	

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	6.831	95% Adjusted-CLT UCL (Chen-1995)	6.828
		95% Modified-t UCL (Johnson-1978)	6.831

Gamma GOF Test

A-D Test Statistic	1.57	**Anderson-Darling Gamma GOF Test**	

5% A-D Critical Value	0.751	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.099	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.072	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	36.1	k star (bias corrected MLE)	35.46
Theta hat (MLE)	0.185	Theta star (bias corrected MLE)	0.189
nu hat (MLE)	12059	nu star (bias corrected)	11843
MLE Mean (bias corrected)	6.692	MLE Sd (bias corrected)	1.124
		Approximate Chi Square Value (0.05)	11591
Adjusted Level of Significance	0.0486	Adjusted Chi Square Value	11589

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	6.838	95% Adjusted Gamma UCL (use when n<50)	6.839

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.951	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk P Value	3.2691E-5	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.11	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.069	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	1.353	Mean of logged Data	1.887
Maximum of Logged Data	2.216	SD of logged Data	0.171

Assuming Lognormal Distribution

95% H-UCL	6.847	90% Chebyshev (MVUE) UCL	6.963
95% Chebyshev (MVUE) UCL	7.084	97.5% Chebyshev (MVUE) UCL	7.252
99% Chebyshev (MVUE) UCL	7.581		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	6.83	95% Jackknife UCL	6.831
95% Standard Bootstrap UCL	6.829	95% Bootstrap-t UCL	6.827
95% Hall's Bootstrap UCL	6.823	95% Percentile Bootstrap UCL	6.832
95% BCA Bootstrap UCL	6.824		
90% Chebyshev(Mean, Sd) UCL	6.944	95% Chebyshev(Mean, Sd) UCL	7.058
97.5% Chebyshev(Mean, Sd) UCL	7.216	99% Chebyshev(Mean, Sd) UCL	7.527

Suggested UCL to Use

95% Student's-t UCL	6.831

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

pCu - 2000um Sieve, Physical Reach 3, Overbank feature

General Statistics

Total Number of Observations	204	Number of Distinct Observations	201
		Number of Missing Observations	0
Minimum	2.84	Mean	6.621
Maximum	10.27	Median	6.79
SD	1.288	Std. Error of Mean	0.0902
Coefficient of Variation	0.195	Skewness	-0.453

Normal GOF Test

Shapiro Wilk Test Statistic	0.961	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	3.5207E-4	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0854	**Lilliefors GOF Test**	

5% Lilliefors Critical Value	0.0625	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	6.77	95% Adjusted-CLT UCL (Chen-1995)	6.766
		95% Modified-t UCL (Johnson-1978)	6.769

Gamma GOF Test

A-D Test Statistic	4.721	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.751	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.117	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.063	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	23.33	k star (bias corrected MLE)	22.99
Theta hat (MLE)	0.284	Theta star (bias corrected MLE)	0.288
nu hat (MLE)	9520	nu star (bias corrected)	9382
MLE Mean (bias corrected)	6.621	MLE Sd (bias corrected)	1.381
		Approximate Chi Square Value (0.05)	9157
Adjusted Level of Significance	0.0488	Adjusted Chi Square Value	9156

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	6.783	95% Adjusted Gamma UCL (use when n<50)	6.784

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.906	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.133	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.0625	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	1.044	Mean of logged Data	1.869
Maximum of Logged Data	2.33	SD of logged Data	0.217

Assuming Lognormal Distribution

95% H-UCL	6.807	90% Chebyshev (MVUE) UCL	6.939
95% Chebyshev (MVUE) UCL	7.077	97.5% Chebyshev (MVUE) UCL	7.27
99% Chebyshev (MVUE) UCL	7.647		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	6.769	95% Jackknife UCL	6.77
95% Standard Bootstrap UCL	6.769	95% Bootstrap-t UCL	6.771
95% Hall's Bootstrap UCL	6.768	95% Percentile Bootstrap UCL	6.771
95% BCA Bootstrap UCL	6.771		
90% Chebyshev(Mean, Sd) UCL	6.891	95% Chebyshev(Mean, Sd) UCL	7.014
97.5% Chebyshev(Mean, Sd) UCL	7.184	99% Chebyshev(Mean, Sd) UCL	7.518

Suggested UCL to Use

95% Student's-t UCL	6.77	or 95% Modified-t UCL	6.769

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.12/23/2021 9:16:25 PM
From File	ProUCL input 2021.02.23_c.xls
Full Precision	OFF
Confidence Coefficient	95%

Number of Bootstrap Operations 2000

Arsenic - 250um Sieve, Physical Reach 3, Bar feature

General Statistics

Total Number of Observations	167	Number of Distinct Observations	133
		Number of Missing Observations	0
Minimum	2.23	Mean	6.352
Maximum	17.54	Median	5.376
SD	3.465	Std. Error of Mean	0.268
Coefficient of Variation	0.545	Skewness	2.158

Normal GOF Test

Shapiro Wilk Test Statistic	0.723	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.224	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.069	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	6.796	95% Adjusted-CLT UCL (Chen-1995)	6.841
		95% Modified-t UCL (Johnson-1978)	6.803

Gamma GOF Test

A-D Test Statistic	6.324	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.158	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.0723	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.914	k star (bias corrected MLE)	4.83
Theta hat (MLE)	1.293	Theta star (bias corrected MLE)	1.315
nu hat (MLE)	1641	nu star (bias corrected)	1613
MLE Mean (bias corrected)	6.352	MLE Sd (bias corrected)	2.89
		Approximate Chi Square Value (0.05)	1521
Adjusted Level of Significance	0.0486	Adjusted Chi Square Value	1520

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	6.738	95% Adjusted Gamma UCL (use when n<50)	6.741

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.917	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk P Value	4.436E-13	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.12	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.069	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.802	Mean of logged Data	1.744
Maximum of Logged Data	2.865	SD of logged Data	0.431

Assuming Lognormal Distribution

95% H-UCL	6.659	90% Chebyshev (MVUE) UCL	6.926
95% Chebyshev (MVUE) UCL	7.222	97.5% Chebyshev (MVUE) UCL	7.634
99% Chebyshev (MVUE) UCL	8.442		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	6.793	95% Jackknife UCL	6.796
95% Standard Bootstrap UCL	6.797	95% Bootstrap-t UCL	6.852
95% Hall's Bootstrap UCL	6.871	95% Percentile Bootstrap UCL	6.811
95% BCA Bootstrap UCL	6.866		
90% Chebyshev(Mean, Sd) UCL	7.157	95% Chebyshev(Mean, Sd) UCL	7.521
97.5% Chebyshev(Mean, Sd) UCL	8.027	99% Chebyshev(Mean, Sd) UCL	9.02

Suggested UCL to Use

95% Student's-t UCL	6.796	or 95% Modified-t UCL	6.803

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Arsenic - 250um Sieve, Physical Reach 3, Overbank feature

General Statistics

Total Number of Observations	204	Number of Distinct Observations	178
Number of Detects	200	Number of Non-Detects	4
Number of Distinct Detects	177	Number of Distinct Non-Detects	1
Minimum Detect	0.334	Minimum Non-Detect	2.88
Maximum Detect	17.54	Maximum Non-Detect	2.88
Variance Detects	10.79	Percent Non-Detects	1.961%
Mean Detects	5.677	SD Detects	3.285
Median Detects	4.739	CV Detects	0.579
Skewness Detects	2.063	Kurtosis Detects	5.102
Mean of Logged Detects	1.602	SD of Logged Detects	0.521

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.789	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.164	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0631	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	5.61	KM Standard Error of Mean	0.23
KM SD	3.28	95% KM (BCA) UCL	6.027
95% KM (t) UCL	5.991	95% KM (Percentile Bootstrap) UCL	5.985
95% KM (z) UCL	5.989	95% KM Bootstrap t UCL	6.019
90% KM Chebyshev UCL	6.301	95% KM Chebyshev UCL	6.614
97.5% KM Chebyshev UCL	7.048	99% KM Chebyshev UCL	7.901

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.767	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.757	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0993	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.0639	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.879	k star (bias corrected MLE)	3.824
Theta hat (MLE)	1.464	Theta star (bias corrected MLE)	1.485
nu hat (MLE)	1551	nu star (bias corrected)	1530
Mean (detects)	5.677		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.334	Mean	5.595
Maximum	17.54	Median	4.722
SD	3.304	CV	0.59
k hat (MLE)	3.633	k star (bias corrected MLE)	3.583
Theta hat (MLE)	1.54	Theta star (bias corrected MLE)	1.562
nu hat (MLE)	1482	nu star (bias corrected)	1462
Adjusted Level of Significance (β)	0.0488		
Approximate Chi Square Value (N/A, α)	1374	Adjusted Chi Square Value (N/A, β)	1373
95% Gamma Approximate UCL (use when n>=50)	5.953	95% Gamma Adjusted UCL (use when n<50)	5.955

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	5.61	SD (KM)	3.28
Variance (KM)	10.76	SE of Mean (KM)	0.23
k hat (KM)	2.926	k star (KM)	2.886
nu hat (KM)	1194	nu star (KM)	1178
theta hat (KM)	1.917	theta star (KM)	1.944
80% gamma percentile (KM)	8.039	90% gamma percentile (KM)	10.04
95% gamma percentile (KM)	11.91	99% gamma percentile (KM)	15.96

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (N/A, α)	1099	Adjusted Chi Square Value (N/A, β)	1098
95% Gamma Approximate KM-UCL (use when n>=50)	6.012	95% Gamma Adjusted KM-UCL (use when n<50)	6.015

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.963	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	8.7983E-4	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0643	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0631	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	5.608	Mean in Log Scale	1.585
SD in Original Scale	3.289	SD in Log Scale	0.529
95% t UCL (assumes normality of ROS data)	5.988	95% Percentile Bootstrap UCL	5.979
95% BCA Bootstrap UCL	6.03	95% Bootstrap t UCL	6.011
95% H-UCL (Log ROS)	6.008		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	1.585	KM Geo Mean	4.881
KM SD (logged)	0.531	95% Critical H Value (KM-Log)	1.819
KM Standard Error of Mean (logged)	0.0376	95% H-UCL (KM -Log)	6.016
KM SD (logged)	0.531	95% Critical H Value (KM-Log)	1.819
KM Standard Error of Mean (logged)	0.0376		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	5.594	Mean in Log Scale	1.578
SD in Original Scale	3.305	SD in Log Scale	0.544
95% t UCL (Assumes normality)	5.976	95% H-Stat UCL	6.021

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	6.614

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Cadmium - 250um Sieve, Physical Reach 3, Bar feature

General Statistics

Total Number of Observations	167	Number of Distinct Observations	129
Number of Detects	150	Number of Non-Detects	17
Number of Distinct Detects	128	Number of Distinct Non-Detects	1
Minimum Detect	0.45	Minimum Non-Detect	2.601
Maximum Detect	5.52	Maximum Non-Detect	2.601
Variance Detects	1.123	Percent Non-Detects	10.18%
Mean Detects	2.072	SD Detects	1.06
Median Detects	1.859	CV Detects	0.511
Skewness Detects	0.848	Kurtosis Detects	0.379
Mean of Logged Detects	0.596	SD of Logged Detects	0.53

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.928	**Normal GOF Test on Detected Observations Only**	
5% Shapiro Wilk P Value	4.5175E-9	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0973	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0727	Detected Data Not Normal at 5% Significance Level	

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	2.016	KM Standard Error of Mean	0.0813
KM SD	1.03	95% KM (BCA) UCL	2.161
95% KM (t) UCL	2.151	95% KM (Percentile Bootstrap) UCL	2.157
95% KM (z) UCL	2.15	95% KM Bootstrap t UCL	2.161
90% KM Chebyshev UCL	2.26	95% KM Chebyshev UCL	2.371
97.5% KM Chebyshev UCL	2.524	99% KM Chebyshev UCL	2.825

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.456	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.757	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0515	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.0769	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.922	k star (bias corrected MLE)	3.848
Theta hat (MLE)	0.528	Theta star (bias corrected MLE)	0.539
nu hat (MLE)	1176	nu star (bias corrected)	1154
Mean (detects)	2.072		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.45	Mean	2.018
Maximum	5.52	Median	1.801
SD	1.031	CV	0.511
k hat (MLE)	3.998	k star (bias corrected MLE)	3.93
Theta hat (MLE)	0.505	Theta star (bias corrected MLE)	0.513
nu hat (MLE)	1335	nu star (bias corrected)	1313
Adjusted Level of Significance (β)	0.0486		
Approximate Chi Square Value (N/A, α)	1230	Adjusted Chi Square Value (N/A, β)	1229
95% Gamma Approximate UCL (use when n>=50)	2.154	95% Gamma Adjusted UCL (use when n<50)	2.155

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.016	SD (KM)	1.03
Variance (KM)	1.06	SE of Mean (KM)	0.0813
k hat (KM)	3.834	k star (KM)	3.769
nu hat (KM)	1281	nu star (KM)	1259
theta hat (KM)	0.526	theta star (KM)	0.535
80% gamma percentile (KM)	2.799	90% gamma percentile (KM)	3.409
95% gamma percentile (KM)	3.971	99% gamma percentile (KM)	5.176

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (N/A, α)	1177	Adjusted Chi Square Value (N/A, β)	1177
95% Gamma Approximate KM-UCL (use when n>=50)	2.156	95% Gamma Adjusted KM-UCL (use when n<50)	2.157

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.973	**Shapiro Wilk GOF Test**
5% Shapiro Wilk P Value	0.103	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0539	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0727	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2.014	Mean in Log Scale	0.571
SD in Original Scale	1.03	SD in Log Scale	0.519
95% t UCL (assumes normality of ROS data)	2.146	95% Percentile Bootstrap UCL	2.15
95% BCA Bootstrap UCL	2.154	95% Bootstrap t UCL	2.155
95% H-UCL (Log ROS)	2.18		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	0.57	KM Geo Mean	1.769
KM SD (logged)	0.522	95% Critical H Value (KM-Log)	1.823
KM Standard Error of Mean (logged)	0.0419	95% H-UCL (KM -Log)	2.183
KM SD (logged)	0.522	95% Critical H Value (KM-Log)	1.823
KM Standard Error of Mean (logged)	0.0419		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	1.994	Mean in Log Scale	0.562
SD in Original Scale	1.031	SD in Log Scale	0.512
95% t UCL (Assumes normality)	2.126	95% H-Stat UCL	2.15

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM Approximate Gamma UCL	2.156	95% GROS Approximate Gamma UCL	2.154

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Cadmium - 250um Sieve, Physical Reach 3, Overbank feature

General Statistics

Total Number of Observations	204	Number of Distinct Observations	167
Number of Detects	187	Number of Non-Detects	17
Number of Distinct Detects	166	Number of Distinct Non-Detects	1
Minimum Detect	0.269	Minimum Non-Detect	2.601
Maximum Detect	7.184	Maximum Non-Detect	2.601
Variance Detects	1.421	Percent Non-Detects	8.333%
Mean Detects	2.126	SD Detects	1.192
Median Detects	1.907	CV Detects	0.561
Skewness Detects	0.975	Kurtosis Detects	1.303
Mean of Logged Detects	0.59	SD of Logged Detects	0.597

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.928	**Normal GOF Test on Detected Observations Only**	
5% Shapiro Wilk P Value	7.774E-12	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0915	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0652	Detected Data Not Normal at 5% Significance Level	

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	2.07	KM Standard Error of Mean	0.0828
KM SD	1.165	95% KM (BCA) UCL	2.203
95% KM (t) UCL	2.206	95% KM (Percentile Bootstrap) UCL	2.204
95% KM (z) UCL	2.206	95% KM Bootstrap t UCL	2.216
90% KM Chebyshev UCL	2.318	95% KM Chebyshev UCL	2.43
97.5% KM Chebyshev UCL	2.586	99% KM Chebyshev UCL	2.893

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.658	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.759	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0592	**Kolmogorov-Smirnov GOF**	
5% K-S Critical Value	0.0674	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.202	k star (bias corrected MLE)	3.154
Theta hat (MLE)	0.664	Theta star (bias corrected MLE)	0.674
nu hat (MLE)	1197	nu star (bias corrected)	1180
Mean (detects)	2.126		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.269	Mean	2.071
Maximum	7.184	Median	1.854
SD	1.166	CV	0.563
k hat (MLE)	3.242	k star (bias corrected MLE)	3.197
Theta hat (MLE)	0.639	Theta star (bias corrected MLE)	0.648
nu hat (MLE)	1323	nu star (bias corrected)	1304
Adjusted Level of Significance (β)	0.0488		
Approximate Chi Square Value (N/A, α)	1222	Adjusted Chi Square Value (N/A, β)	1221
95% Gamma Approximate UCL (use when n>=50)	2.211	95% Gamma Adjusted UCL (use when n<50)	2.212

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.07	SD (KM)	1.165
Variance (KM)	1.358	SE of Mean (KM)	0.0828
k hat (KM)	3.154	k star (KM)	3.111

nu hat (KM)	1287	nu star (KM)	1269
theta hat (KM)	0.656	theta star (KM)	0.665
80% gamma percentile (KM)	2.939	90% gamma percentile (KM)	3.643
95% gamma percentile (KM)	4.298	99% gamma percentile (KM)	5.717

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (N/A, α)	1188	Adjusted Chi Square Value (N/A, β)	1187
95% Gamma Approximate KM-UCL (use when n>=50)	2.212	95% Gamma Adjusted KM-UCL (use when n<50)	2.213

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.973	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	0.0709	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.061	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0652	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2.067	Mean in Log Scale	0.565
SD in Original Scale	1.166	SD in Log Scale	0.588
95% t UCL (assumes normality of ROS data)	2.202	95% Percentile Bootstrap UCL	2.208
95% BCA Bootstrap UCL	2.195	95% Bootstrap t UCL	2.201
95% H-UCL (Log ROS)	2.256		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	0.564	KM Geo Mean	1.758
KM SD (logged)	0.591	95% Critical H Value (KM-Log)	1.852
KM Standard Error of Mean (logged)	0.0427	95% H-UCL (KM -Log)	2.261
KM SD (logged)	0.591	95% Critical H Value (KM-Log)	1.852
KM Standard Error of Mean (logged)	0.0427		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	2.057	Mean in Log Scale	0.563
SD in Original Scale	1.164	SD in Log Scale	0.579
95% t UCL (Assumes normality)	2.192	95% H-Stat UCL	2.237

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

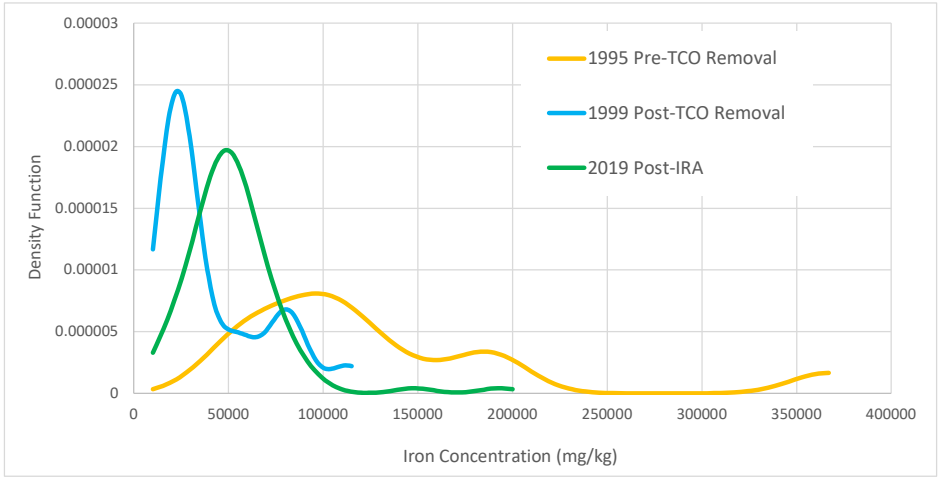
Suggested UCL to Use

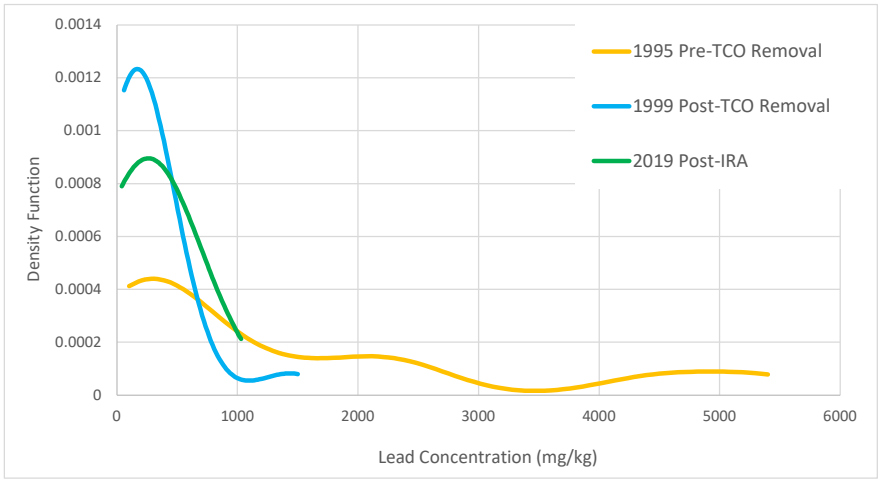
95% KM Approximate Gamma UCL	2.212	95% GROS Approximate Gamma UCL	2.211

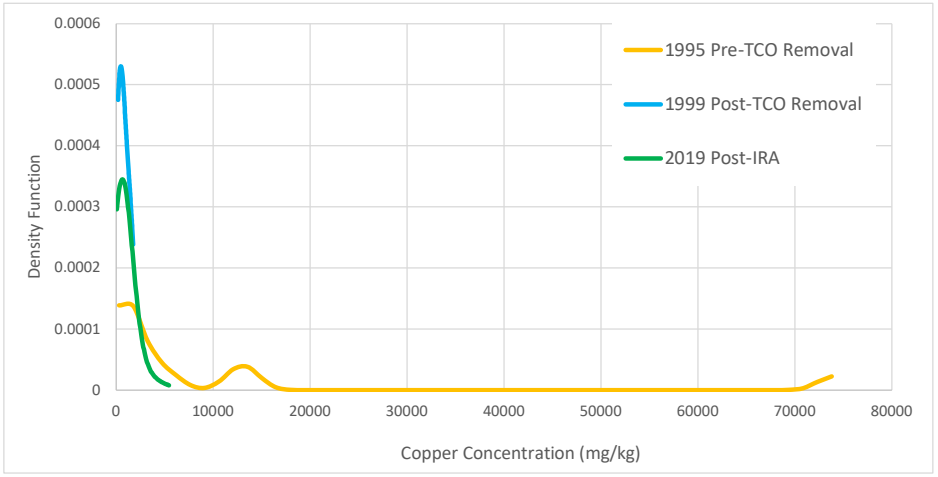
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

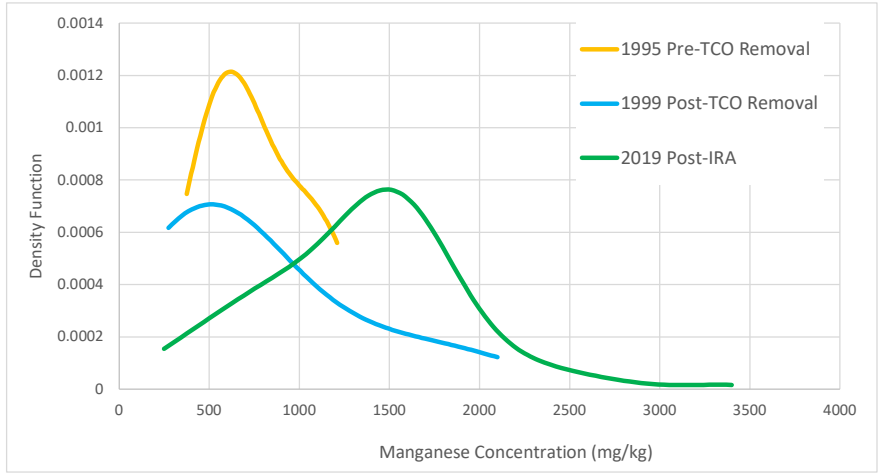
APPENDIX F

COPC Distributions









IRA = Interim Removal Action
mg/kg = milligram per kilogram
TCO = Tin Can Operation

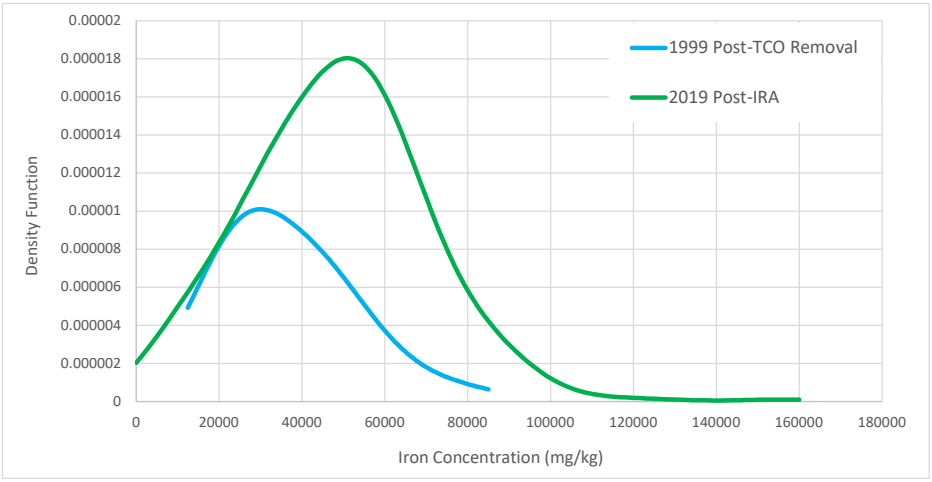
NOTE: Geochemical changes within the Hanover-Whitewater Creek system may have caused increases in manganese over time. However, even with increases, mean and 95th UCL concentrations of manganese are still below the NMED Reseidential RSL.

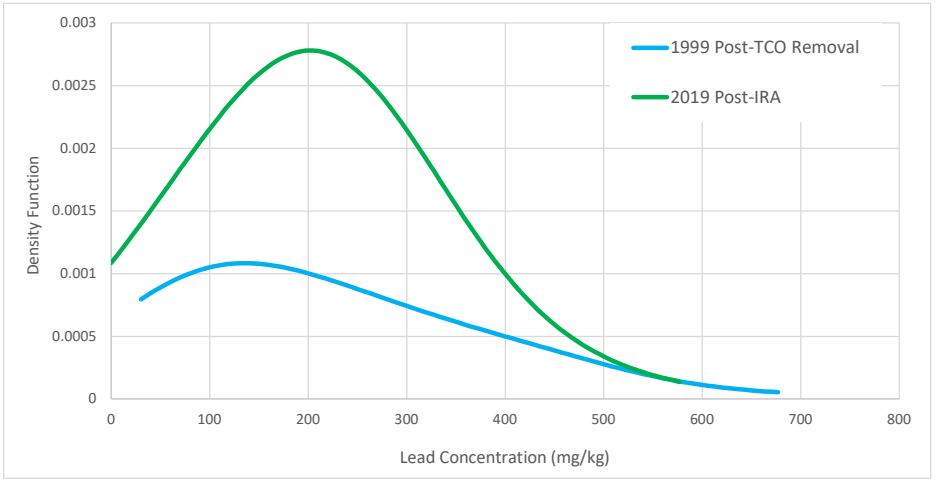
FREEPORT-MCMORAN CHINO MINES COMPANY
HANOVER WHITEWATER CREK INVESTIGATION UNIT
VANADIUM, NEW MEXICO
INTERIM REMOVAL ACTION RESIDUAL RISK ASSESSMENT REPORT
APPENDIX F COPC DISTRIBUTIONS

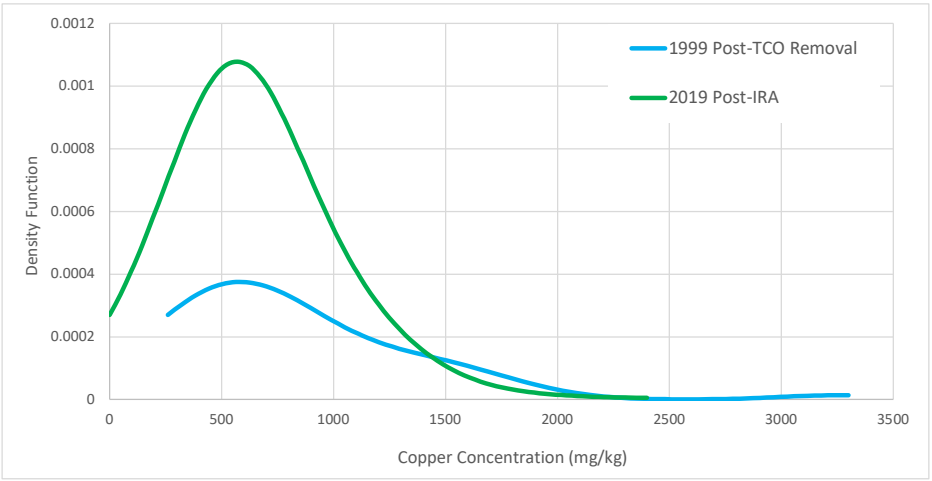
Pre- and Post-TCO Removal Concentration Distributions for COPCs Detected in Physical Reach 2

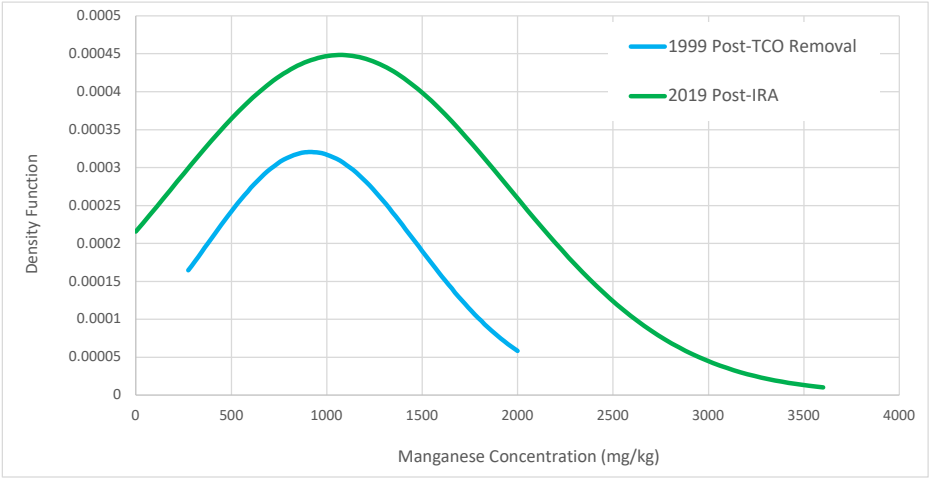
ARCADIS

Figure F-1









IRA = Interim Removal Action
mg/kg = milligram per kilogram
TCO = Tin Can Operation

NOTE: Geochemical changes within the Hanover-Whitewater Creek system may have caused increases in manganese over time. However, even with increases, mean and 95th UCL concentrations of manganese are still below the NMED Reseidential RSL.

FREEPORT-MCMORAN CHINO MINES COMPANY
HANOVER WHITEWATER CREK INVESTIGATION UNIT
VANADIUM, NEW MEXICO
INTERIM REMOVAL ACTION RESIDUAL RISK ASSESSMENT REPORT
APPENDIX F COPC DISTRIBUTIONS

Pre- and Post-TCO Removal Concentration Distributions for COPCs Detected in Physical Reach 3

ARCADIS

Figure F-2

Appendix F
Table F-1
Hypothesis Test Results - P2 Area
Residual Risk Assessment
Freeport-McMoran - Chino Mines Company
Vanadium, New Mexico

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Dataset	Constituent	Sample Size	Detects	Minimum	Maximum	Mean	Median	Distribution	Test	One-Sided Hypothesis Test	
										p-Value	2019 Data ≤ 1995 + 1999 Data?
1995 Pre-TCO Removal	Copper	12	12	371	73,814	9,606	1,675	Lognormal	--	--	--
1999 Post-TCO Removal		18	18	194	1,740	759	577	Lognormal	--	--	--
2019 Post-IRA		97	97	54	5,430	881	635	Nonparametric	--	--	--
1995 + 1999		30	30	194	73,814	4,298	780	Nonparametric	WMW	9.16E-01	2019 Post-IRA ≤ 1995 Pre-TCO + 1999 Post-TCO
2019		97	97	54	5,430	881	635	Nonparametric			
1995 Pre-TCO Removal	Iron	12	12	52,126	367,064	130,659	104,053	Square Root Normal	--	--	--
1999 Post-TCO Removal		18	18	17,200	113,000	41,456	25,255	Nonparametric	--	--	--
2019 Post-IRA		97	97	12,300	193,000	52,021	50,100	Nonparametric	--	--	--
1995 + 1999		30	30	17,200	367,064	77,137	55,590	Lognormal	WMW	8.56E-01	2019 Post-IRA ≤ 1995 Pre-TCO + 1999 Post-TCO
2019		97	97	12,300	193,000	52,021	50,100	Nonparametric			
1995 Pre-TCO Removal	Lead	12	12	107	5,367	1,478	591	Square Root Normal	--	--	--
1999 Post-TCO Removal		18	18	60	1,440	260	120	Lognormal	--	--	--
2019 Post-IRA		97	97	47.4	1,014	276	242	~ Cube Root Normal	--	--	--
1995 + 1999		30	30	60	5,367	747	208	~ Lognormal	WMW	3.77E-01	2019 Post-IRA ≤ 1995 Pre-TCO + 1999 Post-TCO
2019		97	97	47.4	1,014	276	242	~ Cube Root Normal			
1995 Pre-TCO Removal	Manganese	12	12	393	1,201	758	666	Normal	--	--	--
1999 Post-TCO Removal		18	18	286	2,090	772	558	Lognormal	--	--	--
2019 Post-IRA		97	97	259	3,370	1,341	1,410	Nonparametric	--	--	--
1995 + 1999		30	30	286	2,090	767	591	Cube Root Normal	WMW	4.43E-07	**2019 Post-IRA > 1995 Pre-TCO + 1999 Post-TCO**
2019		97	97	259	3,370	1,341	1,410	Nonparametric			

Notes:
[1] Units are in milligram per kilogram

IRA: Interim Removal Action
TCO : Tin Can Operation
WMW : Wilcoxon Mann-Whitney
≤ : less than or equal to
> : greater than
~ : approximate

Appendix F
Table F-2
Hypothesis Test Results - P3 Area
Residual Risk Assessment
Freeport-McMoran - Chino Mines Company
Vanadium, New Mexico

Dataset	Constituent	Sample Size	Detects	Minimum	Maximum	Mean	Median	Distribution	Test	One-Sided Hypothesis Test	
										p-Value	2019 Data ≤ 1999 Data?
1999 Post-TCO Removal	Copper	116	116	111	3,250	714	559	Lognormal	WMW	4.22E-01	2019 Post-IRA ≤ 1999 Post-TCO
2019 Post-IRA		371	371	64.9	2,344	636	574	~ Square Root Normal			
1999 Post-TCO Removal	Iron	116	116	12,100	143,000	38,619	31,400	Lognormal	WMW	5.01E-08	**2019 Post-IRA > 1999 Post-TCO**
2019 Post-IRA		371	371	5,246	155,859	48,226	48,766	~ Square Root Normal			
1999 Post-TCO Removal	Lead	116	116	32.2	657	193	155	Cube Root Normal	WMW	5.17E-02	2019 Post-IRA ≤ 1999 Post-TCO
2019 Post-IRA		371	371	0.081	559	202	205	~ Normal			
1999 Post-TCO Removal	Manganese	116	116	199	4,300	952	865	Nonparametric	WMW	9.18E-07	**2019 Post-IRA > 1999 Post-TCO**
2019 Post-IRA		371	371	182	3,493	1,084	1,063	~ Square Root Normal			

Notes:
[1] Units are in milligram per kilogram

IRA: Interim Removal Action
TCO : Tin Can Operation
WMW : Wilcoxon Mann-Whitney
≤ : less than or equal to
> : greater than
~ : approximate

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DATA QUALITY ASSESSMENT REPORT
FOR
HANOVER WHITEWATER CREEK INVESTIGATION UNIT

APRIL 29, 2020

Prepared for:

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Table 2.1 Summary of Data Qualified as a Result of Data Review

LIST OF ATTACHMENTS

Attachment A Data Package and Sample Identification Summary

1. INTRODUCTION

This Data Quality Assessment Report (DQAR) is a formal evaluation of the analytical data quality with respect to the usability for the end use of the data.

Eight hundred forty-three (843) post-excavation soil samples were collected for the Hanover Whitewater Creek Investigation Unit from November 2018 through May 2019. The samples were sent to SVL Analytical in Kellogg, Idaho for analysis. The soil samples were sieved upon arrival at the laboratory using a 60-mesh (250 μm) or 10-mesh (2000 μm) sieve as requested on the chain of custody (COC). The samples were analyzed for metals, organic carbon, and paste pH using the resulting sieve fractions and results were presented in eighty-one data packages.

A total of 213 samples were prepared using a 60-mesh sieve and 630 samples were prepared using a 10-mesh sieve. Included in the data packages were results for ninety-five field duplicates (seventy-four analyzed using a 10-mesh sieve fraction and twenty-one using a 60-mesh sieve fraction), and fifty-nine matrix spike/matrix spike duplicate (MS/MSD) results (forty-one analyzed using a 10-mesh sieve fraction and eighteen using a 60-mesh sieve fraction).

Attachment A contains a summary of the samples collected for which the analytical results were validated.

The data were generated and subsequently reviewed independently in accordance with the approved Administrative Order on Consent Quality Assurance Plan (QAP) for the Chino Investigation Area (March 1997). During independent review, the data were evaluated against the acceptance limits prescribed by the QAP for accuracy, precision, and completeness. The data were also evaluated for fulfillment of the qualitative data quality assurance parameters of representative and comparability as defined in the QAP.

The validation results are presented in the Data Validation Report for Hanover Whitewater Creek Investigation Unit (AECOM, February 2020). The data validation report, on which this DQAR is based, contains a detailed narrative in which the results that did not satisfy the data quality assurance objectives in the QAP and the subsequent data qualification issued, if any, are described.

Required project-specific reporting limits or standards were not provided for this sampling event; therefore, results from the laboratory were not evaluated against human health or ecological screening standards for adequacy of sensitivity.

The DQAR includes the required elements listed in Section 15 of the QAP in the following sections. Section 2.0 provides a detailed discussion of the usability of the data relative to the intended end uses (Data Quality Objectives). In order to facilitate this discussion, the project objectives are also summarized in this section. Section 3.0 provides recommendations for usability for potential additional data uses and limitations in data uses. Section 4.0 provides a brief summary of the results obtained for the data quality assurance objectives. Section 5.0 discusses corrective actions implemented and deviations from the Field Sampling Plan. Section 6.0 provides a summary of the instances where the data were considered inadequate for use in satisfying DQOs and the significance of the problems, if any. Conclusions are summarized in Section 7.0.

2. DATA USABILITY RELATIVE TO PROJECT OBJECTIVES

The usability of the sample data relative to the intended end uses is discussed in this section.

In order to evaluate the usability of the data for meeting project objectives, the data must be reconciled with project objectives or the DQOs. Only data considered to be valid, as determined through data validation, may be considered for reconciliation with project objectives. Thus, a summary of data validation results is provided in Section 2.1.

Data reconciliation consists of evaluating whether sufficient data are available for each of the analyses conducted. The reconciliation process begins with a comparison of the reporting limits obtained to the decision criteria. However, as described in Section 2.2, a reporting limit evaluation was not required as project-specific reporting limits or screening criteria were not provided. However, diluted analyses and associated non-detect results were discussed, as elevated reporting limits for non-detect analytes may affect data usability.

After evaluating the usability of the data with respect to the reporting limits obtained and project decision criteria, potential biases and imprecision in results suggested by Quality Control (QC) results was assessed in order to evaluate the ultimate usability of the data for making decisions. The results of this assessment are discussed in Section 2.3.

The ninety-five field duplicate pairs (seventy-four analyzed using a 10-mesh sieve fraction and twenty-one using a 60-mesh sieve fraction) collected for the soil samples, were used to evaluate the representativeness of the samples to the medium sampled. The results of this evaluation are discussed in Section 2.4.

2.1 Data Validation Summary

A total of 9,262 analytical results were reported for samples collected for the Hanover Whitewater Creek Investigation Unit. Based on the results of data validation, 23% of the results were qualified as estimated, 0.08% were qualified as non-detect due to laboratory contamination, and no results were qualified as unusable. In summary, following data validation, the analytical data are considered to be valid (valid data

include results qualified as estimated and non-detect) and therefore usable for reconciliation with project objectives.

Table 2.1 below presents a summary of data qualification by analyte for 843 samples (630 analyzed using a 10-mesh sieve fraction and 213 analyzed using a 60-mesh sieve fraction) and 95 field duplicate samples (74 analyzed using a 10-mesh sieve fraction and 21 using a 60-mesh sieve fraction). No data were rejected as a result of data validation.

Table 2.1 – Summary of Qualified Data as a Result of Data Review

Analyte	Qualified as Non-Detect (U)		Qualified as Estimated (UJ/J)	
	Percent (number)	Primary Reason Code	Percent (number)	Primary Reason Code
Arsenic	0	-	2 (19)	MS-L, MS-H, FD-I, IS-I
Cadmium	0.21 (2)	MB-I	46.5 (438)	SQL-I, FD-I
Chromium	0	-	1.2 (11)	SQL-I
Copper	0	-	1.2 (11)	MS-H, SD-H, FD-I
Iron	0	-	0.64 (6)	SD-H, SD-L, FD-I
Lead	0	-	1.3 (12)	SD-L, LD-I, FD-I, SQL-I
Manganese	0	-	1 (10)	MS-H, SD-H, SD-L, FD-I
Zinc	0	-	1.6 (15)	MS-H, MS-I, FD-I
Organic Carbon	0.53 (5)	MB-I	92.6 (869)	HT-I, FD-I
Paste pH	0	-	100 (938)	HT-I
Percent Moisture	0	-	0.5 (5)	FD-I

Notes:
FD – Field duplicate precision criteria not met
HT – Holding time requirement not met
IS – Internal standard recovery outside acceptance range
LD – Laboratory duplicate precision criteria not met
MS – Matrix spike recovery outside acceptance range
SD – Serial dilution percent difference outside acceptance range
UJ/J – Result is estimated
U – Result is non-detect
H – Bias in sample likely to be high
I – Bias in sample is indeterminate
L – Bias in sample likely to be low

An evaluation of the qualified results by mesh size is outlined below:

2.1.1 10-Mesh Sieve Soil Samples

A total of 6,930 results were reported for samples analyzed using a 10-mesh sieve fraction.

Approximately 0.09% of the results (6 of 6,930) were qualified as non-detect due to method blank contamination.

Approximately 23% of the results (1,568 of 6,930) were qualified as estimated based on evaluation of quality control measures. A summary of the reasons for data qualified as estimated follows:

- 17.5% of the results were qualified as estimated on the basis of holding time exceedances.
- 4.4% of the results were qualified as estimated because of results between the method detection limit (MDL) and reporting limit (RL).
- 0.3% of the results were qualified as estimated due to high or low matrix spike recoveries.
- 0.3% of the results were qualified as estimated due to imprecision noted for field duplicate results.
- 0.1% of the results were qualified as estimated due to serial dilutions results.
- 0.01% of the results were qualified as estimated due to internal standard recoveries.
- 0.01% of the results were qualified as estimated due to imprecision noted for laboratory duplicate results.

The analytical data generated were considered as usable for reconciliation with project objectives as these data were considered to be valid (valid data include results qualified as estimated or non-detect).

2.1.2 60-Mesh Sieve Soil Samples

A total of 2,332 results were reported for samples analyzed using a 60-mesh sieve fraction.

Approximately 0.04% of the results (1 of 2,332) were qualified as non-detect due to method blank contamination.

Approximately 22% of the results (521 of 2,332) were qualified as estimated based on evaluation of quality control measures. A summary of the reasons for data qualified as estimated follows:

- 17.6% of the results were qualified as estimated on the basis of holding time exceedances.
- 4% of the results were qualified as estimated because of results between the MDL and RL.
- 0.4% of the results were qualified as estimated due to high or low matrix spike recoveries.
- 0.2% of the results were qualified as estimated due to serial dilution results.
- 0.04% of the results were qualified as estimated due to internal standard recoveries.

The analytical data generated were considered as usable for reconciliation with project objectives as these data were considered to be valid (valid data include results qualified as estimated or non-detect).

2.2 Reporting Limits and Decision Criteria Comparison

In order to determine whether the data are sufficient for comparing to the decision criteria, the reporting limits obtained need to be reconciled with the decision criteria. However, as noted by the Arcadis project team, project specific screening criteria were not defined for this project. The majority of the results were reported as detected therefore, project objectives should be met with respect to reporting limits as sensitivity is not in question for detected results.

Forty-three cadmium results and one arsenic result were reported as not detected from diluted analyses. Cadmium was reported using 10X dilutions and the affected sample reporting limits were raised from 0.4 mg/kg to 4 mg/kg, and arsenic was reported from a 2X dilution at an affected sample reporting limit of 0.3 mg/kg, elevated from the undiluted reporting limit of 0.15 mg/kg. Data users should evaluate the non-detect sample cadmium and arsenic elevated reporting limits for adequacy in decision making and meeting required objectives.

2.3 Effect of Potential Biases and Imprecision on Usability of the Data

Any potential biases and imprecision suggested by QC results was assessed to evaluate the ultimate usability of the data for making decisions. Potential biases and imprecision in analytical results are inferred from results obtained from various types of quality control sample analyses. Potential bias and imprecision can result from the specific sample matrix analyzed or the analytical system.

Quality control analyses that provide an indication of the analytical system relative to the specific sample matrix include matrix spike analyses, serial dilution analyses, post-digestion spike analyses, laboratory duplicate analyses, and field duplicate analyses.

Matrix spike samples are site-specific samples into which known amounts of target analytes are added. As such, the percent recoveries obtained from matrix spike analyses provide an indication of the potential biases of the analytical method on the site-specific samples. Additionally, laboratory duplicate analyses provide an indication of the precision of the analyses. A matrix spike and/or duplicate sample analysis (as applicable to the methodology) was conducted for each analysis type using a site-specific sample. In addition, 95 field duplicate samples were collected and analyzed, and 107 laboratory duplicate samples were analyzed. These results can be used to provide an indication of the overall sampling and analytical precision as well as to evaluate the representativeness of the samples collected to the medium sampled.

Results obtained for other QC parameters, such as contract required detection limit (CRDL) standard recoveries and laboratory control sample recoveries (LCS), provide indications of biases existing in the analytical system.

As summarized in Section 2.1, the results obtained for the majority of quality control analyses satisfied the QAP acceptance limits, indicating that acceptable levels of

accuracy and precision were attained for the overall sampling event. Although results for several quality control analyses were outside the QAP prescribed acceptance limits, the frequency of the QC outliers was less than 35% of the total number of analyses and therefore, application of overall data qualification to unaffected sample results was not considered necessary. As overall qualification was not considered necessary, the potential bias and effect on usability is limited to the affected sample results and not associated to the overall event. Sections 2.3.1 and 2.3.2 describe accuracy and precision outliers and the effect on the usability of the data as it relates to the sample-specific outliers. QC exceedances described below that resulted in data qualification of individual sample results as estimated, are detailed in the Data Validation Report.

2.3.1 10-Mesh Sieve Soil Samples

Arsenic Accuracy – The arsenic matrix spike recoveries were outside of the acceptance range of 75-125% for 11 of the 41 MS/MSDs. The percent recoveries were >30%, and results were considered usable as qualified. The majority of arsenic results did not require qualification for MS/MSD outliers; therefore, no potential bias was indicated for the overall sampling.

The serial dilution results for arsenic were within control limits, indicating there were no significant matrix effects affecting accuracy.

Arsenic Precision – The relative percent difference (RPD) for one of the 74 field duplicate pairs exceeded the evaluation criterion of ≤35% for arsenic. The majority of arsenic field duplicate RPDs met the acceptance criteria demonstrating adequate precision in sampling and analysis.

The MS/MSD and laboratory duplicate RPDs were within control limits for arsenic, indicating precision as it relates to the matrix and laboratory was acceptable.

Cadmium Accuracy – The applicable MS/MSD recoveries and serial dilutions for cadmium were within control limit, indicating that the matrix did not affect accuracy.

Cadmium Precision – The RPD for two of the 74 field duplicate pairs exceeded the evaluation criterion of ≤35% for cadmium. The majority of cadmium field duplicate RPDs met the acceptance criteria demonstrating adequate precision in sampling and analysis.

The MS/MSD and laboratory duplicate RPDs were within control limits for cadmium, indicating precision as it relates to the matrix and laboratory was acceptable.

Chromium Accuracy – The applicable MS/MSD recoveries and serial dilution results for chromium were within control limits, indicating there were no significant matrix effects.

Chromium Precision – The field duplicate, MS/MSD, and laboratory duplicate RPDs were within control limits for chromium, indicating precision as it relates to the matrix and laboratory was acceptable.

Copper Accuracy – The copper matrix spike recoveries were above the acceptance range of 75-125% in three of the 41 MS/MSDs. The percent recoveries were >30%, and results were considered usable as qualified. The majority of copper results did not require qualification for MS/MSD outliers; therefore, no potential bias was indicated for the overall sampling.

The serial dilution percent difference for one sample was greater than the control limit, indicating that there may be inaccuracy in the individual sample copper result. However, the majority of copper serial dilution results did not require data qualification; therefore, no potential bias was indicated to the overall sampling.

Copper Precision – The RPD for two of the 74 field duplicate pairs exceeded the evaluation criterion of ≤35% for copper. The majority of copper field duplicate RPDs met the acceptance criteria demonstrating adequate precision in sampling and analysis.

The MS/MSD and laboratory duplicate RPDs were within control limits for copper, indicating precision as it relates to the matrix and laboratory was acceptable.

Iron Accuracy – The serial dilution percent differences for three samples were outside of control limits, indicating that there may be inaccuracy in these specific sample iron results. However, the majority of iron serial dilution results did not require qualification; therefore, no potential bias was indicated to the overall sampling.

The applicable MS/MSD recoveries for iron were within control limits, indicating there were no significant matrix effects.

Iron Precision – The RPD for two of the 74 field duplicate pairs exceeded the evaluation criterion of ≤35% for iron. The majority of iron field duplicate RPDs met the acceptance criteria demonstrating adequate precision in sampling and analysis.

The MS/MSD and laboratory duplicate RPDs were within control limits for iron, indicating precision as it relates to the matrix and laboratory was acceptable.

Lead Accuracy – The serial dilution percent difference for one sample was below control limits, indicating that there may be inaccuracy in the lead result for this sample. The majority of lead serial dilution results did not require qualification; therefore, no potential bias was indicated to the overall sampling.

The applicable MS/MSD recoveries for lead were within control limits, indicating there were no significant matrix effects.

Lead Precision – The RPD for one of the four laboratory duplicate pairs exceeded the evaluation criterion of ≤35% for lead. The majority of lead laboratory duplicate RPDs met the acceptance criteria demonstrating adequate precision in sampling and analysis.

The RPD for four of the 74 field duplicate pairs exceeded the evaluation criterion of ≤35% for lead. The majority of lead field duplicate RPDs met the acceptance criteria demonstrating adequate precision in sampling and analysis.

The MS/MSD RPDs were within control limits for lead, indicating precision as it relates to the matrix was acceptable.

Manganese Accuracy – The manganese matrix spike recoveries were above the acceptance range of 75-125% in two of the 41 MS/MSDs. The percent recoveries were >30%, and results were considered usable as qualified. The majority of manganese results did not require qualification for MS/MSD outliers; therefore, no potential bias was indicated to the overall sampling.

The serial dilution for one sample was above control limits, indicating that there may be inaccuracy in the manganese result for this sample. The majority of manganese serial dilution results did not require qualification; therefore, no potential bias was indicated to the overall sampling.

Manganese Precision – The RPD for two of the 74 field duplicate pairs exceeded the evaluation criterion of ≤35% for manganese. The majority of manganese field duplicate RPDs met the acceptance criteria demonstrating adequate precision in sampling and analysis.

The MS/MSD and laboratory duplicate RPDs were within control limits for manganese, indicating precision as it relates to the matrix and laboratory was acceptable.

Zinc Accuracy – The zinc matrix spike recoveries were above the acceptance range of 75-125% in six of the 41 MS/MSDs. The percent recoveries were >30%, and results were considered usable as qualified. The majority of zinc results did not require qualification for MS/MSD outliers; therefore, no potential bias was indicated to the overall sampling.

The serial dilution results for zinc were within control limits, indicating there were no significant matrix effects.

Zinc Precision – The RPD for three of the 74 field duplicate pairs exceeded the evaluation criterion of ≤35% for zinc. The majority of zinc field duplicate RPDs met the acceptance criteria demonstrating adequate precision in sampling and analysis.

The MS/MSD and laboratory duplicate RPDs were within control limits for zinc, indicating precision as it relates to the matrix and laboratory was acceptable.

Organic Carbon Precision – The RPD for two of the 74 field duplicate pairs exceeded the evaluation criterion of ≤35% for organic carbon. The majority of organic carbon field duplicate RPDs met acceptance criteria demonstrating adequate precision in sampling and analysis.

The laboratory duplicate RPDs were within control limits for organic carbon, indicating precision as it relates to the laboratory was acceptable.

pH Paste – The laboratory duplicate and field duplicate RPDs were within control limits for pH paste, indicating precision as it relates to the laboratory was acceptable.

Percent Moisture Precision – The RPD for three of the 74 field duplicate pairs exceeded the evaluation criterion of ≤35% for percent moisture. The majority of percent moisture field duplicate RPDs met the acceptance criteria demonstrating adequate precision in sampling and analysis.

The laboratory duplicate RPDs were within control limits for percent moisture, indicating precision as it relates to the laboratory was acceptable.

2.3.2 60-Mesh Sieve Soil Samples

Arsenic Accuracy – The arsenic matrix spike recoveries were below the acceptance range of 75-125% in two of the 18 MS/MSDs. The percent recoveries were >30%, and results were considered usable as qualified. The majority of arsenic results did not

require qualification for MS/MSD outliers; therefore, no potential bias was indicated to the overall sampling.

The serial dilution results for arsenic were within control limits, indicating there were no significant matrix effects.

Arsenic Precision – The field duplicate, MS/MSD, and laboratory duplicate RPDs were within control limits for arsenic, indicating precision as it relates to the matrix and laboratory was acceptable.

Cadmium Accuracy – The applicable MS/MSD recoveries and serial dilution results for cadmium were within control limits, indicating there were no significant matrix effects.

Cadmium Precision – The field duplicate, MS/MSD, and laboratory duplicate RPDs were within control limits for cadmium, indicating precision as it relates to the matrix and laboratory was acceptable.

Chromium Accuracy – The applicable MS/MSD recoveries and serial dilution results for chromium were within control limits, indicating there were no significant matrix effects.

Chromium Precision – The field duplicate, MS/MSD, and laboratory duplicate RPDs were within control limits for chromium, indicating precision as it relates to the matrix and laboratory was acceptable.

Copper Accuracy – The copper matrix spike recoveries were above the acceptance range of 75-125% in two of the 18 MS/MSDs. The percent recoveries were >30%, and results were considered usable as qualified. The majority of copper results did not require qualification for MS/MSD outliers; therefore, no potential bias was indicated to the overall sampling.

The serial dilution for one sample was above control limits, indicating that there may be inaccuracy in the copper result for this sample. However, the majority of copper serial dilution results did not require qualification; therefore, no potential bias was indicated to the overall sampling.

Copper Precision – The field duplicate, MS/MSD, and laboratory duplicate RPDs were within control limits for copper, indicating precision as it relates to the matrix and laboratory was acceptable.

Iron Accuracy – The serial dilution for one sample was below control limits, indicating that there may be inaccuracy in the iron result for this sample. However, the majority of iron serial dilution results did not require qualification; therefore, no potential bias was indicated to the overall sampling.

The applicable MS/MSD recoveries for iron were within control limits, indicating there were no significant matrix effects.

Iron Precision – The field duplicate, MS/MSD, and laboratory duplicate RPDs were within control limits for iron, indicating precision as it relates to the matrix and laboratory was acceptable.

Lead Accuracy – The serial dilution for one sample was below control limits, indicating that there may be inaccuracy in the lead result for this sample. However, the majority of lead serial dilution results did not require qualification; therefore, no potential bias was indicated to the overall sampling.

The applicable MS/MSD recoveries for lead were within control limits, indicating there were no significant matrix effects.

Lead Precision – The field duplicate, MS/MSD, and laboratory duplicate RPDs were within control limits for lead, indicating precision as it relates to the matrix and laboratory was acceptable.

Manganese Accuracy – The manganese matrix spike recoveries were above the acceptance range of 75-125% in three of the 18 MS/MSDs. The percent recoveries were >30%, and results were considered usable as qualified. The majority of manganese results did not require qualification for MS/MSD outliers; therefore, no potential bias was indicated to the overall sampling.

The serial dilution for one sample was below control limits, indicating that there may be inaccuracy in the manganese result for this sample. However, the majority of manganese serial dilution results did not require qualification; therefore, no potential bias was indicated to the overall sampling.

Manganese Precision – The field duplicate, MS/MSD, and laboratory duplicate RPDs were within control limits for manganese, indicating precision as it relates to the matrix and laboratory was acceptable.

Zinc Accuracy – The zinc matrix spike recoveries were above the acceptance range of 75-125% in three of the 18 MS/MSDs. The percent recoveries were >30%, and results were considered usable as qualified. The majority of zinc results did not require qualification for MS/MSD outliers; therefore, no potential bias was indicated to the overall sampling.

The serial dilution results for zinc were within control limits, indicating there were no significant matrix effects.

Zinc Precision – The field duplicate, MS/MSD, and laboratory duplicate RPDs were within control limits for zinc, indicating precision as it relates to the matrix and laboratory was acceptable.

Organic Carbon Precision– The laboratory duplicate and field duplicate RPDs were within control limits for organic carbon, indicating precision as it relates to the laboratory was acceptable.

pH Paste Precision – The laboratory duplicate and field duplicate RPDs were within control limits for pH paste, indicating precision as it relates to the laboratory was acceptable.

Percent Moisture Precision – The RPD for one of the 21 field duplicate pairs exceeded the evaluation criterion of ≤35% for percent moisture. The majority of percent moisture field duplicate RPDs met the acceptance criterion demonstrating adequate precision in sampling and analysis.

The laboratory duplicate RPDs were within control limits for percent moisture, indicating precision as it relates to the laboratory was acceptable.

2.4 Representativeness Evaluation

Representativeness is the degree to which data accurately and precisely represent a characteristic population, parameter variations at a sampling point, or an environmental condition. With exception noted in Section 5 of this DQAR, the sampling and analysis was conducted in compliance with the QAP and the relevant standard operating procedures (SOPs) as a means of obtaining representative samples.

Additionally, the results obtained for field duplicate results can be used to assess representativeness. Ninety-five field duplicate samples were collected, 74 from

samples sieved using a 10-mesh sieve and 21 from samples sieved using a 60-mesh sieve. The results for the field duplicate samples were compared using the applicable concentration-dependent evaluation criteria. With the exception of 21 results (20 sieved using a 10-mesh sieve, and one sieved using a 60-mesh sieve), the applicable criteria was met for the field duplicate results. Therefore, approximately 98% of the field duplicate results satisfied the applicable concentration-dependent criteria indicating that the samples collected can be considered representative of the medium sampled at each location.

3. POTENTIAL ADDITIONAL DATA USES AND LIMITATIONS

In addition to use in making decisions, the data generated may potentially have other end uses including risk assessment and exploratory data analysis. The analytical data quality is generally considered sufficient for these potential end uses; however, the magnitude of potential biases and imprecisions discussed above should be considered. Prior to use in risk assessment or exploratory data analysis, end users of the data should perform a data quality assessment relative to their specific risk assessment objectives and should perform an evaluation of whether the analytical data are sufficiently representative of the medium under evaluation.

The analytical data are generally considered useable as qualified in these additional potential end uses. The data were validated in accordance with the provisions of the Administrative Order on Consent approved Quality Assurance Plan (March 1997) using guidance from the USEPA National Functional Guidelines for Inorganic Data Review (January 2017). The data validation meets the minimum requirements specified in USEPA's Risk Assessment Guidance for Superfund (December 1989) (RAGS) and those specified in USEPA's Guidance for Data Usability in Risk Assessment (April 1992) (DURA). Data qualified as estimated were assigned a "J" qualifier and are useable. Data which were qualified as estimated also were assigned a qualifier code indicating the reason for qualification and a suffix to the qualifier code indicating the potential bias direction based on the QC indicators. The qualifier codes have been annotated on the analytical result reporting forms and also entered into the project database management system. A code suffix of "L" for a given result indicates a potential low bias exists, "H" a potential high bias, and "I" indicates the result bias direction was not discernible from the QC indicators.

Section 2.3 above provides a summary of sample results affected by QC exceedances and should be useful to the risk assessor in evaluating the uncertainty associated with qualified results. Additional details regarding specific sample result data qualification can be found in the Data Validation Report.

The discussion on reporting limits, bias, and representativeness should be useful in performing a data quality assessment relative to other end uses of the data and in evaluating whether the data are sufficiently representative of the medium under evaluation for a specified end use.

4. SUMMARY OF DATA QUALITY ASSURANCE OBJECTIVES RELATIVE TO THE QAP OBJECTIVES

In this section, the results of the data validation process are briefly summarized relative to each of the data quality assurance objectives. The Data Validation Report for the Hanover Whitewater Creek Investigation Unit (AECOM, February 2020) provides additional detailed narratives describing each QC outlier and the data qualification assigned if necessary. The overall data quality was assessed by the quantitative parameters of sensitivity, accuracy, precision, and completeness and the qualitative parameters of representativeness and comparability. Sections 4.1 and 4.2, respectively, present the overall assessment of the data quality with regard to the quantitative and qualitative evaluation parameters.

4.1 Quantitative Parameters

The overall assessment for each of the quantitative data quality assurance parameters (of sensitivity, accuracy, precision, and completeness) is provided below. The summaries are based on the results obtained during the data validation process.

4.1.1 Sensitivity

Sensitivity is an instrument's or method's minimum concentration that can be reliably measured or reported and can be expressed by the reporting limit. Reporting limits are established by the analytical laboratory based on the method detection limits, and comparison to EPA limits for the respective methods. As discussed in Section 2.2, no project-specific standards were provided, however the reporting limits for the metals analysis were verified daily by the analysis of a reporting limit verification standard. The reporting limit verification results were within the 50-150% acceptance criterion indicating acceptable sensitivity. Sensitivity can also be affected by sample matrix as indicated by samples analyzed at dilution. With the exception of forty-three cadmium results and one arsenic result, which were reported as not detected with elevated reporting limits (discussed in Section 2.2), sensitivity was not affected.

4.1.2 Precision

Precision is defined as the agreement between a set of replicate measurements without assumption or knowledge of the true value. Precision of laboratory measurements was evaluated by the comparison of sample/sample duplicate results.

One hundred and seven (107) laboratory duplicates were analyzed by the laboratory. The results for the laboratory duplicate samples were evaluated using the applicable concentration-dependent evaluation criteria. With the exception of one result, the applicable criteria were met for the laboratory duplicate results. Therefore, greater than 99% of the laboratory duplicate results satisfied the applicable concentration-dependent criteria indicating the overall level of precision demonstrated by the analyses is considered to be acceptable.

In addition, the agreement shown by the field duplicate results (~98% met criteria) is indicative of an acceptable level of overall sampling and analysis precision.

4.1.3 Accuracy

Accuracy is defined as the degree of agreement of a measurement to an accepted reference or true value. Accuracy was measured as the percent recovery of an analyte in a reference standard or spiked sample.

The results for the calibration standards and laboratory control samples were within acceptance limits demonstrating acceptable overall accuracy of the analytical system.

Approximately 93% of the sample (10-mesh and 60-mesh fractions) matrix spike recoveries were within acceptance limits indicating that the overall level of accuracy attained with respect to the site-specific sample matrix is considered to be acceptable.

4.1.4 Completeness

The results are considered usable as qualified and no results were qualified as unusable during data validation. As such, the analytical completeness for the sampling event, defined as the ratio of the number of valid analytical results (valid analytical results include estimated values) to the total number of analytical results requested on samples submitted for analysis, is 100%, which satisfies the QAP requirement of 80%.

4.2 Qualitative Parameters

The qualitative data quality assessment parameters include comparability and representativeness. Sections 4.2.1 and 4.2.2 provide the respective definitions and summary of the results for each parameter.

4.2.1 Comparability

Comparability expresses the confidence with which one data set can be compared to another. Comparability can be related to accuracy and precision because these quantities are measures of data reliability. Data are comparable if collection techniques, measurement procedures, method, and reporting limits are equivalent for the samples within a sample set. As the samples in this set were analyzed in accordance with the quality assurance and quality control measures prescribed in the QAP; and acceptable levels of overall accuracy and precision were attained, the data within this set are considered to be comparable to each other.

4.2.2 Representativeness

Representativeness is the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness was maintained during sampling efforts by completing sampling in compliance with the relevant SOPs.

Consistent, uniform sample collection protocols, including such tasks as storage, preservation and transportation, were used to assure that the representativeness of the samples gathered during the sampling met project objectives. Proper documentation in the field and laboratory verified that protocols were followed and that sample identification as well as integrity was preserved. However, the samples were held before being shipped to the laboratory. In addition, the samples were shipped without ice in the cooler. Based on the stability of the parameters of interest, these deviations from the QAP are not considered to adversely affect the representativeness of the data to the samples collected.

Additionally, as noted in Section 2.4, the agreement between the field duplicate samples suggest that the samples collected can be considered representative of the medium sampled.

5. CORRECTIVE ACTIONS AND WORKPLAN MODIFICATIONS

This section describes the corrective actions implemented and workplan modifications that occurred during sampling and analysis and the effect on the usability of the data.

5.1 Corrective Action

No field or laboratory corrective actions were implemented during this investigation.

5.2 QAP Modifications

No modifications were made to the QAP. The following deviation to the QAP was noted.

- The samples were held before being shipped to the laboratory. The samples were shipped without ice in the cooler.

Based on the stability of the parameters of interest, this deviation from the QAP are not considered to adversely affect the representativeness of the data to the samples collected.

6. REJECTED DATA AND PROJECT CONSEQUENCES

The reported sample results are considered usable as qualified for this data set. No sample data were rejected as a result of data validation. Therefore, the analytical completeness goal specified in the QAP was met.

7. CONCLUSIONS

The data are considered to be usable for meeting project objectives as qualified following data validation. The overall assessment for precision, accuracy, representativeness, comparability, completeness, and sensitivity indicates the data met the data quality objectives described in the QAP for the project. As described in Section 3, these data are also considered usable for a variety of other end uses. For end uses of the data other than those specified within this report, the end user of the data should perform a data quality assessment relative to their specific end use objectives and should evaluate whether the analytical data are sufficiently representative of the medium for their specific data use.

ATTACHMENT A
DATA PACKAGE AND SAMPLE IDENTIFICATION SUMMARY

Attachment A
Data Package and Sample Identificaton Summary

Report Section	Data Package	Field Sample Identification	Mesh Size
5.1	X8L0045	R19-001F	10
5.1	X8L0045	R19-002F	10
5.1	X8L0045	R19-003F	10
5.1	X8L0045	R19-004F	10
5.1	X8L0045	R19-006F	10
5.1	X8L0045	R19-007F	10
5.1	X8L0045	R20-001F	10
5.1	X8L0045	R20-002F	10
5.1	X8L0045	R20-003F	10
5.1	X8L0045	R20-004F	10
5.1	X8L0045	R20-006F	10
5.1	X8L0045	R21-001F	10
5.1	X8L0045	R21-002F	10
5.1	X8L0045	R21-003F	10
5.1	X8L0045	R21-004F	10
5.1	X8L0045	R22-001F	10
5.1	X8L0045	R22-002F	10
5.1	X8L0045	R22-003F	10
5.1	X8L0045	R22-004F	10
5.1	X8L0045	R23-001F	10
5.1	X8L0045	R23-002F	10
5.1	X8L0045	R23-006F	10
5.2	X8L0051	R19-003F	60
5.2	X8L0051	R19-006F	60
5.2	X8L0051	R20-002F	60
5.2	X8L0051	R21-002F	60
5.2	X8L0051	R22-003F	60
5.2	X8L0051	R23-001F	60
5.3	X8L0101	R23-003F	10
5.3	X8L0101	R23-004F	10
5.3	X8L0101	R24-001F	10
5.3	X8L0101	R24-002F	10
5.3	X8L0101	R24-003F	10
5.3	X8L0101	R24-004F	10
5.3	X8L0101	R24-006F	10
5.3	X8L0101	R25-001F	10
5.3	X8L0101	R25-002F	10
5.3	X8L0101	R25-003F	10
5.3	X8L0101	R25-004F	10
5.3	X8L0101	R26-001F	10
5.3	X8L0101	R26-002F	10
5.3	X8L0101	R26-003F	10
5.3	X8L0101	R26-004F	10
5.4	X8L0102	R27-001F	10
5.4	X8L0102	R27-002F	10
5.4	X8L0102	R27-003F	10
5.4	X8L0102	R27-004F	10
5.4	X8L0102	R28-001F	10

Attachment A
Data Package and Sample Identificaton Summary

Report Section	Data Package	Field Sample Identification	Mesh Size
5.4	X8L0102	R28-002F	10
5.4	X8L0102	R28-003F	10
5.4	X8L0102	R28-004F	10
5.4	X8L0102	R29-001F	10
5.4	X8L0102	R29-002F	10
5.4	X8L0102	R29-003F	10
5.4	X8L0102	R29-004F	10
5.4	X8L0102	R29-006F	10
5.4	X8L0102	R30-001F	10
5.4	X8L0102	R30-002F	10
5.5	X8L0103	R24-003F	60
5.5	X8L0103	R24-006F	60
5.5	X8L0103	R25-003F	60
5.5	X8L0103	R26-003F	60
5.5	X8L0103	R27-003F	60
5.5	X8L0103	R28-001F	60
5.5	X8L0103	R28-004F	60
5.5	X8L0103	R29-002F	60
5.5	X8L0103	R30-002F	60
5.6	X8L0136	R30-003F	10
5.6	X8L0136	R30-004F	10
5.6	X8L0136	R30-006F	10
5.6	X8L0136	R31-001F	10
5.6	X8L0136	R31-002F	10
5.6	X8L0136	R31-003F	10
5.6	X8L0136	R31-004F	10
5.6	X8L0136	R32-001F	10
5.6	X8L0136	R32-002F	10
5.6	X8L0136	R32-003F	10
5.6	X8L0136	R32-004F	10
5.6	X8L0136	R33-001F	10
5.6	X8L0136	R33-002F	10
5.6	X8L0136	R33-003F	10
5.6	X8L0136	R33-004F	10
5.6	X8L0136	R33-005F	10
5.7	X8L0137	R34-001F	10
5.7	X8L0137	R34-002F	10
5.7	X8L0137	R34-003F	10
5.7	X8L0137	R34-004F	10
5.7	X8L0137	R35-003F	10
5.7	X8L0137	R35-007F	10
5.7	X8L0137	R35-008F	10
5.7	X8L0137	R35-010F	10
5.7	X8L0137	R35-011F	10
5.7	X8L0137	R36-001F	10
5.7	X8L0137	R36-002F	10
5.7	X8L0137	R36-003F	10
5.7	X8L0137	R36-004F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.7	X8L0137	R37-001F	10
5.7	X8L0137	R37-002F	10
5.7	X8L0137	R37-004F	10
5.7	X8L0137	R37-005F	10
5.7	X8L0137	R37-006F	10
5.7	X8L0137	R37-007F	10
5.8	X8L0138	R31-002F	60
5.8	X8L0138	R32-002F	60
5.8	X8L0138	R33-003F	60
5.8	X8L0138	R34-001F	60
5.8	X8L0138	R34-004F	60
5.8	X8L0138	R35-008F	60
5.8	X8L0138	R36-001F	60
5.8	X8L0138	R36-004F	60
5.8	X8L0138	R37-004F	60
5.8	X8L0138	R37-007F	60
5.9	X8L0192	R38-001F	10
5.9	X8L0192	R38-002F	10
5.9	X8L0192	R38-003F	10
5.9	X8L0192	R38-004F	10
5.9	X8L0192	R38-005F	10
5.9	X8L0192	R40-001F	10
5.9	X8L0192	R40-002F	10
5.9	X8L0192	R40-003F	10
5.9	X8L0192	R40-004F	10
5.9	X8L0192	R41-001F	10
5.9	X8L0192	R41-002F	10
5.9	X8L0192	R41-003F	10
5.9	X8L0192	R41-004F	10
5.9	X8L0192	R41-005F	10
5.9	X8L0192	R41-006F	10
5.9	X8L0192	R42-001F	10
5.9	X8L0192	R42-002F	10
5.9	X8L0192	R42-003F	10
5.10	X8L0193	R42-004F	10
5.10	X8L0193	R79-001F	10
5.10	X8L0193	R79-002F	10
5.10	X8L0193	R79-003F	10
5.10	X8L0193	R79-004F	10
5.10	X8L0193	R14-001F	10
5.10	X8L0193	R14-002F	10
5.10	X8L0193	R14-003F	10
5.10	X8L0193	R14-004F	10
5.10	X8L0193	R14-005F	10
5.10	X8L0193	R15-001F	10
5.10	X8L0193	R15-002F	10
5.10	X8L0193	R15-003F	10
5.10	X8L0193	R15-004F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.10	X8L0193	R15-005F	10
5.10	X8L0193	R15-006F	10
5.10	X8L0193	R15-007F	10
5.10	X8L0193	R18-001F	10
5.10	X8L0193	R18-002F	10
5.11	X8L0196	R38-003F	60
5.11	X8L0196	R40-001F	60
5.11	X8L0196	R40-004F	60
5.11	X8L0196	R41-003F	60
5.11	X8L0196	R41-006F	60
5.11	X8L0196	R42-003F	60
5.11	X8L0196	R79-002F	60
5.11	X8L0196	R14-001F	60
5.11	X8L0196	R14-004F	60
5.11	X8L0196	R15-002F	60
5.11	X8L0196	R15-005F	60
5.11	X8L0196	R18-001F	60
5.12	X8L0282	R18-003F	10
5.12	X8L0282	R18-004F	10
5.12	X8L0282	R01-001F	10
5.12	X8L0282	R01-002F	10
5.12	X8L0282	R01-003F	10
5.12	X8L0282	R01-004F	10
5.12	X8L0282	R01-005F	10
5.12	X8L0282	R46-001F	10
5.12	X8L0282	R46-002F	10
5.12	X8L0282	R46-003F	10
5.12	X8L0282	R46-004F	10
5.12	X8L0282	R46-005F	10
5.12	X8L0282	R44-001F	10
5.12	X8L0282	R44-002F	10
5.12	X8L0282	R44-003F	10
5.12	X8L0282	R44-004F	10
5.12	X8L0282	R44-005F	10
5.13	X8L0283	R47-001F	10
5.13	X8L0283	R47-002F	10
5.13	X8L0283	R47-003F	10
5.13	X8L0283	R47-004F	10
5.13	X8L0283	R47-005F	10
5.13	X8L0283	R48-001F	10
5.13	X8L0283	R48-002F	10
5.13	X8L0283	R48-003F	10
5.13	X8L0283	R48-004F	10
5.13	X8L0283	R50-001F	10
5.13	X8L0283	R50-002F	10
5.13	X8L0283	R50-003F	10
5.13	X8L0283	R50-004F	10
5.13	X8L0283	R51-001F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.13	X8L0283	R51-002F	10
5.14	X8L0308	R51-003F	10
5.14	X8L0308	R51-004F	10
5.14	X8L0308	R51-005F	10
5.14	X8L0308	R52-001F	10
5.14	X8L0308	R52-002F	10
5.14	X8L0308	R52-003F	10
5.14	X8L0308	R52-005F	10
5.14	X8L0308	R55-001F	10
5.14	X8L0308	R55-002F	10
5.14	X8L0308	R55-003F	10
5.14	X8L0308	R55-004F	10
5.14	X8L0308	R55-005F	10
5.15	X8L0311	R01-001F	60
5.15	X8L0311	R01-004F	60
5.15	X8L0311	R46-002F	60
5.15	X8L0311	R46-005F	60
5.15	X8L0311	R44-003F	60
5.15	X8L0311	R47-003F	60
5.15	X8L0311	R48-001F	60
5.15	X8L0311	R48-004F	60
5.15	X8L0311	R50-003F	60
5.15	X8L0311	R51-002F	60
5.15	X8L0311	R51-003F	60
5.15	X8L0311	R52-001F	60
5.15	X8L0311	R52-005F	60
5.15	X8L0311	R55-003F	60
5.16	X8L0362	R4-001F	10
5.16	X8L0362	R4-002F	10
5.16	X8L0362	R4-003F	10
5.16	X8L0362	R4-004F	10
5.16	X8L0362	R4-005F	10
5.16	X8L0362	R6-001F	10
5.16	X8L0362	R6-002F	10
5.16	X8L0362	R6-003F	10
5.16	X8L0362	R6-004F	10
5.16	X8L0362	R10-001F	10
5.16	X8L0362	R10-002F	10
5.16	X8L0362	R10-003F	10
5.16	X8L0362	R10-004F	10
5.16	X8L0362	R11-001F	10
5.16	X8L0362	R11-002F	10
5.16	X8L0362	R11-003F	10
5.17	X8L0367	R11-004F	10
5.17	X8L0367	R11-005F	10
5.17	X8L0367	R85-001F	10
5.17	X8L0367	R85-002F	10
5.17	X8L0367	R85-003F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.17	X8L0367	R85-004F	10
5.17	X8L0367	R86-001F	10
5.17	X8L0367	R86-002F	10
5.17	X8L0367	R86-003F	10
5.17	X8L0367	R86-004F	10
5.18	X8L0411	R4-003F	60
5.18	X8L0411	R6-001F	60
5.18	X8L0411	R6-004F	60
5.18	X8L0411	R10-003F	60
5.18	X8L0411	R11-002F	60
5.18	X8L0411	R11-005F	60
5.18	X8L0411	R85-003F	60
5.18	X8L0411	R86-002F	60
5.19	X8L0423	R56-001F	10
5.19	X8L0423	R56-002F	10
5.19	X8L0423	R56-003F	10
5.19	X8L0423	R56-004F	10
5.19	X8L0423	R56-005F	10
5.19	X8L0423	R57-001F	10
5.19	X8L0423	R57-002F	10
5.19	X8L0423	R57-003F	10
5.19	X8L0423	R57-004F	10
5.19	X8L0423	R58-001F	10
5.19	X8L0423	R58-002F	10
5.19	X8L0423	R58-003F	10
5.19	X8L0423	R58-004F	10
5.20	X8L0431	R60-001F	10
5.20	X8L0431	R60-002F	10
5.20	X8L0431	R62-001F	10
5.20	X8L0431	R62-002F	10
5.20	X8L0431	R62-003F	10
5.20	X8L0431	R62-004F	10
5.20	X8L0431	R63-001F	10
5.20	X8L0431	R63-002F	10
5.20	X8L0431	R63-003F	10
5.20	X8L0431	R63-004F	10
5.20	X8L0431	R78-001F	10
5.20	X8L0431	R78-002F	10
5.20	X8L0431	R78-003F	10
5.20	X8L0431	R78-004F	10
5.20	X8L0431	R78-005F	10
5.21	X8L0435	R80-001F	10
5.21	X8L0435	R80-002F	10
5.21	X8L0435	R80-003F	10
5.21	X8L0435	R80-004F	10
5.21	X8L0435	R80-005F	10
5.21	X8L0435	R80-006F	10
5.21	X8L0435	R83-001F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.21	X8L0435	R83-002F	10
5.21	X8L0435	R83-003F	10
5.21	X8L0435	R83-004F	10
5.21	X8L0435	R84-001F	10
5.21	X8L0435	R84-002F	10
5.21	X8L0435	R84-003F	10
5.21	X8L0435	R84-004F	10
5.21	X8L0435	R84-005F	10
5.21	X8L0435	R84-006F	10
5.22	X8L0439	R56-002F	60
5.22	X8L0439	R56-005F	60
5.22	X8L0439	R57-003F	60
5.22	X8L0439	R58-002F	60
5.22	X8L0439	R60-001F	60
5.22	X8L0439	R62-002F	60
5.22	X8L0439	R63-001F	60
5.22	X8L0439	R63-004F	60
5.22	X8L0439	R78-003F	60
5.22	X8L0439	R80-003F	60
5.22	X8L0439	R80-006F	60
5.22	X8L0439	R83-003F	60
5.22	X8L0439	R84-002F	60
5.22	X8L0439	R84-005F	60
5.23	X8L0492	R87-001F	10
5.23	X8L0492	R87-002F	10
5.23	X8L0492	R87-003F	10
5.23	X8L0492	R87-004F	10
5.23	X8L0492	R89-001F	10
5.23	X8L0492	R89-002F	10
5.23	X8L0492	R89-003F	10
5.23	X8L0492	R89-004F	10
5.23	X8L0492	R90-001F	10
5.23	X8L0492	R90-002F	10
5.23	X8L0492	R90-003F	10
5.23	X8L0492	R90-004F	10
5.23	X8L0492	R93-001F	10
5.23	X8L0492	R93-002F	10
5.23	X8L0492	R93-003F	10
5.24	X8L0506	R93-004F	10
5.24	X8L0506	R93-005F	10
5.24	X8L0506	R94-001F	10
5.24	X8L0506	R94-002F	10
5.24	X8L0506	R94-003F	10
5.24	X8L0506	R94-004F	10
5.24	X8L0506	R95-001F	10
5.24	X8L0506	R95-002F	10
5.24	X8L0506	R116-001F	10
5.24	X8L0506	R116-002F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.24	X8L0506	R116-003F	10
5.24	X8L0506	R116-004F	10
5.24	X8L0506	R118-001F	10
5.24	X8L0506	R118-002F	10
5.24	X8L0506	R118-003F	10
5.24	X8L0506	R118-005F	10
5.24	X8L0506	R118-006F	10
5.24	X8L0506	R118-008F	10
5.24	X8L0506	R120-001F	10
5.24	X8L0506	R120-002F	10
5.24	X8L0506	R120-003F	10
5.24	X8L0506	R120-004F	10
5.24	X8L0506	R120-005F	10
5.25	X8L0508	R87-002F	60
5.25	X8L0508	R89-001F	60
5.25	X8L0508	R89-004F	60
5.25	X8L0508	R90-003F	60
5.25	X8L0508	R93-002F	60
5.25	X8L0508	R93-005F	60
5.25	X8L0508	R94-003F	60
5.25	X8L0508	R95-002F	60
5.25	X8L0508	R116-003F	60
5.25	X8L0508	R118-002F	60
5.25	X8L0508	R118-006F	60
5.25	X8L0508	R120-002F	60
5.25	X8L0508	R120-005F	60
5.26	X8L0534	R09-001F	10
5.26	X8L0534	R09-002F	10
5.26	X8L0534	R09-003F	10
5.26	X8L0534	R09-004F	10
5.26	X8L0534	R09-005F	10
5.26	X8L0534	R09-006F	10
5.26	X8L0534	R09-007F	10
5.26	X8L0534	R75-001F	10
5.26	X8L0534	R75-002F	10
5.26	X8L0534	R75-003F	10
5.26	X8L0534	R75-004F	10
5.26	X8L0534	R75-005F	10
5.26	X8L0534	R91-001F	10
5.27	X8L0537	R91-002F	10
5.27	X8L0537	R91-003F	10
5.27	X8L0537	R91-004F	10
5.27	X8L0537	R91-005F	10
5.27	X8L0537	R92-001F	10
5.27	X8L0537	R92-002F	10
5.27	X8L0537	R92-003F	10
5.27	X8L0537	R92-004F	10
5.27	X8L0537	R122-001F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.27	X8L0537	R122-002F	10
5.27	X8L0537	R122-003F	10
5.27	X8L0537	R122-004F	10
5.27	X8L0537	R122-005F	10
5.28	X8L0540	R09-003F	60
5.28	X8L0540	R09-006F	60
5.28	X8L0540	R75-003F	60
5.28	X8L0540	R91-001F	60
5.28	X8L0540	R91-003F	60
5.28	X8L0540	R92-001F	60
5.28	X8L0540	R122-002F	60
5.28	X8L0540	R122-005F	60
5.29	X8L0566	R02-001F	10
5.29	X8L0566	R02-002F	10
5.29	X8L0566	R02-003F	10
5.29	X8L0566	R02-004F	10
5.29	X8L0566	R02-005F	10
5.29	X8L0566	R03A-001F	10
5.29	X8L0566	R03A-002F	10
5.29	X8L0566	R03A-003F	10
5.29	X8L0566	R03A-004F	10
5.29	X8L0566	R03A-005F	10
5.29	X8L0566	R03B-001F	10
5.29	X8L0566	R03B-002F	10
5.29	X8L0566	R03B-003F	10
5.29	X8L0566	R03B-004F	10
5.30	X8L0569	R03B-005F	10
5.30	X8L0569	R03B-006F	10
5.30	X8L0569	R03B-007F	10
5.30	X8L0569	R52-004F	10
5.30	X8L0569	R97-001F	10
5.30	X8L0569	R97-002F	10
5.30	X8L0569	R97-003F	10
5.30	X8L0569	R97-004F	10
5.30	X8L0569	R97-005F	10
5.30	X8L0569	R97-006F	10
5.30	X8L0569	R97-007F	10
5.30	X8L0569	R98-001F	10
5.30	X8L0569	R98-002F	10
5.30	X8L0569	R98-003F	10
5.30	X8L0569	R98-004F	10
5.31	X8L0570	R02-003F	60
5.31	X8L0570	R03A-001F	60
5.31	X8L0570	R03A-004F	60
5.31	X8L0570	R03B-002F	60
5.31	X8L0570	R03B-005F	60
5.31	X8L0570	R52-004F	60
5.31	X8L0570	R97-003F	60

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.31	X8L0570	R97-005F	60
5.31	X8L0570	R98-001F	60
5.31	X8L0570	R98-004F	60
5.32	X9A0057	R103-001F	10
5.32	X9A0057	R103-002F	10
5.32	X9A0057	R103-003F	10
5.32	X9A0057	R103-004F	10
5.32	X9A0057	R104-001F	10
5.32	X9A0057	R104-002F	10
5.32	X9A0057	R104-003F	10
5.32	X9A0057	R104-004F	10
5.32	X9A0057	R104-005F	10
5.32	X9A0057	R105-001F	10
5.32	X9A0057	R105-002F	10
5.32	X9A0057	R105-003F	10
5.32	X9A0057	R105-004F	10
5.32	X9A0057	R117-001F	10
5.32	X9A0057	R117-002F	10
5.32	X9A0057	R117-003F	10
5.32	X9A0057	R117-004F	10
5.32	X9A0057	R117-005F	10
5.33	X9A0058	R103-002F	60
5.33	X9A0058	R104-001F	60
5.33	X9A0058	R104-004F	60
5.33	X9A0058	R105-002F	60
5.33	X9A0058	R117-001F	60
5.33	X9A0058	R117-004F	60
5.34	X9A0392	R121-001F	10
5.35	X9A0393	R36-005	60
5.35	X9A0393	R121-001F	60
5.36	X9A0414	B01-P1-2-025	10
5.36	X9A0414	B01-P1-3-014	10
5.36	X9A0414	B01-P1-3-016	10
5.36	X9A0414	B01-P2-2-012	10
5.36	X9A0414	ERA-29	10
5.36	X9A0414	RAN-01	10
5.36	X9A0414	RAN-02	10
5.36	X9A0414	U02-3200	10
5.36	X9A0414	U02-3102	10
5.36	X9A0414	U02-3104	10
5.36	X9A0414	B01-P1-2-021	10
5.36	X9A0414	B01-P1-3-013	10
5.36	X9A0414	B01-P1-3-024	10
5.36	X9A0414	B01-P1-3-025	10
5.36	X9A0414	B01-P2-2-004	10
5.36	X9A0414	U03-2200	10
5.36	X9A0414	U02-2102	10
5.36	X9A0414	U02-2100	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.36	X9A0414	U02-10154	10
5.36	X9A0414	U03-3200M	10
5.36	X9A0414	U02-3100	10
5.36	X9A0414	U03-10202	10
5.37	X9A0418	B01-P1-2-025	60
5.37	X9A0418	B01-P2-2-012	60
5.37	X9A0418	RAN-02	60
5.37	X9A0418	U02-3104	60
5.37	X9A0418	B01-P1-3-024	60
5.37	X9A0418	U03-2200	60
5.37	X9A0418	U02-10154	60
5.37	X9A0418	U03-10202	60
5.38	X9B0036	R09M-008F	60
5.38	X9B0036	R09M-011F	60
5.38	X9B0036	R09M-014F	60
5.38	X9B0036	R77M-002F	60
5.39	X9B0346	R101-001F	60
5.40	X9B0345	R101-001F	10
5.40	X9B0345	R101-002F	10
5.40	X9B0345	R102-001F	10
5.41	X9C0439	R302-001F	10
5.41	X9C0439	R302-002F	10
5.41	X9C0439	R302-003F	10
5.41	X9C0439	R302-004F	10
5.41	X9C0439	R302-005F	10
5.41	X9C0439	R303-001F	10
5.41	X9C0439	R303-002F	10
5.41	X9C0439	R303-003F	10
5.41	X9C0439	R303-004F	10
5.41	X9C0439	R303-005F	10
5.41	X9C0439	R304-001F	10
5.41	X9C0439	R304-002F	10
5.41	X9C0439	R304-003F	10
5.41	X9C0439	R304-004F	10
5.41	X9C0439	R304-005F	10
5.41	X9C0439	R61-001F	10
5.41	X9C0439	R61-002F	10
5.42	X9B0034	R09M-008F	10
5.42	X9B0034	R09M-009F	10
5.42	X9B0034	R09M-010F	10
5.42	X9B0034	R09M-011F	10
5.42	X9B0034	R09M-012F	10
5.42	X9B0034	R09M-013F	10
5.42	X9B0034	R09M-014F	10
5.42	X9B0034	R75M-006F	10
5.42	X9B0034	R77M-001F	10
5.42	X9B0034	R77M-002F	10
5.42	X9B0034	R77M-003F	10

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Data Package and Sample Identificaton Summary

Report Section	Data Package	Field Sample Identification	Mesh Size
5.42	X9B0034	R77M-004F	10
5.43	X9C0444	TC East 001F	60
5.43	X9C0444	TC East 004F	60
5.43	X9C0444	TC West 001F	60
5.43	X9C0444	TC West 004F	60
5.43	X9C0444	R301-002F	60
5.43	X9C0444	R302-001F	60
5.43	X9C0444	R302-004F	60
5.43	X9C0444	R303-001F	60
5.43	X9C0444	R303-004F	60
5.43	X9C0444	R304-002F	60
5.43	X9C0444	R304-005F	60
5.44	X9C0434	TC East 001F	10
5.44	X9C0434	TC East 002F	10
5.44	X9C0434	TC East 003F	10
5.44	X9C0434	TC East 004F	10
5.44	X9C0434	TC East 005F	10
5.44	X9C0434	TC West 001F	10
5.44	X9C0434	TC West 002F	10
5.44	X9C0434	TC West 003F	10
5.44	X9C0434	TC West 004F	10
5.44	X9C0434	R301-001F	10
5.44	X9C0434	R301-002F	10
5.44	X9C0434	R301-003F	10
5.44	X9C0434	R301-004F	10
5.45	X9B0037	U03-1202M	10
5.45	X9B0037	U03-1200M	10
5.45	X9B0037	U03-7302M	10
5.45	X9B0037	B01-P3-3-012	10
5.45	X9B0037	B01-P3-3-010	10
5.45	X9B0037	B01-P3-3-075	10
5.45	X9B0037	RAN-03	10
5.45	X9B0037	RAN-04	10
5.45	X9B0037	RAN-05	10
5.45	X9B0037	RAN-06	10
5.45	X9B0037	RAN-07	10
5.45	X9B0037	RAN-08	10
5.46	X9B0038	U03-1202M	60
5.46	X9B0038	B01-P3-3-012	60
5.46	X9B0038	RAN-03	60
5.46	X9B0038	RAN-06	60
5.47	X9B0206	RAN-09	10
5.47	X9B0206	RAN-10	10
5.47	X9B0206	RAN-11	10
5.47	X9B0206	RAN-12	10
5.47	X9B0206	RAN-13	10
5.48	X9B0207	RAN-09	60
5.48	X9B0207	RAN-12	60

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.49	X9C0533	U03-1301	10
5.49	X9C0533	U03-2305M	10
5.49	X9C0533	U03-2302	10
5.49	X9C0533	U03-3302	10
5.49	X9C0533	U03-3300M	10
5.49	X9C0533	U03-7303M	10
5.49	X9C0533	U03-7304M	10
5.49	X9C0533	U04-7304M	10
5.49	X9C0533	U03-7305M	10
5.49	X9C0533	B01-P3-2-001	10
5.49	X9C0533	B01-P3-2-010	10
5.49	X9C0533	B02-P3-2-010	10
5.49	X9C0533	B01-P3-2-012	10
5.49	X9C0533	B01-P3-2-052	10
5.50	X9C0536	B01-P3-3-001	10
5.50	X9C0536	B01-P3-3-005M	10
5.50	X9C0536	B01-P3-3-021	10
5.50	X9C0536	B01-P3-3-077	10
5.50	X9C0536	B02-P3-2-007	10
5.50	X9C0536	B01-P3-2-007	10
5.50	X9C0536	B01-P3-2-008	10
5.50	X9C0536	B02-P3-2-008	10
5.50	X9C0536	B01-P3-2-055	10
5.50	X9C0536	B02-P3-2-055	10
5.50	X9C0536	B01-P3-3-004	10
5.50	X9C0536	B02-P3-3-004	10
5.50	X9C0536	B01-P3-3-017M	10
5.50	X9C0536	B01-P3-3-020	10
5.50	X9C0536	B01-P3-2-004	10
5.51	X9C0538	U03-1301	60
5.51	X9C0538	U03-3302	60
5.51	X9C0538	U03-7304M	60
5.51	X9C0538	B01-P3-2-001	60
5.51	X9C0538	B01-P3-2-012	60
5.51	X9C0538	B01-P3-3-005M	60
5.51	X9C0538	B01-P3-2-007	60
5.51	X9C0538	B02-P3-2-008	60
5.51	X9C0538	B01-P3-3-004	60
5.51	X9C0538	B01-P3-3-020	60
5.52	X9E0093	U03-1302M	10
5.52	X9E0093	U03-3305M	10
5.52	X9E0093	U04-3305M	10
5.52	X9E0093	U03-3303M	10
5.52	X9E0093	U03-7300M	10
5.52	X9E0093	U03-7301M	10
5.52	X9E0093	B01-P3-3-022	10
5.52	X9E0093	B01-P3-3-025M	10
5.52	X9E0093	U03-9302M	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.52	X9E0093	B01-P3-2-015M	10
5.52	X9E0093	B01-P3-2-017M	10
5.52	X9E0093	U03-1306	10
5.52	X9E0093	U03-1304	10
5.52	X9E0093	U03-3311	10
5.52	X9E0093	U03-3309	10
5.52	X9E0093	U03-3308	10
5.53	X9E0097	U03-3306	10
5.53	X9E0097	U03-10357	10
5.53	X9E0097	U03-3324	10
5.53	X9E0097	B01-P3-2-022	10
5.53	X9E0097	B01-P3-2-023	10
5.53	X9E0097	B01-P3-3-032	10
5.53	X9E0097	B01-P3-3-034M	10
5.53	X9E0097	ERA-28M	10
5.53	X9E0097	U03-1307M	10
5.53	X9E0097	U03-10319	10
5.53	X9E0097	U03-10308	10
5.53	X9E0097	U03-10340	10
5.53	X9E0097	U03-3314	10
5.53	X9E0097	U03-3312	10
5.53	X9E0097	U04-3312	10
5.53	X9E0097	U03-10345	10
5.54	X9E0099	U03-1302M	60
5.54	X9E0099	U03-3303M	60
5.54	X9E0099	B01-P3-3-022	60
5.54	X9E0099	B01-P3-2-015M	60
5.54	X9E0099	U03-1304	60
5.54	X9E0099	U03-3308	60
5.54	X9E0099	U03-3324	60
5.54	X9E0099	B01-P3-3-032	60
5.54	X9E0099	U03-1307M	60
5.54	X9E0099	U03-10340	60
5.54	X9E0099	U04-3312	60
5.55	X9C0514	R12-001F	10
5.55	X9C0514	R12-002F	10
5.55	X9C0514	R12-003F	10
5.56	X9C0519	R84-007F	10
5.56	X9C0519	R84-008F	10
5.56	X9C0519	R84-009F	10
5.56	X9C0519	R84-010F	10
5.56	X9C0519	R87-005F	10
5.56	X9C0519	R87-006F	10
5.56	X9C0519	R89A-001F	10
5.56	X9C0519	R89A-002F	10
5.56	X9C0519	R89A-003F	10
5.56	X9C0519	R89A-004F	10
5.56	X9C0519	R89A-005F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.57	X9C0522	R12-003F	60
5.57	X9C0522	R84-009F	60
5.57	X9C0522	R87-005F	60
5.57	X9C0522	R89A-003F	60
5.58	X9D0024	R59-001F	10
5.58	X9D0024	R59-002F	10
5.58	X9D0024	R59-003F	10
5.58	X9D0024	R59-004F	10
5.58	X9D0024	R64-001F	10
5.58	X9D0024	R65-001F	10
5.58	X9D0024	R65-002F	10
5.58	X9D0024	R65-003F	10
5.58	X9D0024	R67-001F	10
5.58	X9D0024	R68-001F	10
5.58	X9D0024	R68-002F	10
5.59	X9D0029	R68-003F	10
5.59	X9D0029	R69-001F	10
5.59	X9D0029	R69-002F	10
5.59	X9D0029	R69-003F	10
5.59	X9D0029	R6/71-008F	10
5.59	X9D0029	R6/71-009F	10
5.59	X9D0029	R81-001F	10
5.59	X9D0029	R81-002F	10
5.59	X9D0029	R81-003F	10
5.59	X9D0029	R81-004F	10
5.59	X9D0029	R81-005F	10
5.59	X9D0029	R82-001F	10
5.59	X9D0029	R82-002F	10
5.59	X9D0029	R82-003F	10
5.60	X9D0033	R59-001F	60
5.60	X9D0033	R59-004F	60
5.60	X9D0033	R64-001F	60
5.60	X9D0033	R65-002F	60
5.60	X9D0033	R68-003F	60
5.60	X9D0033	R69-002F	60
5.60	X9D0033	R81-001F	60
5.60	X9D0033	R81-004F	60
5.60	X9D0033	R82-002F	60
5.61	X9D0226	R01-006F	10
5.61	X9D0226	R01-007F	10
5.61	X9D0226	R01-008F	10
5.61	X9D0226	R01-009F	10
5.61	X9D0226	R01-010F	10
5.61	X9D0226	R01-011F	10
5.61	X9D0226	R01-012F	10
5.61	X9D0226	R01-013F	10
5.62	X9D0229	R18-005F	10
5.62	X9D0229	R18-008F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.62	X9D0229	R18-009F	10
5.62	X9D0229	R18-010F	10
5.62	X9D0229	R50-005F	10
5.62	X9D0229	R52A-001F	10
5.62	X9D0229	R52A-002F	10
5.62	X9D0229	R52A-003F	10
5.62	X9D0229	R52A-004F	10
5.62	X9D0229	R52A-005F	10
5.62	X9D0229	R55M-001F	10
5.62	X9D0229	R55M-002F	10
5.62	X9D0229	R55M-003F	10
5.62	X9D0229	R55M-004F	10
5.62	X9D0229	R55M-005F	10
5.63	X9D0232	R01-008F	60
5.63	X9D0232	R01-011F	60
5.63	X9D0232	R18-005F	60
5.63	X9D0232	R18-010F	60
5.63	X9D0232	R52A-002F	60
5.63	X9D0232	R52A-005F	60
5.63	X9D0232	R55M-003F	60
5.64	X9D0341	R80-007F	10
5.64	X9D0341	R80-008F	10
5.64	X9D0341	R80-009F	10
5.64	X9D0341	R80-010F	10
5.64	X9D0341	R80-011F	10
5.64	X9D0341	R80-012F	10
5.64	X9D0341	R80-013F	10
5.64	X9D0341	R80-014F	10
5.64	X9D0341	R80-015F	10
5.65	X9D0345	R305-001F	10
5.65	X9D0345	R305-002F	10
5.65	X9D0345	R305-003F	10
5.65	X9D0345	R305-004F	10
5.65	X9D0345	R306-001F	10
5.65	X9D0345	R306-002F	10
5.65	X9D0345	R306-003F	10
5.65	X9D0345	R306-004F	10
5.65	X9D0345	R307-001F	10
5.65	X9D0345	R307-002F	10
5.65	X9D0345	R307-003F	10
5.65	X9D0345	R307-004F	10
5.65	X9D0345	R310-001F	10
5.65	X9D0345	R310-002F	10
5.65	X9D0345	R310-003F	10
5.65	X9D0345	R310-004	10
5.66	X9D0346	R80-007F	60
5.66	X9D0346	R80-010F	60
5.66	X9D0346	R80-013F	60

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.66	X9D0346	R305-002F	60
5.66	X9D0346	R306-003F	60
5.66	X9D0346	R307-002F	60
5.66	X9D0346	R310-001F	60
5.66	X9D0346	R310-004F	60
5.67	X9E0133	U03-1309M	10
5.67	X9E0133	U03-3317M	10
5.67	X9E0133	U03-3316	10
5.67	X9E0133	U04-10345	10
5.67	X9E0133	U03-3325	10
5.67	X9E0133	B01-P3-2-027	10
5.67	X9E0133	B01-P3-2-029	10
5.67	X9E0133	B01-P3-2-035M	10
5.67	X9E0133	B01-P3-2-037M	10
5.67	X9E0133	B01-P3-3-038M	10
5.67	X9E0133	B01-P3-3-041	10
5.67	X9E0133	B01-P3-2-028M	10
5.67	X9E0133	B01-P3-2-032M	10
5.67	X9E0133	B01-P3-2-034	10
5.67	X9E0133	B01-P3-3-043	10
5.67	X9E0133	B01-P3-3-045	10
5.68	X9E0137	B01-P3-3-046	10
5.68	X9E0137	B01-P3-3-050	10
5.68	X9E0137	B02-P3-3-050	10
5.68	X9E0137	U03-2316	10
5.68	X9E0137	U03-2315	10
5.68	X9E0137	U04-2315	10
5.68	X9E0137	U03-2312	10
5.68	X9E0137	U03-10346M	10
5.68	X9E0137	U03-3326M	10
5.68	X9E0137	B01-P3-3-078	10
5.68	X9E0137	B01-P3-3-049	10
5.68	X9E0137	B01-P3-3-080	10
5.68	X9E0137	U03-1311M	10
5.68	X9E0137	ERA-22M	10
5.68	X9E0137	ERA2-22M	10
5.69	X9E0140	U03-1309M	60
5.69	X9E0140	U04-10345	60
5.69	X9E0140	B01-P3-2-029	60
5.69	X9E0140	B01-P3-3-038M	60
5.69	X9E0140	B01-P3-2-032M	60
5.69	X9E0140	B01-P3-3-045	60
5.69	X9E0140	B02-P3-3-050	60
5.69	X9E0140	U04-2315	60
5.69	X9E0140	U03-3326M	60
5.69	X9E0140	B01-P3-3-080	60
5.70	X9E0289	U03-1400	10
5.70	X9E0289	U04-1400	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.70	X9E0289	U03-1317M	10
5.70	X9E0289	U03-1316M	10
5.70	X9E0289	U03-1313	10
5.70	X9E0289	U02-1105M	10
5.70	X9E0289	U02-1103	10
5.70	X9E0289	U02-1102M	10
5.70	X9E0289	U02-1100M	10
5.70	X9E0289	U03-2323	10
5.70	X9E0289	U04-2323	10
5.70	X9E0289	U03-2320	10
5.70	X9E0289	U03-2318M	10
5.70	X9E0289	U04-2318M	10
5.70	X9E0289	U03-10324	10
5.70	X9E0289	U03-10335	10
5.71	X9E0299	U03-3400	10
5.71	X9E0299	U03-3322	10
5.71	X9E0299	U03-3321	10
5.71	X9E0299	U03-3320	10
5.71	X9E0299	U03-3318	10
5.71	X9E0299	B01-P3-2-044M	10
5.71	X9E0299	B01-P3-2-047	10
5.71	X9E0299	B01-P3-2-061	10
5.71	X9E0299	B01-P3-2-042M	10
5.71	X9E0299	B01-P3-2-043M	10
5.71	X9E0299	B01-P3-2-045M	10
5.71	X9E0299	B01-P3-2-048M	10
5.71	X9E0299	B01-P3-3-053	10
5.71	X9E0299	B02-P3-3-053	10
5.71	X9E0299	B01-P3-3-056	10
5.71	X9E0299	B01-P3-3-057	10
5.71	X9E0299	B02-P3-3-057	10
5.71	X9E0299	B01-P3-3-059	10
5.71	X9E0299	B02-P3-3-059	10
5.72	X9E0309	U03-1400	60
5.72	X9E0309	U03-1316M	60
5.72	X9E0309	U02-1103	60
5.72	X9E0309	U03-2323	60
5.72	X9E0309	U03-2318M	60
5.72	X9E0309	U03-10335	60
5.72	X9E0309	U03-3321	60
5.72	X9E0309	B01-P3-2-044M	60
5.72	X9E0309	B01-P3-2-042M	60
5.72	X9E0309	B01-P3-2-048M	60
5.72	X9E0309	B01-P3-3-056	60
5.72	X9E0309	B01-P3-3-059	60
5.73	X9E0337	R59-005F	10
5.73	X9E0337	R80-016F	10
5.73	X9E0337	R80-017F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.73	X9E0337	R80-018F	10
5.73	X9E0337	R80-019F	10
5.73	X9E0337	R80-020F	10
5.73	X9E0337	R80-021F	10
5.73	X9E0337	R80-022F	10
5.73	X9E0337	R80-023F	10
5.73	X9E0337	R80-024F	10
5.73	X9E0337	R80-025F	10
5.73	X9E0337	R80-026F	10
5.74	X9E0342	R83-006F	10
5.74	X9E0342	R83-007F	10
5.74	X9E0342	R83-008F	10
5.74	X9E0342	R83-009F	10
5.74	X9E0342	R83-010F	10
5.74	X9E0342	R83-011F	10
5.74	X9E0342	R93-007F	10
5.74	X9E0342	R95-003F	10
5.74	X9E0342	R97-011F	10
5.74	X9E0342	R97-012F	10
5.74	X9E0342	R97-013F	10
5.74	X9E0342	R97-014F	10
5.74	X9E0342	R97-015F	10
5.74	X9E0342	R97-016F	10
5.74	X9E0342	R97-017F	10
5.74	X9E0342	R306-005F	10
5.75	X9E0351	R80-016F	60
5.75	X9E0351	R80-019F	60
5.75	X9E0351	R80-022F	60
5.75	X9E0351	R80-025F	60
5.75	X9E0351	R83-006F	60
5.75	X9E0351	R83-009F	60
5.75	X9E0351	R97-011F	60
5.75	X9E0351	R97-014F	60
5.75	X9E0351	R97-017F	60
5.76	X9E0523	R307-005F	10
5.76	X9E0523	R303-006F	10
5.76	X9E0523	R116-006F	10
5.76	X9E0523	R93A-001F	10
5.76	X9E0523	R47-007F	10
5.76	X9E0523	R50-006F	10
5.76	X9E0523	R51-006F	10
5.77	X9E0524	R01-014F	10
5.77	X9E0524	R01-015F	10
5.77	X9E0524	R01-016F	10
5.77	X9E0524	R01-017F	10
5.77	X9E0524	R301-005F	10
5.77	X9E0524	R302-006F	10
5.77	X9E0524	R118-010F	10

Attachment A
Data Package and Sample Identificaton Summary

Report Section	Data Package	Field Sample Identification	Mesh Size
5.77	X9E0524	R118-011F	10
5.77	X9E0524	R118-012F	10
5.77	X9E0524	R118-013F	10
5.77	X9E0524	R118-014F	10
5.78	X9E0526	R307-005F	60
5.78	X9E0526	R303-006F	60
5.78	X9E0526	R116-006F	60
5.78	X9E0526	R50-006F	60
5.79	X9E0527	R01-014F	60
5.79	X9E0527	R01-017F	60
5.79	X9E0527	R302-006F	60
5.79	X9E0527	R118-011F	60
5.79	X9E0527	R118-014F	60
5.80	X9E0700	R56-006F	10
5.80	X9E0700	R56-007F	10
5.80	X9E0700	R19-008F	10
5.80	X9E0700	R19-009F	10
5.80	X9E0700	R19-010F	10
5.80	X9E0700	R19-011F	10
5.80	X9E0700	R19-012F	10
5.80	X9E0700	R19-013F	10
5.80	X9E0700	R19-014F	10
5.80	X9E0700	R19-015F	10
5.81	X9E0703	R56-007F	60
5.81	X9E0703	R19-010F	60
5.81	X9E0703	R19-013F	60

DATA VALIDATION REPORT
FOR
HANOVER WHITEWATER CREEK INVESTIGATION UNIT

APRIL 29, 2020

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Appendix A Qualified Data Sheets

1. INTRODUCTION

This report contains the results of the data validation conducted for the post-excavation samples collected for the Hanover Whitewater Creek Investigation Unit. The data were generated and reviewed in accordance with the approved Administrative Order on Consent Quality Assurance Plan (QAP) Chino Mine Investigation Area (March 1997).

The samples were collected from November 2018 through May 2019. The samples were sent to SVL Analytical in Kellogg, Idaho for analysis. The soil samples were sieved upon arrival at the laboratory using a -60 mesh (250 μm) or -10 mesh (2000 μm) sieve as requested on the chain of custody (COC). The samples were analyzed for metals, total organic carbon (TOC) and paste pH on the resulting fraction. The results of the data validation performed are presented in Sections 4 and 5.1 through 5.81 of this report.

Attachment A lists the samples for which data were validated, the corresponding data package, and the report section in which validation results are presented.

This data validation report describes the data validation process used and presents the data review results for the soil samples and associated quality control (QC) sample analyses.

In accordance with the QAP, a review of the data was conducted independently from the laboratory. The review consisted of evaluation of laboratory performance criteria and sample-specific criteria using guidance from the United States Environmental Protection Agency (USEPA) National Functional Guidelines for Inorganic Data Review (January 2017). The laboratory performance criteria evaluated included: initial calibration procedures and results, continuing calibration procedures and results, inductively coupled plasma (ICP) interference check sample results, contract required detection limit (CRDL) standard analysis and results, laboratory control sample results, and verification of result quantitation. An evaluation of laboratory performance criteria was conducted on at least 10% of the data set per analysis type. Section 2.0 and Tables 2-1 and 2-2 summarize the QC requirements for the laboratory performance criteria.

The sample-specific criteria evaluated included: COC and sample receipt documentation, holding times, blank contamination, laboratory duplicate sample analysis, matrix spike/matrix spike duplicate sample analysis, serial dilution results, post digestion spike recovery, and field duplicate results agreement. The sample specific criteria were evaluated for every data package received. Section 3.0 and Table 3-1 summarize the sample-specific criteria that were used in the data validation process and how data were

qualified. For the saturated paste pH and TOC results, the only QC criterion available to evaluate was laboratory control sample recoveries and laboratory duplicate agreement.

Section 4.0 presents the results of the evaluation of laboratory performance criteria. The review of sample-specific criteria is presented in Section 5.0. The results obtained for field quality control samples are discussed in Section 6.0 and an overall assessment of data, with respect to the data quality indicators, is presented in Section 7.0.

This data validation report is accompanied by a separate Data Quality Assessment Report (DQAR) in which the overall quality and usability of the data with respect to making project decisions is discussed. The DQAR contains detailed and specific discussions on the quality and usability of the analytical data for making specific project decisions.

During the data validation process, the data reviewer annotated on the analytical data sheets any data validation qualifiers assigned and associated reason and bias codes as listed in Tables 1-1 and 1-2. The purpose of the qualifier codes is to provide information with regard to the analytical condition(s) that resulted in the assigned qualifiers. The bias code provides an indication of the direction of the bias for results qualified as estimated based on analytical condition(s) or QC sample results that resulted in the data qualification. The data qualifier codes are followed by a hyphen and the applicable bias code. For example, a result qualified as estimated due to a holding time exceedance, which resulted in a potential low bias in the result, has the following code annotated on the data sheets, "HT-L." In the case of multiple QC conditions resulting in qualification, each qualifier code is listed and separated by a comma. For example, a result qualified as estimated due to low matrix spike recovery and poor method duplicate precision would have the following codes annotated on the data sheet, "MS, D – I. A summary of the qualified data is in Attachment B, and the data reporting forms with assigned data qualifiers are included in Appendix A.

TABLE 1-1
DATA VALIDATION QUALIFIER DEFINITIONS

Qualifier	Definitions [1]
U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

[1] Definitions from USEPA National Functional Guidelines for Inorganic Superfund Method Data Review, January 2017.

TABLE 1-2
DATA VALIDATION QUALIFIER CODES

Qualifier Code	Data Quality Condition Resulting in Assigned Qualification
General Use	
HT	Holding time requirement was not met
MB	Method blank or preparation blank contamination
LCS	Laboratory control sample evaluation criteria not met
FD	Field duplicate evaluation criteria not met
P	Preservation requirement was not met
RL	Reporting limit exceeds decision criteria (for non-detects)
Inorganic Methods	
ICV	Initial calibration verification evaluation criteria not met
CCV	Continuing calibration verification evaluation criteria not met
CCB	Continuing calibration blank contamination
ICS	Interference check sample evaluation criteria not met
LD	Laboratory duplicate precision evaluation criteria not met
MS	Matrix spike and/or matrix spike duplicate recovery outside acceptance range
PDS	Post-digestion spike recovery outside acceptance range
MSA	Method of standard additions correlation coefficient ≤ 0.995
D	Duplicate precision evaluation criteria not met
IS	Internal standard recovery outside acceptance range for ICP-MS
ICS	Interferent check solution evaluation criteria not met
SD	Serial dilution results did not meet evaluation criteria
Bias Codes	**Bias Direction**
H	Bias in sample result likely to be high
L	Bias in sample result likely to be low
I	Bias in sample result is indeterminate

2. EVALUATION OF LABORATORY PERFORMANCE CRITERIA

The laboratory performance criteria reviewed is summarized in Tables 2-1 and 2-2. Table 2-1 details QC requirements for metals determination by ICP and ICP-MS. Table 2-2 details QC requirements for general chemistry parameters. The laboratory performance criteria were evaluated for 10% of the data packages including recalculation of results and review of raw data from the laboratory. The results of the laboratory performance criteria review are presented in Section 4.0.

TABLE 2-1
LABORATORY PERFORMANCE CRITERIA – ICP AND ICP-MS

Method	QC Check *	Minimum Frequency	Acceptance Criteria	Qualifiers
ICP (6010D)/ ICP-MS (6020B)	Initial calibration (minimum 1 standard and a blank)	Daily prior to sample analysis	• Correlation Coefficient ≥0.995 for linear regression.	• If r<0.995, qualify results as estimated (J/UJ).
	Second source initial calibration verification (ICV)	Daily after initial calibration	• Analytes within ±10% of expected value. • RSD of replicate integrations <5%.	• If %R falls outside the acceptance range but within range of 75-89% or 111-125%, qualify results >IDL as estimated (J). • If %R is within 111-125%, results <IDL are acceptable. • If %R is 75-89%, qualify results <IDL as estimated (UJ).
	Continuing calibration verification (CCV)	After every 10 samples and at the end of the analysis sequence	• Analytes within ±10% of expected value. • RSD of replicate integrations <5%.	• If %R is <75%, qualify results as unusable (R). • If %R is >125%, qualify results >IDL as unusable (R); results <IDL are acceptable without qualification. • No qualification issued for RSD >5%.
	Linear Range Analysis (LRA)	Every 6 months or with daily calibration	• Analytes agree within 10% of true value.	• NA
	CRDL standard	At beginning and end of each sample analysis	• None	• No qualification issued. But %Rs outside 50-150% noted in review narrative and effect on data discussed in Data Quality Assessment Report.
	Interference check solution (ICS)	At the beginning and end of the analytical run	• Recovery of spiked analytes within ±20% of expected value. • Results for analytes not present in the ICS solution must be <RL.	• If %R is >120%, results <IDL are acceptable. • If %R is >120%, qualify results >IDL as estimated (J). • If %R is within 50-79%, qualify results >IDL as estimated (J). • If %R is within 50-79%, qualify results <IDL as estimated (UJ). • If %R is <50%, qualify results as unusable (R). • If results > IDL are observed that are not present in the ICS solution and the sample has concentrations at the level of the interferents concentrations, qualify sample results >IDL as estimated (J) if the amount of bias is ≥25% of sample result. • If negative concentrations are observed that are not present in the ICS solution at a concentration where the absolute value is >IDL, qualify sample results as estimated (J/UJ) if the bias was more than 25% of the reported result and the sample has a concentration comparable to the interferent concentrations in the ICS solution.
	Tune (ICPMS)	Beginning of every 12 hours of sample analysis	• Relative deviations <5% for analytes contained in the tuning solution.	• If tune no performed (R). • If tune not performed properly, chemist will use professional judgment. • Resolution of mass calibration not within 0.1 u, qualify results as estimated (UJ/J). • If relative deviation >5%, qualify results as estimated (UJ/J).
	Laboratory Control Sample (LCS) (solid)	One per analytical batch containing solid samples	• LCS results must fall within the control limits.	• If LCS recovery falls outside the control limits, qualify results >IDL as estimated (J). • If LCS recovery is > control limits, results <IDL are acceptable without qualification. • If LCS recovery is < control limits, qualify results <IDL as estimated (J/UJ).

*As applicable to the method

TABLE 2-2
LABORATORY PERFORMANCE CRITERIA – GENERAL CHEMISTRY

Method	QC Check*	Minimum Frequency	Acceptance Criteria	Qualifiers
General Chemistry	Laboratory Control Sample (LCS) (solid)	One per analytical batch containing solid samples	• LCS results must fall within the control limits.	• If LCS recovery falls outside the control limits, qualify results >IDL as estimated (J). • If LCS recovery is > control limits, results <IDL are acceptable without qualification. • If LCS recovery is < control limits, qualify results <IDL as estimated (J/UJ).

*As applicable to the method

3. EVALUATION OF SAMPLE-SPECIFIC CRITERIA

Sample-specific criteria were reviewed for each data package. The review criteria and resultant actions are summarized in Table 3-1. The results of the sample-specific review are detailed in Section 5.0. Each subsection presents the review narrative for each data package.

TABLE 3-1
SAMPLE-SPECIFIC CRITERIA

Method	QC Check *	Minimum Frequency	Acceptance Criteria	Qualifiers
ICP (6010D)/ ICP-MS (6020B)/ General Chemistry Parameters	Holding Time		• Within the holding time requirements specified in the QAPP. • No holding time was specified in the QAPP for pH. The reviewer used a holding time of 2 days for sediment samples.	• If sample was analyzed outside the holding time requirements, then the sample results was qualified as estimated (J/UJ).
	Continuing calibration blank (CCB)	After every calibration verification	• <RL for positive results. • < | RL | for negative results.	• Sample results, for an analyte detected in an associated blank at a concentration, <5x the blank concentration, qualify as non-detect (U). • Sample results for an analyte reported in an associated blank at a negative concentration > | 4x blank concentration |, qualify results as estimated (J/UJ).
	Method Blank	One per analytical batch	• No analytes detected ≥ RL.	• Sample results, for an analyte detected in the method blank at a concentration, <5x the blank concentration, qualify as non-detect (U). • Sample results for an analyte reported in the method blank at a negative concentration > | 4x blank concentration |, qualify results as estimated (J/UJ).
	Serial Dilution	One per analytical batch	• 1:**5** dilution must agree within ±10% of the original determination for analytes present at concentrations >50x MDL.	• If %D is >10%, qualify associated data as estimated (J/UJ).
	Matrix spike (MS)	Historically done at 1 per 20 samples	• Recovery within 75-125% for both water and soils. • If sample results is ≥4x the spike amount, then the matrix spike is not an appropriate for assessing accuracy measurement.	• If % R is >125%, results <IDL are acceptable without qualification. • If %R is >125% or <75%, qualify results >IDL as estimated (J). • If % R is within 30-74%, qualify results <IDL as estimated (J/UJ). • If % R is <30%, qualify results <IDL as unusable(R).
	Laboratory Duplicate or Matrix Spike Duplicate	One per 20 samples	If both results >5x RL • RPD for water is ≤20%. • RPD for soils is ≤35%. If either sample result is <5x the RL then • Absolute difference ≤1x RL (waters). • Absolute difference ≤2x RL (soils).	• If the RPD or absolute difference fall outside the appropriate fixed control windows, qualify the results for that analyte as estimated (J/UJ).
	Field Duplicate	One per 10 or One per week	If both results >5x RL • RPD for soils is ≤50%. If either sample result is <5x then • Absolute difference ≤ 3x RL.	• If the RPD or absolute difference fall outside the appropriate fixed control windows, qualify the results for that analyte as estimated (J/UJ).

TABLE 3-1
SAMPLE-SPECIFIC CRITERIA

Method	QC Check *	Minimum Frequency	Acceptance Criteria	Qualifiers
	Post-digestion spike (PDS)	Typically, when the MS failed or at analyst discretion	• Recovery within 75-125% for both water and soils. • If sample results is ≥4x the spike amount, then the matrix spike is not an appropriate for assessing accuracy measurement.	• No qualification was issued. • Post-digestion spikes were conducted to aid in determining whether the MS results that were out of acceptance limits were caused by the sample matrix, a bias in the analytical system, or a combination of both.
	Internal Standard Recoveries (ICPMS)	Required for each sample	• Recoveries within 30-120%	• Qualify associated sample results as estimated (J/UJ).

*As applicable to the method.

4. REVIEW OF LABORATORY PERFORMANCE EVALUATION CRITERIA

Data packages X8L0101, X8L0193, X8L0423, X9A0392, X9A0393, X9B0207, X9B0345, X9C0522, X9D0024, X9E0289, and X9E0700 were used to evaluate the laboratory performance criteria. Result recalculations and review of the raw data provided by the laboratory was performed on the samples in these data packages in accordance with the QAP. The independently recalculated results were consistent with those reported by the laboratory; therefore, further action was not necessary. The data reported in these data packages account for greater than 10% of the investigation data. The evaluation of laboratory performance criteria was conducted as summarized in Tables 2-1 and 2-2.

4.1 Initial Calibration and Initial Calibration Verification

ICP – Each ICP analytical run was initiated with the analysis of a blank and at least one standard, which satisfied the initial calibration criterion. The metals in the initial calibration verification (ICV) were recovered within the acceptance range of 90-110% for each analyte. The initial calibration blank sample results for analytes were acceptable. Therefore, data qualification for ICP metals data was not necessary based on initial calibration.

ICPMS – Each ICPMS analytical run was initiated with a blank and five standards. The calibrations were verified with the analysis of an ICV. Target metals were recovered within the acceptance range of 90-110%. Target analytes were not detected in the initial calibration blank sample. Site-specific samples were not analyzed direction after the initial calibration blank and before the first calibration blank. Because response criteria were met, data qualification on the basis of initial calibration was not necessary.

4.2 Continuing Calibration Verification

The continuing calibration verification solutions (CCV) were analyzed at the required frequency for ICP and ICPMS metals. The continuing calibration criteria satisfied the criteria in Table 2-1; therefore, data qualification was not necessary.

4.3 Linear Range Analysis

The linear range analysis was performed daily with the initial calibration. The reported sample concentrations were less than the high point of the calibration; therefore, data qualification was not necessary.

4.4 CRDL Standard

A CRDL standard (a low standard with concentrations at the laboratory reporting limit) was analyzed at the proper location in each analytical sequence. If the CRDL recoveries were outside 50-150%, then the results are discussed in the individual review narratives.

4.5 Interference Check Standards (ICS)

ICS solutions were reviewed in each data package. Results and associated data qualification are outlined in Section 5.0

4.6 Tune (ICP-MS)

The tune was performed at the required frequency, every 12 hours. The relative deviations were <5% for the analytes in the tuning solution; therefore, data qualification was not necessary.

4.7 Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

LCS/LCSD percent recoveries and relative percent differences (RPDs) were reviewed in each data package. Results and associated data qualification are outlined in Section 5.0.

5. REVIEW OF SAMPLE SPECIFIC CRITERIA FOR DATA PACKAGES

Sample-specific criteria were evaluated for the data packages. In addition, case narratives and qualifier summaries in each package were reviewed for completeness. The evaluation of sample-specific criteria was conducted as summarized in Table 3-1. The data review narratives for the 81 data packages are presented in Subsections 5.1 through 5.81.

5.1 SVL Data Package X8L0045 (-10 Mesh)

Data package X8L0045 contained the analytical results for nineteen samples and three field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 8.8°C 9.6°C, and 10.2°C, and outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 30 and 32 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed 1 to 8 days over the

28-day hold time and results were also qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S18L024-CCB1 **12/18/18 12:27** R19-001F R19-002F R19-003F R19-004F	Lead	0.016 mg/kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S18L024-CCB2 **12/18/18 12:53** R19-006F R19-007F R20-001F R20-002F R20-003F	Lead	0.024 mg/kg*	
S18L024-CCB3 **12/18/18 13:08** Closing CCB	Lead	0.013 mg/kg*	

* – Conversion from water to soil units using the prep factor and percent solid
< – Less Than
CCB – Continuing Calibration Blank
mg/Kg – Milligrams per Kilogram

Laboratory Control Samples

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes, except as noted in the table below.

Sample	Analyte	RPD	RPD Limit	Data Qualification
R19-001F	Lead	51.5	35	The associated lead result for sample R19-001F was qualified as estimated (J LD-I)

J– Estimated I – Indeterminate Bias LD – Laboratory Duplicate
RPD – Relative Percent Difference

Matrix Spike Analysis

With the exceptions listed in the table below, recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
R19-001F	Arsenic	104/**62.8** (75-125)	9.4 (35)	As the potential bias was considered to be low, the associated arsenic result for sample R19-001F was qualified as estimated (J MS-L)
	Zinc	**130**/123 (75-125)	2 (35)	As the potential bias was considered to be high, the associated zinc result for sample R19-001F was qualified as estimated (J MS-H)
R20-004F	Arsenic	**67.7/70.2** (75-125)	1.3 (35)	As the potential bias was considered to be low, the associated arsenic result for sample R20-004F was qualified as estimated (J MS-L)

% – Percent %R – Percent Recoveries H – High Bias
J – Estimated L – Low Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were R19-006F/R19-007F, R20-003F/R20-006F and R23-002F/R23-006F. With the exceptions noted in the table below, the concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Sample ID	Analyte	Parent Sample Result (mg/Kg)	Field Duplicate Sample Result (mg/Kg)	Criteria	Data Qualification
R19-006F/ R19-007F	Lead	40.9	90.9	>50% RPD	The associated parent and field duplicate results were qualified as estimated (J FD-I).

> – Greater Than
% - Percent
ID – Identification
FD – Field Duplicate
I – Indeterminate Bias
mg/Kg – Milligrams per Kilogram
ND – Non-detect
RL – Reporting Limit
RPD – Relative percent difference
J – Estimated

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.2 SVL Data Package X8L0051 (-60 Mesh)

Data package X8L0051 contained the analytical results for six samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature upon arrival at SVL was 9.6°C, and outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 30 and 32 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed 1 to 8 days over the 28-hold time and results were also qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S18L027-CCB2 **12/19/18 8:21** R21-002F R22-003F R23-001F	Lead	0.012 mg/kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S18L027-CCB3 **12/19/18 8:32** Closing CCB	Lead	0.010 mg/kg*	

< – Less Than CCB – Continuing Calibration Blank
mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

Field duplicate pairs were not associated with this data package. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.3 SVL Data Package X8L0101 (-10 Mesh)

Data package X8L0101 contained the analytical results for fourteen samples and one field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and

method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 9.4°C and 9.6°C, and outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 32 and 36 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed 8 to 14 days over the 28-hold time and results were also qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19A004-CCB5 **1/2/2019 10:16** R23-003F R23-004F R24-001F R24-002F R24-003F	Manganese	-0.30 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

* – Conversion from water to soil units using the prep factor and percent solid
< – Less Than
CCB – Continuing Calibration Blank
mg/Kg – Milligrams per Kilogram

Laboratory Control Samples

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

With the exceptions listed in the table below, recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
R23-003F	Arsenic	**72/65.2** (75-125)	3.9 (35)	As the potential bias was considered to be low, the associated arsenic result for sample R23-003F was qualified as estimated (J MS-L)
	Zinc	97.6/**128** 2nd MSD: **24.3** (75-120)	6.7 2nd MSD: 18.5 (35)	As both high and low bias are present, the associated zinc result for sample R23-003F was qualified as estimated (J MS-I)

% – Percent
%R – Percent Recoveries
I – Indeterminate Bias
J – Estimated
L – Low Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. With the exceptions noted in the table below, the applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Sample ID	Analyte	Initial Sample Result (mg/Kg)	Serial Dilution Result (mg/Kg)	SD %D	Data Qualification
R23-003F	Iron	125000	10800	14.6 (10)	The bias is considered to be high because the original result is greater than the diluted result and the diluted result is considered to be more accurate. The associated result was qualified estimated, J SD-H
	Lead	128	152	17.1 (10)	The bias is considered to be low because the original result is less than the diluted result and the diluted result is considered to be more accurate. The associated result was qualified estimated, J SD-L

%D – Percent Difference ID – Identification J – Estimated
H – High Bias L – Low Bias SD – Serial Dilution
mg/kg – Milligrams per Kilogram

Field Duplicate Analysis

The field duplicate pair was R24-004F/R24-006F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.4 SVL Data Package X8L0102 (-10 Mesh)

Data package X8L0102 contained the analytical results for fourteen samples and one field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 9.8°C and 10.4°C, and outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 32 and 39 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed 6 to 14 days over the 28-hold time and results were also qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19A004-CCB5 **1/2/2019 10:16** Not associated with X8L0102 samples	Manganese	-0.30 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S18L031-CCB3 12/19/18 12:07 R28-001F R28-002F R28-003F R28-004F R29-001F R29-002F R29-003F R29-004F R29-006F R30-001F R30-002F	Lead	0.014 mg/kg*	None. The associated results were reported at concentrations >5x the blank contamination.

* – Conversion from water to soil units using the prep factor and percent solid
< – Less Than
CCB – Continuing Calibration Blank
mg/Kg – Milligrams per Kilogram

Laboratory Control Samples

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

A MS/MSD was not associated with this SDG. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The serial dilution was performed on a sample that was not selected for validation and was not evaluated.

Field Duplicate Analysis

The field duplicate pair was R29-003F/R29-006F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

With the exceptions noted in the table below, the internal standard recoveries were within the acceptance limits.

Sample ID Date & Time	Internal Standard	% Recovery (Limits)	Data Qualification
R27-004F 12/20/10:47	Ge-72_He	123 (30-120)	The arsenic result for sample R27-004F was qualified as estimated (J IS-I).

ID – Identification I – Indeterminate Bias J – Estimated
IS – Internal Standard

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.5 SVL Data Package X8L0103 (-10 Mesh)

Data package X8L0103 contained the analytical results for eight samples and one field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL ranged from 9.4 °C to 10.4 °C, outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 32 and 39 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed 6 to 14 days over the 28-hold time and results were also qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S18L034-CCB3 **12/20/18 9:18** R26-003F R27-003F R28-001F R28-004F R29-002F R30-002F	Lead	0.023 mg/kg*	None. The associated results were reported at concentrations >5x the blank contamination.

* – Conversion from water to soil units using the prep factor and percent solid
< – Less Than
CCB – Continuing Calibration Blank
mg/Kg – Milligrams per Kilogram

Laboratory Control Samples

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

A MS/MSD was not associated with this SDG. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

Field duplicate pairs were not associated with this data package. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.6 SVL Data Package X8L0136 (-10 Mesh)

Data package X8L0136 contained the analytical results for fourteen samples and two field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly

preserved and intact. Cooler temperatures upon arrival at SVL were 7.8°C and 8.8°C, outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exceptions listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 40 and 43 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

The samples were analyzed for organic carbon between 41 and 48 days after collection, which exceeds the holding time requirement of twenty-eight days. Therefore, the organic carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X851012-BLK1	Copper	4.6 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
All Samples	Zinc	5.0 mg/Kg	
S19A033-CCB2 R30-003F R30-004F R30-006F R31-001F R31-002F R31-003F R31-004F R32-001F R32-002F R32-003F R32-004F	Lead	0.047 mg/Kg*	

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19A033-CCB3 R31-002F R31-003F R31-004F R32-001F R32-002F R32-003F R32-004F	Lead	0.068 mg/Kg*	
S19A033-CCB4 **S19A033-CCB5** R33-001F R33-002F R33-003F R33-004F R33-005F	Lead Lead	0.023 mg/Kg* 0.031 mg/Kg*	
X852122-BLK1 All Samples	Organic Carbon	0.0103 %	

> – Greater Than mg/Kg – Milligrams per Kilogram U – Non-detect
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R30-003F was spiked and analyzed for 6010 metals and 6020 metals. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. Recoveries for applicable analytes were within the acceptance range of 75-125%. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 and 6020 metals analysis of sample R30-003F. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were R30-004F/ R30-006Fand R33-004F/ R33-005F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.7 SVL Data Package X8L0137 (-10 Mesh)

Data package X8L0137 contained the analytical results for seventeen samples and two field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 6.4°C and 8.4°C, outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exceptions listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 37 and 41 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

The samples were analyzed for organic carbon between 39 and 44 days after collection, which exceeds the holding time requirement of twenty-eight days. Therefore, the organic carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X851059-BLK1 All samples	Copper	2.0 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19A002-CCB2 R34-001FR34-002F R34-003F-R34-004F R35-003F R35-007F R35-008F R35-010F R35-011F R36-001F R36-002F R36-003F R36-004F R37-001F R37-002F R37-004F	Lead	0.021 mg/Kg*	
S19A002-CCB3 R35-008F R35-010F R35-011F R36-001F R36-002F R36-003F R36-004F R37-001F R37-002F R37-004F R37-005F R37-006F R37-007F	Lead	0.024 mg/Kg*	
S19A002-CCB4 R37-005F R37-006F R37-007F	Lead	0.028 mg/Kg*	
S19A002-CCB5 R37-006F	Lead	0.023 mg/Kg*	
X852034-BLK1 R37-005F R37-006F R37-007F	Organic Carbon	0.0101 %	
X852122-BLK1 R35-008F	Organic Carbon	0.0103 %	

> – Greater Than mg/Kg – Milligrams per Kilogram U – Non-detect
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R34-001F was spiked and analyzed for 6010 metals and 6020 metals. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. Recoveries applicable analytes were within the acceptance range of 75-125%. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 metals analysis of sample R30-003F. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were R35-007F/ R35-011Fand R37-005F/ R37-007F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.8 SVL Data Package X8L0138 (-60 Mesh)

Data package X8L0138 contained the analytical results for ten samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 6.4°C, 8.4°C, 8.8°C, and 7.8°C, outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exceptions listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 37 and 43 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

The samples were analyzed for organic carbon between 41 and 48 days after collection, which exceeds the holding time requirement of twenty-eight days. Therefore, the organic carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X851234-BLK1	Copper	0.79 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
All samples	Zinc	0.9 mg/Kg	
S19A003-CCB2	Lead	0.030 mg/Kg*	
S19A003-CCB3	Lead	0.032 mg/Kg*	
R31-002F			
R32-002F			
R33-003F			
R34-001F			
R34-004F			
R35-008F			
R36-001F			
R36-004F			
R37-004F			
R37-007F			
X852034-BLK1	Organic Carbon	0.0101 %	
All Samples			

> – Greater Than mg/Kg – Milligrams per Kilogram U – Non-detect

* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Site specific samples were not spiked and analyzed for 6010 metals and 6020 metals. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 and 6020 metals analysis of a non-site sample; therefore, qualification of data was not considered.

Field Duplicate Analysis

The field duplicate pair was not collected and analyzed with this sample delivery group. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.9 SVL Data Package X8L0192 (-10 Mesh)

Data package X8L0192 contained the analytical results for sixteen samples and two field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 1.3°C, and 3.6°C, within the recommended range of 4°C±2°C.

Holding Times

With the exceptions listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 38 and 39 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

The samples were analyzed for organic carbon between 44 and 46 days after collection, which exceeds the holding time requirement of twenty-eight days. Therefore, the organic carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19A037-CCB2 R38-001F R38-002F R38-003F R38-004F R38-005F R40-001F R40-002F R40-003F R40-004F R41-001F R41-002F R41-003F R41-004F R41-005F R41-006F R42-001F	Lead	0.013 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A037-CCB3 R40-002F R40-003F R40-004F R41-001F R41-002F R41-003F R41-004F R41-005F R41-006F R42-001F R42-002F R42-003F	Lead	0.018 mg/Kg*	
S19A037-CCB4 R42-002F R42-003F	Lead	0.019 mg/Kg*	
X853027-BLK1 All Samples	Organic Carbon	0.00941 %	

> – Greater Than mg/Kg – Milligrams per Kilogram

* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R38-001F was spiked and analyzed for 6010 metals and 6020 metals. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. Recoveries applicable analytes were within the acceptance range of 75-125%. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 metals analysis of sample R38-001F. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were R41-002F/ R41-006Fand R38-005F/ R38-001F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the

sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.10 SVL Data Package X8L0193 (-10 Mesh)

Data package X8L0193 contained the analytical results for eighteen samples and one field duplicate sample. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 0.4°C, 1.3°C, and 3.6°C, within the recommended range of 4°C±2°C.

Holding Times

With the exceptions listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 37 and 38 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

The samples were analyzed for organic carbon between 36 and 44 days after collection, which exceeds the holding time requirement of twenty-eight days. Therefore, the organic carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19A0117-CCB4 R15-007F R18-001F R18-002F	Cadmium	0.60 mg/Kg*	The cadmium results for sample R18-001F was qualified as non-detect, U MB-I, at the reported value. The remaining associated results were reported at concentrations greater than 5 times the blank contamination.
X850155-BLK1 All samples	Lead	0.047 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19A037-CCB5 R14-001F R14-002F R14-003F R14-004F R14-005F R15-001F R15-002F R15-003F R15-004F R15-005F R15-006F R42-004F R79-001F R79-002F R79-003F R79-004F	Lead	0.015 mg/Kg*	
S19A037-CCB6 R14-002F R14-003F R14-004F R14-005F R15-001F R15-002F R15-003F R15-004F R15-005F R15-006F R15-007F R18-001F R18-002F	Lead	0.019 mg/Kg*	

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19A037-CCB7 R15-007F R18-001F R18-002F	Lead	0.025 mg/Kg*	

> – Greater Than mg/Kg – Milligrams per Kilogram U – Non-detect
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R42-004F was spiked and analyzed for 6010 metals and 6020 metals. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. Recoveries applicable analytes were within the acceptance range of 75-125%. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 metals analysis of sample R42-004F. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair was R14-003F / R14-005F . The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.11 SVL Data Package X8L0196 (-60 Mesh)

Data package X8L0196 contained the analytical results for twelve samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly

preserved and intact. Cooler temperatures upon arrival at SVL were 0.4°C, 1.3°C, 3.6°C, and 11.6°C. Some samples were received outside the recommended range of 4°C±2°C; however, based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exceptions listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 37 and 38 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

The samples were analyzed for organic carbon between 36 and 44 days after collection, which exceeds the holding time requirement of twenty-eight days. Therefore, the organic carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X851245-BLK1 All samples	Lead	0.040 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19A037-CCB8 R14-001F R14-004F R15-002F R15-005F R18-001F R38-003F R40-001F R40-004F R41-003F R41-006F R42-003F R79-002F	Lead	0.085 mg/Kg*	
S19A037-CCB9 R14-001F R14-004F R15-002F R15-005F R18-001F R79-002F	Lead	0.070 mg/Kg*	

> – Greater Than mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R38-003F was spiked and analyzed for 6010 metals and 6020 metals. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. Recoveries applicable analytes were within the acceptance range of 75-125%. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 metals analysis of sample R38-003F. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair was not collected and analyzed with this sample delivery group. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.12 SVL Data Package X8L0282 (-10 Mesh)

Data package X8L0282 contained the analytical results for fifteen samples and two field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 15.2°C and 16.6°C, outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exceptions listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 36 and 37 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

The samples were analyzed for organic carbon between 36 and 42 days after collection, which exceeds the holding time requirement of twenty-eight days. Therefore, the organic carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X850292-BLK1 All samples	Lead	0.027 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19A045-CCB3 R01-005F R44-001F R44-002F R44-003F R44-004F R44-005F R46-001F R46-002F R46-003F R46-004F R46-005F	Lead	0.013 mg/Kg*	
S19A045-CCB4 R44-005F	Lead	0.012 mg/Kg*	
X901148-BLK1 All samples except R44-004F	Organic Carbon	0.0196%	

> – Greater Than mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R18-003F was spiked and analyzed for 6010 metals and 6020 metals. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. Recoveries applicable analytes were within the acceptance range of 75-125%. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 metals analysis of sample R18-003F. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were R44-003F / R44-005F and R46-004F/ R46-005F. With the exceptions noted in the table below, the concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Sample ID	Analyte	Parent Sample Result (mg/Kg)	Field Duplicate Sample Result (mg/Kg)	Criteria	Data Qualification
R44-003F / R44-005F	Manganese	555	835	RPD >50%	The associated parent and field duplicate results were qualified as estimated (J FD-I).
R46-004F / R46-005F	Copper	299	147		
	Zinc	1260	307		

> – Greater Than
% – Percent
ID – Identification
FD – Field Duplicate
I – Indeterminate Bias
mg/Kg – Milligrams per Kilogram
RPD – Relative Percent Difference
J – Estimated

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.13 SVL Data Package X8L0283 (-10 Mesh)

Data package X8L0283 contained the analytical results for fourteen samples and one field duplicate sample. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 15.8°C, and 15.8°C, outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exceptions listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 33 and 34 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

The samples were analyzed for organic carbon between 34 and 38 days after collection, which exceeds the holding time requirement of twenty-eight days. Therefore, the organic carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19A0117-CCB4 R47-001F R47-002F R47-003F R47-004F R47-005F	Manganese	0.30 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
X850293-BLK1 All samples	Lead	0.034 mg/Kg	
S19A045-CCB4 R47-001F R47-002F R47-003F R47-004F R47-005F	Lead	0.012 mg/Kg*	
S19A045-CCB5 R47-001F R47-002F R47-003F R47-004F R47-005F R48-001F R48-002F R48-003F R48-004F R50-001F R50-002F R50-003F R50-004F R51-001F R51-002F	Lead	0.015 mg/Kg*	
S19A045-CCB6 R48-001F R48-002F R48-003F R48-004F R50-001F R50-002F R50-003F R50-004F R51-001F R51-002F	Lead	0.017 mg/Kg*	

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X901143-BLK1 All samples except R50-001F	Organic Carbon	0.0196%	

> – Greater Than mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Non site-specific samples were spiked and analyzed for 6010 metals and 6020 metals. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 and 6020 metals analysis of a non-site-specific sample; therefore, qualification of data was not considered.

Field Duplicate Analysis

The field duplicate pair was R47-002F/ R47-005F. With the exceptions noted in the table below, the concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Sample ID	Analyte	Parent Sample Result (mg/Kg)	Field Duplicate Sample Result (mg/Kg)	Criteria	Data Qualification
R47-002F/ R47-005F	Organic Carbon	0.662 %	1.02%	RPD >50%	The associated parent and field duplicate results were qualified as estimated (J FD-I).

> – Greater Than
% – Percent
ID – Identification
FD – Field Duplicate
I – Indeterminate Bias
mg/Kg – Milligrams per Kilogram
RPD – Relative Percent Difference
J – Estimated

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.14 SVL Data Package X8L0308 (-10 Mesh)

Data package X8L0308 contained the analytical results for nine samples and three field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 17.3°C, and 18.4°C, outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exceptions listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 33 and 34 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

The samples were analyzed for organic carbon between 34 and 38 days after collection, which exceeds the holding time requirement of twenty-eight days. Therefore, the organic carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X850293-BLK1 All samples	Lead	0.029 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19A045-CCB8 R51-003F R51-004F R51-005F R52-001F R52-002F R52-003F R52-005F R55-001F R55-002F R55-003F R55-004F R55-005F	Lead	0.016 mg/Kg*	
S19A045-CCB9 R52-005F R55-001F R55-002F R55-003F R55-004F R55-005F	Lead	0.021 mg/Kg*	
X901094-BLK1 All samples	Organic Carbon	0.0188%	

> – Greater Than mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R51-003F was spiked and analyzed for 6010 metals and 6020 metals. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. Recoveries applicable analytes were within the acceptance range of 75-

125%. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 metals analysis of sample R51-003F. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were R51-004F/ R51-005F, R52-002F/ R52-005F, and R55-003F/ R55-005F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.15 SVL Data Package X8L0311 (-60 Mesh)

Data package X8L0311 contained the analytical results for fifteen samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 16.6°C, 15.2°C, 15.8°C, 15.8°C, 17.3°C, and 18.4°C, outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exceptions listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 33 and 37 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

The samples were analyzed for organic carbon between 34 and 41 days after collection, which exceeds the holding time requirement of twenty-eight days. Therefore, the organic carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X850295-BLK1 All samples	Lead	0.036 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19A045-CCB8 R01-001F R01-004F R44-003F R46-002F R46-005F R47-003F R48-001F R48-004F R50-003F R51-002F R51-003F R52-001F R52-005F R55-003F	Lead	0.016 mg/Kg*	
S19A045-CCB9 R47-003F R48-001F R48-004F R50-003F R51-002F R51-003F R52-001F R52-005F R55-003F	Lead	0.021 mg/Kg*	
X901093-BLK1 All samples	Organic Carbon	0.0188%	

> – Greater Than mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R01-001F was spiked and analyzed for 6010 metals and 6020 metals. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. Recoveries applicable analytes were within the acceptance range of 75-125%. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 metals analysis of sample R1-001F. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair was not collected and analyzed with this sample delivery group. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria

5.16 SVL Data Package X8L0362 (-10 Mesh)

Data package X8L0362 contained the analytical results for fifteen samples one field duplicate sample pair, and one field duplicate sample. Note that R10-002F (reported in SDG X8L0362) and R11-005F (reported in SDG X8L0367) are a field duplicate pair but reported in two laboratory reports. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH 29 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon 29 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X901045-BLK1 All samples in X8L0362	Copper Zinc	8.31 mg/Kg 5.9 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
X901025-BLK1	Lead	0.092 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19A048-CCB3	Lead	0.014 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A048-CCB5	Lead	0.013 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A048-CCB6	Lead	0.021 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPD met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

With the exceptions listed in the table below, recoveries for the analyte were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
R4-001F	Arsenic	76.6/**71.7** (75-120)	2.8 (30)	As the potential bias was considered to be low, the associated arsenic result for sample R4-001F was qualified as estimated (J MS-L)

% – Percent
%R – Percent Recoveries
J – Estimated
L – Low Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS should have been performed on R4-001F arsenic but was not performed by the laboratory and the arsenic result was qualified.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent difference were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were R04-003F/R4-005F and R10-002F/R11-005F. With the exceptions noted in the table below, the concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Sample ID	Analyte	Parent Sample Result (mg/Kg)	Field Duplicate Sample Result (mg/Kg)	Criteria	Data Qualification
R10-002F/ R11-005F	Copper	318	600	RPD >50%	The associated parent and field duplicate results were qualified as estimated (UJ/J FD-I).
	Iron	28700	116000		
	Lead	157	85.5		

> – Greater Than
% – Percent
ID – Identification
FD – Field Duplicate
I – Indeterminate Bias
mg/Kg – Milligrams per Kilogram
UJ/J – Estimated
RPD – Relative Percent Difference

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.17 SVL Data Package X8L0367 (-10 Mesh)

Data package X8L0367 contained the analytical results for 9 samples and one field duplicate sample. Note that R10-002F (reported in SDG X8L0362) and R11-005F (reported in SDG X8L0367) are a field duplicate pair but reported in two laboratory reports. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH 29 to 33 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon 29 to 33 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19A043-ICB1	Copper	0.31 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A043-CCB1	Copper	0.36 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
X901062-BLK1 All samples in X8L0367	Copper	0.42 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19A043-CCB2	Copper	0.30 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A043-CCB3	Copper	0.23 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A048-CCB3	Lead	0.014 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A048-CCB5	Lead	0.013 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A048-CCB6	Lead	0.021 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than ICB – Initial Calibration Blank CCB – Continuing Calibration Blank
mg/Kg – Milligrams per Kilogram BLK – Blank
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPD met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

With the exceptions listed in the table below, recoveries for the analyte were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
R11-004F	Zinc	**138/136** (75-125)	0.4 (30)	As the potential bias was considered to be high, the associated zinc result for sample R11-004F was qualified as estimated (J MS-H)
R11-004F	Arsenic	**74.4**/86.6 (75-125)	6.7 (30)	As the potential bias was considered to be low, the associated arsenic result for sample R11-004F was qualified as estimated (J MS-L)

% – Percent
%R – Percent Recoveries
J – Estimated
L – Low Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate
H – High Bias
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent difference were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair was R10-002F/R11-005F. With the exceptions noted in the table below, the concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Sample ID	Analyte	Parent Sample Result (mg/Kg)	Field Duplicate Sample Result (mg/Kg)	Criteria	Data Qualification
R10-002F/ R11-005F	Copper	318	600	RPD >50%	The associated parent and field duplicate results were qualified as estimated (UJ/J FD-I).
	Iron	28700	116000		
	Lead	157	85.5		

> – Greater Than
% – Percent
ID – Identification
FD – Field Duplicate
I – Indeterminate Bias
mg/Kg – Milligrams per Kilogram
UJ/J – Estimated

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.18 SVL Data Package X8L0411 (-60 Mesh)

Data package X8L0411 contained the analytical results for 8 samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH 29 to 33 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon 29 to 33 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X902044-BLK1	Organic Carbon	0.00988%	None. The associated results were reported at concentrations >5x the blank contamination.
S19A053-ICB1	Copper	-0.23 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
X902046-BLK1 All samples in X8L0411	Copper	-0.18 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19A053-CCB2	Copper	-0.21 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A043-CCB3	Copper	-0.24 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A051-CCB4	Lead	0.014 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A051-CCB5	Lead	0.016 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A051-CCB6	Lead	0.014 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than ICB – Initial Calibration Blank CCB – Continuing Calibration Blank
mg/Kg – Milligrams per Kilogram BLK – Blank
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPD met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

With the exceptions listed in the table below, recoveries for the analyte were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
R4-003F	Manganese	**132/127** (75-125)	1.0 (30)	As the potential bias was considered to be high, the associated manganese result for sample R4-003F was qualified as estimated (J MS-H)

% – Percent
MS/MSD – Matrix Spike/Matrix Spike Duplicate
%R – Percent Recoveries
H – High Bias
J – Estimated
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent difference were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

There were no field duplicate pairs designated for analysis on this SDG. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.19 SVL Data Package X8L0423 (-10 Mesh)

Data package X8L0423 contained the analytical results for 12 samples and one field duplicate sample. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 9.2°C and 12.8°C, outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH 37 to 38 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon 36 to 38 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X902214-BLK1	Organic Carbon	0.0095%	None. The associated results were reported at concentrations >5x the blank contamination.
S19A051-CCB4	Lead	0.014 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A051-CCB5	Lead	0.016 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A051-CCB6	Lead	0.014 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram BLK – Blank
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPD met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair was R56-004F/R56-005F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.20 SVL Data Package X8L0431 (-10 Mesh)

Data package X8L0431 contained the analytical results for 14 samples and one field duplicate sample. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and

method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 11.2°C and 8.8°C, outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH 35 to 38 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon 35 to 38 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X902274-BLK1	Organic Carbon	0.00937%	None. The associated results were reported at concentrations >5x the blank contamination.
S19A056-CCB1	Copper	-0.22 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
X902085-BLK1	Copper	-0.34 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19A056-CCB2	Copper Cadmium	-0.36 mg/Kg* 0.06 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A056-CCB3	Copper	-0.36 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A056-CCB4	Copper	-0.36 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A069-CCB2 **S19A069-CCB3** **S19A069-CCB4** **S19A069-CCB5** **S19A069-CCB6** **S19A069-CCB7** **S19A069-CCB8** **S19A069-CCB9** **S19A069-CCBA**	Lead	0.024 mg/Kg* 0.030 mg/Kg* 0.023 mg/Kg* 0.042 mg/Kg* 0.050 mg/Kg* 0.033 mg/Kg* 0.047 mg/Kg* 0.057 mg/Kg* 0.041 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram BLK – Blank
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPD met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

With the exceptions listed in the table below, recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
R60-001F	Copper	**261**/110 (75-125)	28.2 (35)	As the potential bias was considered to be high, the associated copper result for sample R60-001F was qualified as estimated (J MS-H)

% – Percent
%R – Percent Recoveries
J – Estimated
H – High Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair was R78-003F/R78-005F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.21 SVL Data Package X8L0435 (-10 Mesh)

Data package X8L0435 contained the analytical results for 14 samples and two field duplicate sample pairs. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 9.8°C and 10.6°C, outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH 35 to 39 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon 34 to 37 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X902159-BLK1	Organic Carbon	0.0187%	None. The associated results were reported at concentrations >5x the blank contamination.
S19A065-CCBD	Copper	0.21 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A069-CCB2	Lead	0.024 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A069-CCB3		0.030 mg/Kg*	
S19A069-CCB4		0.023 mg/Kg*	
X901019-BLK1		0.03 mg/Kg	
S19A069-CCB5		0.042 mg/Kg*	
S19A069-CCB6		0.050 mg/Kg*	
S19A069-CCB7		0.033 mg/Kg*	
S19A069-CCB8		0.047 mg/Kg*	
S19A069-CCB9		0.057 mg/Kg*	
S19A069-CCBA		0.041 mg/Kg*	

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram BLK – Blank
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPD met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were R80-001F/R80-005F and R84-004F/R84-006F. With the exceptions noted in the table below, the concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Sample ID	Analyte	Parent Sample Result	Field Duplicate Sample Result	Criteria	Data Qualification
R84-004F/ R84-006F	Zinc	1450 mg/Kg	667 mg/Kg	RPD >50%	The associated parent and field duplicate results were qualified as estimated (UJ/J FD-I).
	moisture	0.8%	2.7%		
	TOC	0.737%	ND	>3x RL	

> – Greater Than
% – Percent
ID – Identification
FD – Field Duplicate
I – Indeterminate Bias
mg/Kg – Milligrams per Kilogram
ND – Non-detect
RL – Reporting Limit
UJ/J – Estimated
RPD – Relative Percent Difference

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.22 SVL Data Package X8L0439 (-60 Mesh)

Data package X8L0439 contained the analytical results for 14 samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 9.2°C, 12.8°C, 11.2°C, 8.8°C, 9.8°C, and 10.6°C, outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH 36 to 39 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon 34 to 38 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X902158-BLK1	Organic Carbon	0.00937%	None. The associated results were reported at concentrations >5x the blank contamination.
S19A069-CCB2	Lead	0.024 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A069-CCB3		0.030 mg/Kg*	
S19A069-CCB4		0.023 mg/Kg*	
X901019-BLK1		0.03 mg/Kg	
S19A069-CCB5		0.042 mg/Kg*	
S19A069-CCB6		0.050 mg/Kg*	
S19A069-CCB7		0.033 mg/Kg*	
S19A069-CCB8		0.047 mg/Kg*	
S19A069-CCB9		0.057 mg/Kg*	
S19A069-CCBA		0.041 mg/Kg*	

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram BLK – Blank
* – Conversion from water to soil units using the prep factor and percent solid % - Percent

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPD met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The analytes were within the applicable percent difference of ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

No field duplicate pairs were identified in this SDG. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.23 SVL Data Package X8L0492 (-10 Mesh)

Data package X8L0492 contained the analytical results for 15 samples and one field duplicate samples. Note that R93-003F (reported in SDG X8L0492) and R93-005F (reported in SDG X8L0506) are a field duplicate pair but reported in two laboratory reports. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 16.6°C, and 15.7°C, outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH 31 to 36 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon 30 to 35 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X902213-BLK1	Organic Carbon	0.0187%	None. The associated results were reported at concentrations >5x the blank contamination.
S19A065-CCBD	Copper	0.21 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
X901019-BLK1	Lead	0.094 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19A025-CCB2		0.012 mg/Kg*	
S19A025-CCB3		0.014 mg/Kg*	
S19A025-CCB4		0.012 mg/Kg*	
S19A025-CCB5		0.021 mg/Kg*	
S19A025-CCB6		0.015 mg/Kg*	
S19A025-CCB8		0.012 mg/Kg*	
S19A025-CCB9		0.011 mg/Kg*	
S19A025-CCBA		0.035 mg/Kg*	
S19A025-CCBB		0.028 mg/Kg*	

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram BLK – Blank
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPD met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The analytes were within the applicable percent difference of ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair was R93-003F/R93-005F. With the exceptions noted in the table below, the concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Sample ID	Analyte	Parent Sample Result (%)	Field Duplicate Sample Result (%)	Criteria	Data Qualification
R93-003F/ R93-005F	Percent moisture	3.9	1.6	RPD >50%	The associated parent and field duplicate results were qualified as estimated (J FD-I).

> – Greater Than
% – Percent
ID – Identification
FD – Field Duplicate
I – Indeterminate Bias
mg/Kg – Milligrams per Kilogram
RPD – Relative Percent Difference
UJ/J – Estimated

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.24 SVL Data Package X8L0506 (-10 Mesh)

Data package X8L0506 contained the analytical results for 20 samples and three field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 15.2°C, 10.5°C, and 13.1°C, outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH 32 to 39 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon 35 to 42 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X903059-BLK1	Organic Carbon	0.0102%	None. The associated results were reported at concentrations >5x the blank contamination.
X903218-BLK1	Copper Zinc	6.08 mg/Kg 4.4 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19A065-CCBD	Copper	0.21 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A025-CCB2 **S19A025-CCB3** **X901016-BLK1** **S19A025-CCB4** **S19A025-CCB5** **S19A025-CCB6** **S19A025-CCB7** **S19A025-CCB8** **S19A025-CCB9**	Lead	0.016 mg/Kg* 0.024 mg/Kg* 0.031 mg/Kg 0.022 mg/Kg* 0.029 mg/Kg* 0.030 mg/Kg* 0.033 mg/Kg* 0.029 mg/Kg* 0.036 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram BLK – Blank
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPD met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

With the exceptions listed in the table below, recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
R118-001F	Copper	121/**148** (75-125)	5.2 (35)	As the potential bias was considered to be high, the associated copper result for sample R118-001F was qualified as estimated (J MS-H)

% – Percent
%R – Percent Recoveries
J – Estimated
H – high Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The analytes were within the applicable percent difference of ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were R93-003F/R93-005F, R118-002F/R118-006F, and R120-004F/R120-005F. With the exceptions noted in the table below, the concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Sample ID	Analyte	Parent Sample Result (%)	Field Duplicate Sample Result (%)	Criteria	Data Qualification
R93-003F/ R93-005F	Percent moisture	3.9	1.6	RPD >50%	The associated parent and field duplicate results were qualified as estimated (J FD-I).

> – Greater Than
% – Percent
ID – Identification
FD – Field Duplicate
I – Indeterminate Bias
mg/Kg – Milligrams per Kilogram
RPD – Relative Percent Difference
UJ/J – Estimated

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.25 SVL Data Package X8L0508 (-60 Mesh)

Data package X8L0508 contained the analytical results for 12 samples and one field duplicate sample. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 16.6°C, 15.7°C, 15.2°C, 10.5°C, and 13.1°C, outside the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH

32 to 39 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon 35 to 42 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19A065-CCBD	Copper	0.21 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A082-CCB2 **S19A082-CCB3** **S19A082-CCB4** **S19A082-CCB5** **X901014-BLK1** **S19A082-CCB6** **S19A082-CCB7** **S19A082-CCB8** **S19A082-CCB9**	Lead	0.016 mg/Kg* 0.024 mg/Kg* 0.022 mg/Kg* 0.029 mg/Kg* 0.064 mg/Kg 0.030 mg/Kg* 0.033 mg/Kg* 0.029 mg/Kg* 0.036 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
BLK – Blank
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPD met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The analytes were within the applicable percent difference of ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair was R118-002F/R118-006F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.26 SVL Data Package X8L0534 (-10 Mesh)

Data package X8L0534 contained the analytical results for thirteen samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain of custody (COC). Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL were noted as N/A and were not documented. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

Except for paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH 34 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed 42 days after collection which exceeds the hold time of 28-days and results were qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X9014189-BLK R09-003F R09-004F R09-005F R75-003F R91-001F	Organic Carbon	0.0659 %	The associated results reported at concentrations <5x the concentration of the blank contamination were qualified as non-detect (U MB-I).
X9014189-BLK R09-001F R09-002F R09-006F R09-007F R75-001F R75-002F R75-004F R75-005F	Organic Carbon	0.0659 %	None. The associated results were either not detected or reported at concentrations >5x the blank contamination
X904134-BLK1 R09-001 R09-002 R09-003 R09-004 R09-005 R09-006F R09-007F R75-001F R75-002F R75-003F R75-004F R75-005F R91-001F	Copper	7.73 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
X904134-BLK1 R09-001 R09-002 R09-003 R09-004 R09-005 R09-006F R09-007F R75-001F R75-002F R75-003F R75-004F R75-005F R91-001F	Manganese	0.80 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19A082-CB7 **1/31/19 12:08** R09-001 R09-002 R09-003 R09-004 R00-005	Lead	0.033 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

Associated Samples	Analyte	Concentration	Data Qualification
S19A082-CB8 **1/31/19 12:43** R09-001 R09-002 R09-003 R09-004 R09-005 R09-006F R09-007F R75-001F R75-002F R75-003F R75-004F R75-005F R91-001F	Lead	0.029 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A082-CB9 **1/31/19 12:57** R09-006F R09-007F R75-001F R75-002F R75-003F R75-004F R75-005F R91-001F	Lead	0.036 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
X904133-BLK1 R09-001 R09-002 R09-003 R09-004 R09-005 R09-006F R09-007F R75-001F R75-002F R75-003F R75-004F R75-005F R91-001F	Lead	0.057 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.

< – Less Than
> – Greater Than
CCB – Continuing Calibration Blank
I – Indeterminate Bias
MB – Method Blank
mg/Kg – Milligrams per Kilogram
U – Non-detect
% – Percent
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R09-001F was used as the MS/MSD spike sample for the ICP and ICP-MS analyses. Recoveries for the analytes were within the acceptance range of 75-125% and RPDs were <35%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. MS and MSD recoveries were in control and a PDS was not required.

Serial Dilutions

Sample R09-001F was used for the serial dilution for the ICP and ICP-MS analyses.

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

Field duplicate pairs were not associated with this data package. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.27 SVL Data Package X8L0537 (-10 Mesh)

Data package X8L0537 contained the analytical results for eleven samples and two field duplicates. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under COC. Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL were noted as N/A and were not documented. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

Except for paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH either 32 or 34 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed either 39 or 41 days after collection which exceeds the hold time of 28-days and results were qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X904136-BLK1 R122-001F R122-002F R122-003F R122-004F R122-005F R91-002F R91-003F R91-004F R91-005F R92-001F R92-002F R92-003F R92-004F	Copper	0.26 mg/kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19A081-CCB4 1/30/19 at 13:21 R122-001F R122-002F R122-003F R122-004F R122-005F R91-002F R91-003F R91-004F R91-005F R92-001F	Cadmium	0.06 mg/kg*	

Associated Samples	Analyte	Concentration	Data Qualification
R92-002F R92-003F R92-004F			

> – Greater Than CCB – Continuing Calibration Blank
mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R91-002F was used as the MS/MSD spike sample for the ICP and ICP-MS analyses. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

RPDs for the analytes were <35%. Recoveries for the analytes were within the acceptance range of 75-125% with the exceptions shown below:

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
R91-002F	Arsenic	**71.4/66.7** (75-125)	3.9 (35)	As the potential bias was low, the associated arsenic result for sample R91-002F was qualified as estimated (J MS-L)

%R – Percent Recoveries J – Estimated
L – Low Bias MS/MSD – Matrix Spike/Matrix Spike Duplicate

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

Sample R91-002F was used for the serial dilution for the ICP and ICP-MS analyses.

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were R122-005F / R122-001F and R91-002F / R91-005F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries for project samples were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.28 SVL Data Package X8L0540 (-60 Mesh)

Data package X8L0540 contained the analytical results for eight samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under COC. Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL were noted as N/A and were not documented. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

Except for paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH from 33 to 35 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed either 39 or 41 days after collection which exceeds the hold time of 28-days and results were qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X903192-BLK1 R09-003F R09-006F R122-002F R122-005F R75-003F R91-001F R91-003F R92-001F	Organic Carbon	0.00959 %	None. The associated results were either not detected or reported at concentrations >5x the blank contamination.
X905027-BLK1 R09-003F R09-006F R122-002F R122-005F R75-003F R91-001F R91-003F R92-001F	Copper	0.3 mg/kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19A081-CCB6 1/30/19 14:36 R09-003F R09-006F R122-002F R122-005F R75-003F R91-001F R91-003F R92-001F	Zinc	0.3 mg/kg*	None. The associated results were reported at concentrations >5x the blank contamination
X905031-BLK1 R09-003F R09-006F R122-002F R122-005F R75-003F R91-001F R91-003F R92-001F	Lead	0.057 mg/kg	None. The associated results were reported at concentrations >5x the blank contamination

Associated Samples	Analyte	Concentration	Data Qualification
S19B002-CCB4 **2/1/19 08:00** R09-003F R09-006F R122-002F R122-005F R75-003F R91-001F R91-003F R92-001F	Lead	0.012 mg/kg*	None. The associated results were reported at concentrations >5x the blank contamination
S19B002-CCB5 **2/1/19 08:25** R92-001F R122-002F R122-005F	Lead	0.013 mg/kg*	None. The associated results were reported at concentrations >5x the blank contamination

% – Percent > – Greater Than
CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R09-003F was used as the MS/MSD spike sample for the ICP and ICP-MS analyses. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

RPDs for the analytes were <35%. Recoveries for the analytes were within the acceptance range of 75-125%.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not required.

Serial Dilutions

Sample R09-003F was used for the serial dilution for the ICP and ICP-MS analyses.

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

Field duplicate pairs were not associated with this data package. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries for project samples were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.29 SVL Data Package X8L0566 (-10 Mesh)

Data package X8L0566 contained the analytical results for twelve samples and two field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under COC. Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL were 3.2°C and 3.0°C and met the QAPP requirement.

Holding Times

Except for paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 29 and 30 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed between 42 to 43 days after sample collection which exceeds the holding time requirement of 28 days and results were qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X903192-BLK1 R02-001F R02-002F R02-003F R02-004F R02-005F R03A-001F R03A-002F R03A-003F R03A-004F R03A-005F R03B-001F R03B-002F R03B-003F R03B-004F	Organic Carbon	0.00941 %	None. The associated results were reported at concentrations >5x the blank contamination.
X905032-BLK1 R02-001F R02-002F R02-003F R02-004F R02-005F R03A-001F R03A-002F R03A-003F R03A-004F R03A-005F R03B-001F R03B-002F R03B-003F R03B-004F	Lead	0.07 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19B002-CCB4 2/1/19 08:00 **S19B002-CCB5 2/1/19 08:27** **S19B002-CCB6 2/1/19 08:50** **S19B002-CCB7 2/1/19 08:59** All samples listed above for X905032-BLK1	Lead Lead Lead Lead	0.012 mg/Kg* 0.013 mg/Kg* 0.021 mg/Kg* 0.017 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination

% – Percent
> – Greater Than
CCB – Continuing Calibration Blank
mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R02-001F was used as the MS/MSD spike sample for the ICP and ICP-MS analyses. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

RPDs for the analytes were <35%. Recoveries for the analytes were within the acceptance range of 75-125%.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not required.

Serial Dilutions

Sample R02-001F was used for the serial dilution for the ICP and ICP-MS analyses.

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were R02-004F / R02-005F and R03A-003F / R03A-005F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries for project samples were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.30 SVL Data Package X8L0569 (-10 Mesh)

Data package X8L0569 contained the analytical results for thirteen samples and two field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under COC. Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL were 3.4°C and 2.8°C and met the QAPP requirement.

Holding Times

Except for paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 31 and 32 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed between 41 to 42 days after sample collection which exceeds the holding time requirement of 28 days and results were qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X905057-BLK1 R03B-005F R03B-006F R03B-007F R52-004F R97-001F R97-002F R97-003F R97-004F R97-005F R97-006F R97-007F R98-001F R98-002F R98-003F R98-004F	Lead	0.041 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19B002-CCB7 2/1/19 08:59 **S19B002-CCB8 2/1/19 09:25** **S19B002-CCB9 2/1/19 09:50** All samples listed above for X905057-BLK1	Lead Lead Lead	0.017 mg/Kg* 0.020 mg/Kg* 0.017 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination

> – Greater Than CCB – Continuing Calibration Blank
mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R03B-005F was used as the MS/MSD spike sample for the ICP and ICP-MS analyses. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

RPDs for the analytes were <35%. Recoveries for the analytes were within the acceptance range of 75-125% with the exceptions shown below:

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
R03B-005F	Arsenic	**59.9 / 74.2** (75-125)	5.3 (35)	As the potential bias was low, the associated arsenic result for sample R03B-005F was qualified as estimated (J MS-L)

% – Percent
%R – Percent Recoveries
J – Estimated
L – Low Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

Sample R03B-005F was used for the serial dilution for the ICP and ICP-MS analyses.

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were R03B-002F / R003B-007F and R97-001F and R97-007F (note, sample R03B-002F was reported in laboratory report X8L0566). The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries for project samples were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.31 SVL Data Package X8L0570 (-60 Mesh)

Data package X8L0570 contained the analytical results for ten samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were

hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under COC. Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL ranged from 2.8°C to 3.4°C and met the QAPP requirement.

Holding Times

Except for paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 31 and 32 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed between 41 to 42 days after sample collection which exceeds the holding time requirement of 28 days and results were qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X905001-BLK1 R02-003F R03A-001F R03A-004F R03B-002F R03B-005F R52-004F R97-003F R97-005F R98-001F R98-004F	Organic Carbon	0.00968 %	None. The associated results were either not detected or reported at concentrations >5x the blank contamination.
X905058-BLK1 R02-003F R03A-001F R03A-004F R03B-002F R03B-005F R52-004F R97-003F R97-005F R98-001F R98-004F	Copper	0.31 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination
X905060-BLK1 R02-003F R03A-001F R03A-004F R03B-002F R03B-005F R52-004F R97-003F R97-005F R98-001F R98-004F	Lead	0.17 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination
S19B002-CCB9 **2/1/19 09:50** **S19B002-CCBA** **2/1/19 10:15** **S19B002-CCBB** **2/1/19 10:30** All samples listed above for X905060-BLK1	Lead Lead Lead	0.017 mg/Kg* 0.021 mg/Kg* 0.026 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination

> – Greater Than CCB – Continuing Calibration Blank
mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R02-003F was used as the MS/MSD spike sample for the ICP and ICP-MS analyses. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

RPDs for the analytes were <35%. Recoveries for the analytes were within the acceptance range of 75-125%.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not required.

Serial Dilutions

Sample R02-003F was used for the serial dilution for the ICP and ICP-MS analyses.

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent difference were within ±10% for the 1:5 dilution of the sample with the exception of lead. The percent difference for lead was 11.0%. The lead result for sample R02-003F were qualified as estimated (J SD-I).

Field Duplicate Analysis

Field duplicate pairs were not associated with this data package. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries for project samples were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.32 SVL Data Package X9A0057 (-10 Mesh)

Data package X9A0057 contained the analytical results for sixteen samples and two field duplicates. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under COC. Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL ranged from 4.0°C to 6.0°C and met the QAPP requirement.

Holding Times

Except for paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH 33 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed 45 days after sample collection which exceeds the holding time requirement of 28 days and results were qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X906142-BLK1	Organic Carbon	0.00973 %	None. The associated results were either not detected or reported at concentrations >5x the blank contamination.
R103-001F			
R103-002F			
R103-003F			
R103-004F			
R104-001F			
R104-002F			
R104-003F			
R104-004F			
R104-005F			
R105-001F			
R105-002F			
R105-003F			
R105-004F			
R117-002F			
R117-003F			
R117-004F			
R117-005F			

Associated Samples	Analyte	Concentration	Data Qualification
X905062-BLK1	Copper	0.23 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination
R103-001F			
R103-002F			
R103-003F			
R103-004F			
R104-001F			
R104-002F			
R104-003F			
R104-004F			
R104-005F			
R105-001F			
R105-002F			
R105-003F			
R105-004F			
R117-001F			
R117-002F			
R117-003F			
R117-004F			
R117-005F			
X903155-BLK1	Lead	0.179 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination
R103-001F			
R103-002F			
R103-003F			
R103-004F			
R104-001F			
R104-002F			
R104-003F			
R104-004F			
R104-005F			
R105-001F			
R105-002F			
R105-003F			
R105-004F			
R117-001F			
R117-002F			
R117-003F			
R117-004F			
R117-005F			

Associated Samples	Analyte	Concentration	Data Qualification
S19B025-CCB4 2/7/19 10:19	Lead	0.012 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination
S19B025-CCB5 2/7/19 10:47		0.021 mg/Kg*	
S19B025-CCB6 2/7/19 11:12		0.015 mg/Kg*	
All samples listed with blank X903155-BLK1, above.			

% – Percent > – Greater Than
CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

A non-project sample was used for the MS/MSD. Results were not evaluated.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not required.

Serial Dilutions

A non-project sample was used for the serial dilution for the ICP and ICP-MS analyses. Results were not evaluated.

Field Duplicate Analysis

The field duplicate pairs were R104-001F / R104-005F and R117-002F / R117-005F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries for project samples were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.33 SVL Data Package X9A0058 (-60 Mesh)

Data package X9A0058 contained the analytical results for six samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under COC. Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL ranged from 4.0°C to 6.0°C and met the QAPP requirement.

Holding Times

Except for paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 33 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed between 45 to 46 days after sample collection which exceeds the holding time requirement of 28 days and results were qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X905195-BLK1 R103-002F R104-001F R104-004F R105-002F R117-001F R117-004F	Organic Carbon	0.00973 %	None. The associated results were either not detected or reported at concentrations >5x the blank contamination.
X0903156-BLK1 R103-002F R104-001F R104-004F R105-002F R117-001F R117-004F	Lead	0.055 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination

Associated Samples	Analyte	Concentration	Data Qualification
S19B025-CCB8 2/7/19 11:51 R103-002F R104-001F R104-004F R105-002F R117-001F R117-004F	Lead	0.012 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination
S19B025-CCB8 2/7/19 11:58 R117-004F	Lead	0.011 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination

% – Percent > – Greater Than
CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R103-002F was used as the MS/MSD spike sample for the ICP and ICP-MS analyses. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

RPDs for the analytes were <35%. Recoveries for the analytes were within the acceptance range of 75-125%.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not required.

Serial Dilutions

Sample R103-002F was used for the serial dilution for the ICP and ICP-MS analyses.

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

Field duplicate pairs were not associated with this data package. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries for project samples were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.34 SVL Data Package X9A0392 (-10 Mesh)

Data package X9A0392 contained the analytical results for one sample. The laboratory ID and corresponding field ID are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The sample was shipped to SVL under chain of custody (COC). Custody seals were present and intact. The sample custodian noted that the sample was intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL were noted as N/A and were not documented. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

Except for paste pH, the sample was prepared and analyzed within the required holding time limits. The sample was analyzed for paste pH 16 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH result was qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X906134-BLK1 R121-001F	Organic Carbon	0.00959 %	None. The associated result was not detected.
X905108-BLK1 R121-001F	Copper	0.18 mg/Kg	None. The associated result was reported at concentrations >5x the blank contamination
S19B025-CCBA 2/7/19 12:28 R121-001F	Lead	0.0091 mg/Kg*	None. The associated result was reported at concentrations >5x the blank contamination
S19B025-CCBB 2/7/19 12:45 R121-001F	Lead	0.0091 mg/Kg*	None. The associated result was reported at concentrations >5x the blank contamination

% – Percent > – Greater Than
CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

MS/MSD results were reported for the ICP and ICP-MS analyses. A non-project sample was used, and results were not evaluated.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not required.

Serial Dilutions

A non-project sample was used for the serial dilution for the ICP and ICP-MS analyses. Results were not evaluated.

Field Duplicate Analysis

Field duplicate pairs were not associated with this data package. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries for project samples were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.35 SVL Data Package X9A0393 (-60 Mesh)

Data package X9A0393 contained the analytical results for one sample. The laboratory ID and corresponding field ID are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The sample was shipped to SVL under chain of custody (COC). Custody seals were present and intact. The sample custodian noted that the sample was intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL were noted as N/A and were not documented. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

Except for paste pH, the sample was prepared and analyzed within the required holding time limits. The sample was analyzed for paste pH 16 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH result was qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X9051195-BLK1 R121-001F R36-005	Organic Carbon	0.00973 %	None. The associated results were not detected or at concentrations >5x the blank contamination
X905108-BLK1 R121-001F R36-005	Copper	0.18 mg/Kg	None. The associated result was reported at concentrations >5x the blank contamination
S19B025-CCBA **2/7/19 12:28** R121-001F R36-005	Lead	0.0091 mg/Kg*	None. The associated result was reported at concentrations >5x the blank contamination
S19B025-CCBB **2/7/19 12:45** R121-001F R36-005	Lead	0.0091 mg/Kg*	None. The associated result was reported at concentrations >5x the blank contamination

% – Percent > – Greater Than
CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

MS/MSD results were reported for the ICP and ICP-MS analyses. A non-project sample was used, and results were not evaluated.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not required.

Serial Dilutions

A non-project sample was used for the serial dilution for the ICP and ICP-MS analyses. Results were not evaluated.

Field Duplicate Analysis

Field duplicate pairs were not associated with this data package. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries for the project sample were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.36 SVL Data Package X9A0414 (-10 Mesh)

Data package X9A0414 contained the analytical results for twenty-one samples and one field duplicate sample. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 4.2˚C, 5.0°C and 4.8°C, within the recommended range of 4°C±2°C.

Holding Times

With the exceptions listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 21 and 25 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

Several samples were analyzed for organic carbon between 29 and 36 days after collection, which exceeds the holding time requirement of twenty-eight days. Therefore, the organic carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X905157-BLK1 U02-3100 U03-10202	Copper	1.73 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
	Zinc	1.20 mg/Kg	
S19B027-CCB2 B01-P1-2-021 B01-P1-2-025 B01-P1-3-013 B01-P1-3-014 B01-P1-3-016 B01-P1-3-024 B01-P1-3-025 B01-P2-2-004 B01-P2-2-012 ERA-29 RAN-01 RAN-02 U02-3102 U02-3104 U02-3200	Lead	0.028 mg/Kg*	
S19B027-CCB3 B01-P1-2-021 B01-P1-3-013 B01-P1-3-024 B01-P1-3-025 B01-P2-2-004 RAN-01 RAN-02 U02-3102 U02-3104 U02-3200	Lead	0.073 mg/Kg*	
S19B027-CCB4 **S19B027-CCB5** U02-10154 U02-2100	Lead Lead	0.014 mg/Kg* 0.025 mg/Kg*	

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
U02-2102 U03-2200 U03-3200M			
X905157-BLK1 U02-3100 U03-10202	Lead	0.028 mg/Kg	
S19A033-CCB3 U02-3100 U03-10202	Lead	0.047 mg/Kg*	
X905195-BLK1	Organic Carbon	0.00973 %	
X906102-BLK1	Organic Carbon	0.0192 %	
X906134BLK1	Organic Carbon	0.00959 %	

> – Greater Than mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample B01-P1-2-025 was spiked and analyzed for 6010 metals and 6020 metals. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. Recoveries for applicable analytes were within the acceptance range of 75-125%. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 metals analysis of sample B01-P1-2-025. The applicable percent difference were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair was RAN-01/ RAN-02. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.37 SVL Data Package X9A0418 (-60 Mesh)

Data package X9A0418 contained the analytical results for eight samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and

method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 4.2˚C, 5.0°C and 4.8°C, within the recommended range of 4°C±2°C.

Holding Times

With the exceptions listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 21 and 25 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

The samples were analyzed for organic carbon between 32 and 37 days after collection, which exceeds the holding time requirement of twenty-eight days. Therefore, the organic carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X905157-BLK1	Copper	1.73 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
All Samples	Zinc	1.20 mg/Kg	
X905115-BLK1 All Samples	Lead	0.028 mg/Kg	
S19B-027-CCB6 B01-P1-2-025 B01-P2-2-012	Lead	0.047 mg/Kg*	
S19B-027-CCB8 **S19B-027-CCB7** B01-P1-3-024 RAN-02 U02-10154 U02-3104 U03-10202 U03-2200	Lead Lead	0.044 mg/Kg* 0.043 mg/Kg*	
X907081-BLK1 All Samples	Organic Carbon	0.0095 %	

> – Greater Than mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample B01-P1-2-025 was spiked and analyzed for 6010 metals and 6020 metals. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. Recoveries for applicable analytes were within the acceptance range of 75-125%. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 metals analysis of sample B01-P1-2-025. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair was not collected and analyzed with this sample delivery group. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.38 SVL Data Package X9B0036 (-60 Mesh)

Data package X9B0036 contained the analytical results for 4 samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures were not collected upon arrival at SVL. Based on the stability of the parameters of interest data qualification was not considered necessary.

Holding Times

With the exception listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 22 and 23 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19B068-CCB5-BLK1 R09M-008F R09M-011F R09M-014F R77M-002F	Cadmium	0.06 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19B070-CCB2 R09M-008F R09M-011F R09M-014F R77M-002F	Lead	0.021 mg/Kg*	
X907260-BLK1 R09M-008F R09M-011F R09M-014F R77M-002F	Organic Carbon	0.00941%	

> – Greater Than mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Non-site-specific samples were spiked and analyzed for 6010 metals and 6020 metals. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 and 6020 metals analysis of a non-site-specific sample; therefore, qualification of data was not considered.

Field Duplicate Analysis

The field duplicate pair was not collected and analyzed with this sample delivery group. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.39 SVL Data Package X9B0346 (-60 Mesh)

Data package X9B0346 contained the analytical results for 1 sample. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 5.4°C and 5.2°C, within the recommended range of 4°C±2°C.

Holding Times

With the exception of listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH 20 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X908166-BLK1 R101-001F	Lead	0.062 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19C026-CCB4 R101-001F	Lead	0.012 mg/Kg*	
X909086-BLK1 R101-001F	Organic Carbon	0.00945%	

> – Greater Than mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Non-site-specific samples were spiked and analyzed for 6010 metals and 6020 metals. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 and 6020 metals analysis of a non-site-specific sample; therefore, qualification of data was not considered.

Field Duplicate Analysis

The field duplicate pair was not collected and analyzed with this sample delivery group. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.40 SVL Data Package X9B0345 (-10 Mesh)

Data package X9B0345 contained the analytical results for three samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures upon arrival at SVL were 5.4°C and 5.2°C, within the recommended range of 4°C±2°C.

Holding Times

With the exception of listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH 20 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X909011-BLK1 R101-001F R101-002F R102-001F	Copper	0.39 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19C026-CCB2 **S19C026-CCB3** R101-001F R101-002F R102-001F	Lead Lead	0.027 mg/Kg* 0.014 mg/Kg*	

> – Greater Than mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Non-site-specific samples were spiked and analyzed for 6010 metals and 6020 metals. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 and 6020 metals analysis of a non-site-specific sample; therefore, qualification of data was not considered.

Field Duplicate Analysis

The field duplicate pair was not collected and analyzed with this sample delivery group. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.41 SVL Data Package X9C0439 (-10 Mesh)

Data package X9C0439 contained the analytical results for fourteen samples and three field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly

preserved and intact. Cooler temperatures were not collected upon arrival at SVL. Based on the stability of the parameters of interest data qualification was not considered necessary.

Holding Times

With the exceptions listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 17 and 24 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

The samples were analyzed for organic carbon between 38 and 42 days after collection, which exceeds the holding time requirement of twenty-eight days. Therefore, the organic carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19D007-CCB7 R61-002F	Copper	0.23 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D010-CCB4 R61-002F	Lead	0.016 mg/Kg*	
S19D010-CCB6 R303-001F R303-002F R303-003F R303-004F R303-005F R304-001F R304-002F R304-003F R304-004F R304-005F R61-001F	Lead	0.017 mg/Kg*	
S19D010-CCB7 R304-002F R304-003F R304-004F R304-005F R61-001F	Lead	0.017 mg/Kg*	
X914035-BLK1 R61-001F R61-002F	Organic Carbon	0.0192%	

> – Greater Than mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R302-001F was spiked and analyzed for 6010 metals and 6020 metals. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. Recoveries for applicable analytes were within the acceptance range of 75-

125%. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 metals analysis of sample R302-001F. The applicable percent difference were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair was R302-003F/ R302-005F; R303-004F/ R303-005F; and R304-003F/ R304-005F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.42 SVL Data Package X9B0034 (-10 Mesh)

Data package X9B0034 contained the analytical results for eleven samples and one field duplicate sample. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures were not collected upon arrival at SVL. Based on the stability of the parameters of interest data qualification was not considered necessary.

Holding Times

With the exceptions listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 22 and 23 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19B060-CCB3 R09M-013F R09M-014F R75M-006F R77M-001F R77M-002F R77M-003F R77M-004F	Lead	0.016 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
X907259-BLK1 R09M-008F R09M-009F R09M-010F R09M-011F R09M-012F R09M-013F R09M-014F R75M-006F R77M-001F R77M-002F R77M-003F R77M-004F	Organic Carbon	0.00941%	

> – Greater Than mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R09M-008F was spiked and analyzed for 6010 metals and 6020 metals. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. Recoveries for applicable analytes were within the acceptance range of 75-125%. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The analytes were within the applicable percent difference of ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were R77M4-003F/ R77M4-005F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.43 SVL Data Package X9C0444 (-60 Mesh)

Data package X9C0444 contained the analytical results for eleven samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures were not collected upon arrival at SVL. Based on the stability of the parameters of interest data qualification was not considered necessary.

Holding Times

With the exception of listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 18 and 37 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

The samples were analyzed for organic carbon between 38 and 58 days after collection, which exceeds the holding time requirement of twenty-eight days. Therefore, the organic carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X913115-BLK1 R301-002F R302-001F R302-004F R303-001F R303-004F R304-002F R304-005F TC EAST 001F TC EAST 004F TC WEST 001F TC WEST 004F	Manganese	-0.28 mg/Kg	None. The negative blank concentrations do not account for more than 25% of the associated sample reported values.
S19D007-CCB2 TC EAST 001F TC EAST 004F	Cadmium	0.08 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
TC WEST 001F TC WEST 004F R301-002F R302-001F	Copper	0.22 mg/Kg*	
S19D010-CCB8 R301-002F R302-001F R302-004F R303-001F R303-004F R304-002F R304-005F TC EAST 001F TC EAST 004F TC WEST 001F TC WEST 004F	Lead	0.015 mg/Kg*	
S19D010-CCB9 R302-001F R302-004F R303-001F R303-004F R304-002F R304-005F	Lead	0.022 mg/Kg*	
X914035-BLK1 All samples except	Organic Carbon	0.0192%	

> – Greater Than mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample TC East 001F was spiked and analyzed for 6010 metals and 6020 metals. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. With the exceptions listed below, Recoveries for applicable analytes were within the acceptance range of 75-125%. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
TC East 001F	Manganese	**137/130** (75-125)	1.6 (20)	As the potential bias was considered to be high, the associated results were qualified as estimated, J MS-H.
	Zinc	**148/142** (75-125)	1.4 (20)	

% – Percent
%R – Percent Recoveries
J – Estimated
H – High Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 metals analysis of sample TC East 001F. With the exception listed below, the applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Sample ID	Analyte	Initial Sample Result	Serial Dilution Result	SD %D	Data Qualification
TC East 001F	Copper	1040 mg/kg	895 mg/kg	14.7	The bias is considered to be high because the original result is greater than the diluted result and the diluted result is considered to be more accurate. The associated result was qualified estimated, J SD-H

%D – Percent Difference
ID – Identification
J – Estimated
H – High Bias
SD – Serial Dilution
mg/kg – Milligrams per Kilogram

Field Duplicate Analysis

The field duplicate pair was not collected and analyzed with this sample delivery group. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.44 SVL Data Package X9C0434 (-10 Mesh)

Data package X9C0434 contained the analytical results for twelve samples and one field duplicate sample. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were not used on the coolers. The sample custodian noted that the samples were received properly

preserved and intact. Cooler temperatures were not collected upon arrival at SVL. Based on the stability of the parameters of interest data qualification was not considered necessary.

Holding Times

With the exceptions listed below, the samples were prepared and analyzed within the required holding time limits.

The samples were analyzed for paste pH between 18 and 37 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

The samples were analyzed for organic carbon between 36 and 58 days after collection, which exceeds the holding time requirement of twenty-eight days. Therefore, the organic carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19D007-CCB5 R301-001F R301-002F R301-003F R301-004F R61-002F R87-011 TC EAST 001F TC EAST 002F TC EAST 003F TC EAST 004F TC EAST 005F TC WEST 001F TC WEST 002F TC WEST 003F TC WEST 004F	Cadmium	0.06 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19A045-CCB8 R301-001F R301-002F R301-003F R301-004F R61-002F R87-011 TC EAST 001F TC EAST 002F TC EAST 003F TC EAST 004F TC EAST 005F TC WEST 001F TC WEST 002F TC WEST 003F TC WEST 004F	Lead	0.011 mg/Kg*	
X914033-BLK1 All samples	Organic Carbon	0.0095%	

> – Greater Than mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample TC East 001F was spiked and analyzed for 6010 metals and 6020 metals. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. With the exceptions listed below, Recoveries for applicable analytes were within the acceptance range of 75-125%. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
TC East 001F	Manganese	**184/144** (75-125)	9.1 (20)	As the potential bias was considered to be high, the associated results were qualified as estimated, J MS-H.
	Zinc	**158/153** (75-125)	1.3 (20)	

% – Percent
%R – Percent Recoveries
J – Estimated
H – High Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this sample delivery group.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. A serial dilution was analyzed for the 6010 metals analysis of sample TC East 001F. With the exception listed below, the applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Sample ID	Analyte	Initial Sample Result	Serial Dilution Result	SD %D	Data Qualification
TC East 001F	Copper	876 mg/kg	736 mg/kg	17.4	The bias is considered to be high because the original result is greater than the diluted result and the diluted result is considered to be more accurate. The associated result was qualified estimated, J SD-H
	Iron	35900 mg/kg	32200 mg/kg	11.1	
	Manganese	462 mg/kg	414 mg/kg	11.1	

%D – Percent Difference
ID – Identification
J – Estimated
H – High Bias
SD – Serial Dilution
mg/kg – Milligrams per Kilogram

Field Duplicate Analysis

The field duplicate pairs were TC EAST 003F/ TC EAST 004F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.45 SVL Data Package X9B0037 (-10 Mesh)

Data package X9B0037 contained the analytical results for twelve samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were

received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 26 and 34 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X907260-BLK1	Organic Carbon	0.00941%	None. The associated results were reported at concentrations >5x the blank contamination.
X907021-BLK1	Copper	2.98 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
X907021-BLK1	Zinc	2 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19B068-CCB5	Cadmium	0.06 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19B060-CCB3 **S19B060-CCB4** **X906191-BLK1** **S19B060-CCB5** **S19B060-CCB6** **S19B060-CCB7** **S19B060-CCB8** **S19B060-CCB9**	Lead	0.016 mg/Kg* 0.017 mg/Kg* 0.021 mg/Kg 0.019 mg/Kg* 0.038 mg/Kg* 0.050 mg/Kg* 0.019 mg/Kg* 0.025 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – values for ICB and CCB are shown in "Prep Equivalent Units"; on the same basis as the Method Blank

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The analytes were within the applicable percent difference of ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair were U03-10345/U04-10345. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.46 SVL Data Package X9B0038 (-60 Mesh)

Data package X9B0038 contained the analytical results for four samples. The laboratory IDs and corresponding field IDs are presented in Attachment A. Samples from SDG X9B0038 were batched with some QC samples from SDG X9B0037.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 27 and 33 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X907260-BLK1	Organic Carbon	0.00941%	None. The associated results were reported at concentrations >5x the blank contamination.
X907021-BLK1	Copper	2.98 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
X907021-BLK1	Zinc	2 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19B068-CCB5	Cadmium	0.06 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19B060-CCB3 **S19B060-CCB4** **X906191-BLK1** **S19B060-CCB5** **S19B060-CCB6** **S19B060-CCB7** **S19B060-CCB8** **S19B060-CCB9**	Lead	0.016 mg/Kg* 0.017 mg/Kg* 0.021 mg/Kg 0.019 mg/Kg* 0.038 mg/Kg* 0.050 mg/Kg* 0.019 mg/Kg* 0.025 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram

* – values for ICB and CCB are shown in "Prep Equivalent Units"; on the same basis as the Method Blank

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. No samples from this SDG exceeded the applicable percent difference of ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

No field duplicate pairs were identified on this SDG. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.47 SVL Data Package X9B0206 (-10 Mesh)

Data package X9B0206 contained the analytical results for three samples and two field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A. Samples on X9B0206 were batched with QC samples from SDG X9B0203.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature was 4.6°C; which is within the recommended range of 4°C±2°C.

Holding Times

With the exception of paste pH, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 24 and 25 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X908196-BLK1	Organic Carbon	0.00955%	None. The associated results were reported at concentrations >5x the blank contamination.
S19B069-CCB2	Cadmium	0.06 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
X908052-BLK1	Manganese	0.67 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19B070-CCB2 **S19B070-CCB3** **X908055-BLK1** **S19B070-CCB4** **S19B070-CCB5**	Lead	0.017 mg/Kg* 0.021 mg/Kg* 0.018 mg/Kg 0.010 mg/Kg* 0.017 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – values for ICB and CCB are shown in "Prep Equivalent Units"; on the same basis as the Method Blank

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. No samples from this SDG exceeded the applicable percent difference of ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were RAN-09/RAN-10 and RAN-12/RAN-13. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.48 SVL Data Package X9B0207 (-60 Mesh)

Data package X9B0207 contained the analytical results for two samples. The laboratory IDs and corresponding field IDs are presented in Attachment A. Samples from SDG X9B0207 were batched with QC samples from X9B0203.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and

method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature was 4.6°C; which is within the recommended range of 4°C±2°C.

Holding Times

With the exception of paste pH, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 24 and 25 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X908196-BLK1	Organic Carbon	0.00955%	None. The associated results were reported at concentrations >5x the blank contamination.
S19B069-CCB2	Cadmium	0.06 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
X908052-BLK1	Manganese	0.67 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19B070-CCB2 **S19B070-CCB3** **X908055-BLK1** **S19B070-CCB4** **S19B070-CCB5**	Lead	0.017 mg/Kg* 0.021 mg/Kg* 0.018 mg/Kg 0.010 mg/Kg* 0.017 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – values for ICB and CCB are shown in "Prep Equivalent Units"; on the same basis as the Method Blank

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. No samples from this SDG exceeded the applicable percent difference of ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

No field duplicate pairs were identified on this SDG. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.49 SVL Data Package X9C0533 (-10 Mesh)

Data package X9C0533 contained the analytical results for twelve samples and two field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary. The validator noted that for samples X9C0533-06, -07, -08, -09, and -14 the sample date on the data sheet did not match the sample date listed on the COC.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 26 and 48 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon between 40 and 70 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X917139-BLK1	Organic Carbon	-0.0104%	None. The associated results were reported at concentrations >5x the blank contamination.
X918166-BLK1 U03-3300M U03-7305M B01-P3-2-012 B01-P3-2-052	Organic Carbon	0.065%	None. The associated results were reported at concentrations >5x the blank contamination.
S19D045-CCB3 **S19D045-CCB5**	Iron	8.0 mg/Kg* 8.5 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D045-CCB3 **S19D045-CCB4** **S19D045-CCB6**	Manganese	0.4 mg/Kg* 0.31 mg/Kg* 0.35 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D045-CCB3 **S19D047-CCB2**	Zinc	0.3 mg/Kg* 0.3 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D032-CCB3 **X913262-BLK1** **S19D032-CCB5** **S19D032-CCB6** **S19D032-CCB7**	Lead	0.018 mg/Kg* 0.067 mg/Kg 0.022 mg/Kg* 0.037 mg/Kg* 0.017 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – values for ICB and CCB are shown in "Prep Equivalent Units"; on the same basis as the Method Blank

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. No samples from this SDG exceeded the applicable percent difference of ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were U03-7304M/U04-7304M and B01-P3-2-010/B02-P3-2-010. With the exceptions noted in the table below, the concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Sample ID	Analyte	Parent Sample Result (mg/Kg)	Field Duplicate Sample Result (mg/Kg)	Criteria	Data Qualification
U03-7304M/ U04-7304M	Lead	2700	184	RPD >50%	The associated parent and field duplicate results were qualified as estimated (J FD-I).

> – Greater Than
% – Percent
ID – Identification
FD – Field Duplicate
I – Indeterminate Bias
mg/Kg – Milligrams per Kilogram
RL – Reporting Limit
J – Estimated

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the

sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.50 SVL Data Package X9C0536 (-10 Mesh)

Data package X9C0536 contained the analytical results for eleven samples and four field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 31 and 53 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon between 47 and 68 days after

collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X917138-BLK1	Organic Carbon	0.00978%	None. The associated results were reported at concentrations >5x the blank contamination.
X918166-BLK1 B02-P3-3-004	Organic Carbon	0.065%	None. The associated results were reported at concentrations >5x the blank contamination.
S19D038-ICB1 **S19D038-CCB7**	Cadmium	0.06 mg/Kg* 0.07 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D038-CCB2	Copper	0.20 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D038-CCB4	Iron	7.0 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D025-CCB5 **S19D025-CCB6** **S19D025-CCB8** **S19D025-CCB9** **S19D025-CCBA** **S19D025-CCBB** **S19D025-CCBC**	Lead	0.010 mg/Kg* 0.013 mg/Kg* 0.011 mg/Kg* 0.015 mg/Kg* 0.200 mg/Kg* 0.011 mg/Kg* 0.015 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – values for ICB and CCB are shown in "Prep Equivalent Units"; on the same basis as the Method Blank

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

With the exceptions listed in the table below, Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
B01-P3-3-001	Copper	**136/147** (75-125)	3.9 (35)	As the potential bias was considered to be high, the associated copper result for sample B01-P3-3-001 was qualified as estimated (J MS-H)

% – Percent
%R – Percent Recoveries
J – Estimated
H – High Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS should have been performed on B01-P3-3-001 but was not performed by the laboratory.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The analytes were within the applicable percent difference of ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were B01-P3-2-007/B02-P3-2-007, B01-P3-2-008/ B02-P32-008, B01-P3-2-055/B02-P3-2-055, and B01-P3-3-004/B02-P3-3-004. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.51 SVL Data Package X9C0538 (-60 Mesh)

Data package X9C0538 contained the analytical results for ten samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary. The validator noted that for sample X9C0538-03 the sample date on the data sheet did not match the sample date listed on the COC.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 32 and 53 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon between 47 and 68 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X918166-BLK1 U03-7304M B01-P3-2-012 B01-P3-3-005M	Organic Carbon	0.065%	None. The associated results were reported at concentrations >5x the blank contamination.
S19D045-CCB3 **S19D045-CCB5**	Iron	8.0 mg/Kg* 8.5 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D045-CCB3 **S19D045-CCB4** **X915095-BLK1** **S19D045-CCB6**	Manganese	0.40 mg/Kg* 0.31 mg/Kg* 0.28 mg/Kg 0.35 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D045-CCB3	Zinc	0.3 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D025-CCB5 **S19D025-CCB6** **S19D025-CCB8** **S19D025-CCB9** **X913260-BLK1** **S19D025-CCBA** **S19D025-CCBB** **S19D025-CCBC**	Lead	0.010 mg/Kg* 0.013 mg/Kg* 0.011 mg/Kg* 0.015 mg/Kg* 0.021 mg/Kg 0.200 mg/Kg* 0.011 mg/Kg* 0.015 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram

* – values for ICB and CCB are shown in "Prep Equivalent Units"; on the same basis as the Method Blank

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

With the exceptions listed in the table below, Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
U03-1301	Copper	121/**135** (75-125)	3.2 (35)	As the potential bias was considered to be high, the associated copper result for sample U03-1301 was qualified as estimated (J MS-H)
	Arsenic	**68.2/73.9** (75-125)	2.4 (35)	As the potential bias was considered to be low, the associated arsenic result for sample U03-1301 was qualified as estimated (J MS-L)

% – Percent
%R – Percent Recoveries
J – Estimated
H – High Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate
L – Low Bias
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS should have been performed on U03-1301 but was not performed by the laboratory.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. No results on the SDG exceeded the applicable percent difference of ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

No field duplicate pairs were identified on this SDG. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.52 SVL Data Package X9E0093 (-10 Mesh)

Data package X9E0093 contained the analytical results for fifteen samples and one field duplicate sample. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not

received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 40 and 49 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon between 41 and 49 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
S19E043-CCB2	Lead	0.012 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19E043-CCB3		0.016 mg/Kg*	
S19E043-CCB4		0.022 mg/Kg*	

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram

* – values for ICB and CCB are shown in "Prep Equivalent Units"; on the same basis as the Method Blank

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

With the exceptions listed in the table below, Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
U03-1302M	Zinc	124/**127** (75-125)	0.8 (35)	As the potential bias was considered to be high, the associated zinc result for sample U03-1302M was qualified as estimated (J MS-H)

% – Percent
%R – Percent Recoveries
J – Estimated
H – High Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS should have been performed on U03-1302 but was not performed by the laboratory.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. No results on the SDG exceeded the applicable percent difference of ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair was U03-3305M/U04-3305M. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria. Note that S19E039-CCV3 chromium and copper exceeded the acceptance criteria of 110% recovery but were below 125%.

5.53 SVL Data Package X9E0097 (-10 Mesh)

Data package X9E0097 contained the analytical results for fifteen samples and one field duplicate sample. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 33 and 42 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon between 34 and 42 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X919118-BLK1 **S19E047-CCB2** **S19E047-CCB3** **S19E047-CCB4**	Lead	0.048 mg/Kg 0.012 mg/Kg* 0.024 mg/Kg* 0.027 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – values for ICB and CCB are shown in "Prep Equivalent Units"; on the same basis as the Method Blank

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required for this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. No results on the SDG exceeded the applicable percent difference of ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair was U03-3312/U04-3312. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.54 SVL Data Package X9E0099 (-60 Mesh)

Data package X9E0099 contained the analytical results for eleven samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 33 and 49 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon between 34 and 49 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X920065-BLK1	Organic Carbon	0.00968%	None. The associated results were reported at concentrations >5x the blank contamination.
S19E041-CCB2 **S19E041-CCB3**	Cadmium	0.10 mg/Kg* 0.07 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19E043-CCB2 **S19E043-CCB3** **X919121-BLK1** **S19E043-CCB4** **S19E045-CCB2**	Lead	0.012 mg/Kg* 0.016 mg/Kg* 0.036 mg/Kg 0.022 mg/Kg* 0.012 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – values for ICB and CCB are shown in "Prep Equivalent Units"; on the same basis as the Method Blank

Laboratory Control Sample (LCS)

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

With the exceptions listed in the table below, Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
U03-1302M	Copper	119/**131** (75-125)	3.0 (35)	As the potential bias was considered to be high, the associated copper result for sample U03-1302M was qualified as estimated (J MS-H)
	Zinc	**129/135** (75-125)	1.6 (35)	As the potential bias was considered to be high, the associated zinc result for sample U03-1302M was qualified as estimated (J MS-H)

% – Percent
%R – Percent Recoveries
J – Estimated
H – High Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS should have been done U03-1302M but was not performed by the laboratory.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. No results on the SDG exceeded the applicable percent difference of ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

No field duplicate pairs were identified on this SDG. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences, however, no target analytes were detected in the ICSA solution.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.55 SVL Data Package X9C0514 (-10 Mesh)

Data package X9C0514 contained the analytical results for three samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH 42 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon 38 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X914036-BLK1 **X917142-BLK1**	Organic Carbon	0.0484% 0.00983%	None. The associated results were reported at concentrations >5x the blank contamination.
S19D042-CCB2 **S19D042-CCB7** **S19D042-CCB8**	Iron	7.1 mg/Kg* 8.4 mg/Kg* 12.3 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D042-CCB3 **S19D042-CCB5**	Manganese	0.33 mg/Kg* 0.38 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D025-CCB5 **S19D025-CCB6** **S19D025-CCB8** **S19D025-CCB9** **S19D025-CCBA** **S19D025-CCBB** **S19D025-CCBC** **S19D032-CCB3** **S19D032-CCB5** **S19D032-CCB6** **S19D032-CCB7**	Lead	0.010 mg/Kg* 0.013 mg/Kg* 0.011 mg/Kg* 0.015 mg/Kg* 0.200 mg/Kg* 0.011 mg/Kg* 0.015 mg/Kg* 0.018 mg/Kg* 0.022 mg/Kg* 0.037 mg/Kg* 0.017 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank BLK – Method Blank
mg/Kg – Milligrams per Kilogram * – Conversion from water to soil units using the prep factor and percent solid
% – Percent

Laboratory Control Sample

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analysts discretion. A PDS was not required for this SDG, by the laboratory.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent difference were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

No field duplicate pairs were identified on this SDG. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.56 SVL Data Package X9C0519 (-10 Mesh)

Data package X9C0519 contained the analytical results for nine samples and two field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 29 and 42 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon between 47 and 60 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X917142-BLK1	Organic Carbon	0.00983%	None. The associated results were reported at concentrations >5x the blank contamination.
S19D038-ICB1 **S19D038-CCB7**	Cadmium	0.06 mg/Kg* 0.07 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D038-CCB2	Copper	0.20 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D038-CCB4 **S19D042-CCB2** **S19D042-CCB7** **S19D042-CCB8**	Iron	7.0 mg/Kg* 7.1 mg/Kg* 8.4 mg/Kg* 12.3 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D042-CCB3 **S19D042-CCB5**	Manganese	0.33 mg/Kg* 0.38 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D025-CCB5 **S19D025-CCB6** **S19D025-CCB8** **S19D025-CCB9** **S19D025-CCBA** **S19D025-CCBB** **S19D025-CCBC** **S19D032-CCB3** **S19D032-CCB5** **S19D032-CCB6** **S19D032-CCB7**	Lead	0.010 mg/Kg* 0.013 mg/Kg* 0.011 mg/Kg* 0.015 mg/Kg* 0.200 mg/Kg* 0.011 mg/Kg* 0.015 mg/Kg* 0.018 mg/Kg* 0.022 mg/Kg* 0.037 mg/Kg* 0.017 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than
CCB – Continuing Calibration Blank
BLK – Method Blank
mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid
% – Percent

Laboratory Control Sample

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

With the exceptions listed in the table below, Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
R84-007F	Arsenic	**66.4**/79.4 (75-125)	5.5 (35)	As the potential bias was considered to be low, the associated arsenic result for sample R84-007F was qualified as estimated (J MS-L)

%R – Percent Recoveries J – Estimated L – Low Bias
MS – Matrix Spike MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS should have been done on R84-007F arsenic but was not performed by the laboratory. Further action was not possible.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent difference were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were R84-009F/R84-010F and R89A-004F/R89A-005F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.57 SVL Data Package X9C0522 (-60 Mesh)

Data package X9C0522 contained the analytical results for four samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 32 and 45 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon between 47 and 60 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X917140-BLK1	Organic Carbon	-0.0196%	None. The associated results were reported at concentrations >5x the blank contamination.
S19D042-CCB2 **S19D042-CCB7** **S19D042-CCB8**	Iron	7.1 mg/Kg* 8.4 mg/Kg* 12.3 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D042-CCB3 **S19D042-CCB5**	Manganese	0.33 mg/Kg* 0.38 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D032-CCB3 **S19D032-CCB5** **S19D032-CCB6** **S19D032-CCB7**	Lead	0.018 mg/Kg* 0.022 mg/Kg* 0.037 mg/Kg* 0.017 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank BLK – Method Blank
mg/Kg – Milligrams per Kilogram * – Conversion from water to soil units using the prep factor and percent solid
% – Percent

Laboratory Control Sample

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required on this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent difference were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

No field duplicate pairs were identified on this SDG. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.58 SVL Data Package X9D0024 (-10 Mesh)

Data package X9D0024 contained the analytical results for eleven samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were

hand-entered on the sample reporting forms. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 17 and 24 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon between 37 and 44 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
S19D048-CCB2	Lead	0.015 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D048-CCB3		0.024 mg/Kg*	
S19D048-CCB4		0.010 mg/Kg*	
S19D048-CCB5		0.011 mg/Kg*	
S19D048-CCB6		0.012 mg/Kg*	
S19D048-CCB7		0.014 mg/Kg*	
S19D048-CCB8		0.015 mg/Kg*	
S19D048-CCB9		0.017 mg/Kg*	

> – Greater Than
mg/Kg – Milligrams per Kilogram
% – Percent
CCB – Continuing Calibration Blank
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

With the exceptions listed in the table below, Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (%) (Limits)	Data Qualification
R59-001F	Arsenic	90.1/**133** (75-125)	16.7 (35)	As the potential bias was considered to be high, the associated arsenic result for sample R59-001F was qualified as estimated (J MS-H)

% – Percent
%R – Percent Recoveries
J – Estimated
H – High Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS should have been done on R59-001F for lead and arsenic but was not performed by the laboratory and further action was not possible.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent difference were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

No field duplicate pairs were identified on this SDG. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Note that the interference check samples (ICSA and ICSAB) for 6010D were not reported on this data package in the QC section or the analysis run log. However, the samples are noted within the raw data.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria. Note that S19E001-CCV8 copper had 112% recovery and exceeded the acceptance range of 90 – 110%. Data qualification was not required on this basis.

5.59 SVL Data Package X9D0029 (-10 Mesh)

Data package X9D0029 contained the analytical results for thirteen samples and one field duplicate sample. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 23 and 30 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon between 37 and 50 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X917142-BLK1 **X918167-BLK1**	Organic Carbon	0.00983% 0.0202%	None. The associated results were reported at concentrations >5x the blank contamination.
S19D048-CCB2 **S19D048-CCB3** **S19D048-CCB4** **S19D048-CCB5** **S19D048-CCB6** **S19D048-CCB7** **S19D048-CCB8** **S19D048-CCB9**	Lead	0.015 mg/Kg* 0.024 mg/Kg* 0.010 mg/Kg* 0.011 mg/Kg* 0.012 mg/Kg* 0.014 mg/Kg* 0.015 mg/Kg* 0.017 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank BLK – Method Blank
mg/Kg – Milligrams per Kilogram * – Conversion from water to soil units using the prep factor and percent solid
% – Percent

Laboratory Control Sample

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

With the exceptions listed in the table below, Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (%) (Limits)	Data Qualification
R68-003F	Arsenic	**65.6**/96.1 (75-125)	10.6 (35)	As the potential bias was considered to be low, the associated arsenic result for sample R68-003F was qualified as estimated (J MS-L)

% – Percent
%R – Percent Recoveries
J – Estimated
L – Low Bias
MS – Matrix Spike
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS should have been done on sample R68-003F but was not performed by the laboratory. Further action was not possible.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair was R81-001F/R81-005F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Note that only copper was reported on the QC form for the EPA 6010D interference check samples and the remaining metals were not listed (cadmium, chromium, iron, manganese, and zinc).

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria. Note that the copper result for S19E001-CCV8 had 112% recovery which exceeds the control limit of 110%, however no qualification was considered necessary on this basis.

5.60 SVL Data Package X9D0033 (-60 Mesh)

Data package X9D0033 contained the analytical results for nine samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 23 and 30 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon between 29 and 42 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X917142-BLK1 **X918166-BLK1** R82-002F	Organic Carbon	0.00983% 0.065%	None. The associated results were reported at concentrations >5x the blank contamination.
S19D048-CCB2 **S19D048-CCB3** **S19D048-CCB4** **S19D048-CCB5** **S19D048-CCB6** **S19D048-CCB7** **X914139-BLK1** **S19D048-CCB8** **S19D048-CCB9**	Lead	0.015 mg/Kg* 0.024 mg/Kg* 0.010 mg/Kg* 0.011 mg/Kg* 0.012 mg/Kg* 0.014 mg/Kg* 0.025 mg/Kg* 0.015 mg/Kg* 0.017 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank BLK – Method Blank
mg/Kg – Milligrams per Kilogram * – Conversion from water to soil units using the prep factor and percent solid
% – Percent

Laboratory Control Sample

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

With the exceptions listed in the table below, Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (%) (Limits)	Data Qualification
R59-001F	Arsenic	**69.8**/77.0 (75-125)	2.7 (35)	As the potential bias was considered to be low, the associated arsenic result for sample R59-001F was qualified as estimated (J MS-L)

% – Percent
%R – Percent Recoveries
J – Estimated
L – Low Bias
MS – Matrix Spike
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS should have been done on the arsenic result for R59-001F but was not performed by the laboratory. Further action was not possible.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

No field duplicate pairs were identified on this SDG. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.61 SVL Data Package X9D0226 (-10 Mesh)

Data package X9D0226 contained the analytical results for seven samples and one field duplicate sample. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. Cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded; validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH 25 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon 33 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X918267-BLK1	Organic Carbon	0.00973%	None. The associated results were reported at concentrations >5x the blank contamination.
S19D017-CCB3	Lead	0.013 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19D017-CCB4		0.012 mg/Kg*	
S19D017-CCB5		0.014 mg/Kg*	
S19D017-CCB6		0.011 mg/Kg*	
S19D017-CCB7		0.017 mg/Kg*	
S19D017-CCB8		0.018 mg/Kg*	
S19D017-CCB9		0.024 mg/Kg*	
S19D017-CCBA		0.021 mg/Kg*	

> – Greater Than CCB – Continuing Calibration Blank BLK – Method Blank
mg/Kg – Milligrams per Kilogram * – Conversion from water to soil units using the prep factor and percent solid
% – Percent

Laboratory Control Sample

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required on this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair was R01-008F/R01-009F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.62 SVL Data Package X9D0229 (-10 Mesh)

Data package X9D0229 contained the analytical results for thirteen samples and two field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. A cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded, and validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH 24 to 26 days after collection, which exceeds the holding time requirement of two days.

The samples were analyzed for Organic Carbon 32 or 33 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X918171-BLK1 **X918169-BLK1**	Organic Carbon	0.00959% -0.00973%	None. The associated results were reported at concentrations >5x the blank contamination.
S19E017-CCB3 **X915208-BLK1** **S19E017-CCB4** **S19E017-CCB5** **X915207-BLK1** **S19E017-CCB6** **S19E017-CCB7** **S19E017-CCB8** **S19E017-CCB9** **S19E017-CCBA**	Lead	0.013 mg/Kg* 0.019 mg/Kg 0.012 mg/Kg* 0.014 mg/Kg* 0.044 mg/Kg 0.011 mg/Kg* 0.017 mg/Kg* 0.018 mg/Kg* 0.024 mg/Kg* 0.021 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank BLK – Method Blank
mg/Kg – Milligrams per Kilogram * – Conversion from water to soil units using the prep factor and percent solid
% – Percent

Laboratory Control Sample

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required on this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were R52A-001F/R52A-005F and R55M-002F/R55M-005F. With the exceptions noted in the table below, the concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Sample ID	Analyte	Parent Sample Result (mg/Kg)	Field Duplicate Sample Result (mg/Kg)	Criteria	Data Qualification
R52A-001F/ R52A-005F	Cadmium	1.37	3.25	RPD >50%	The associated parent and field duplicate results were qualified as estimated (J FD-I).
	Zinc	673	1240		
R55M-002F/ R55M-005F	Cadmium	0.5	1.86		
	Arsenic	8.19	4.00		
	Lead	287	115		

> – Greater Than
% – Percent
ID – Identification
FD – Field Duplicate
I – Indeterminate Bias
mg/Kg – Milligrams per Kilogram
J – Estimated
RPD – Relative Percent Difference

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.63 SVL Data Package X9D0232 (-60 Mesh)

Data package X9D0232 contained the analytical results for seven samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. A cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded, and validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH 24 to 26 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon 32 or 33 days after collection, which

exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X918169-BLK1	Organic Carbon	-0.00973%	None. The associated results were reported at concentrations >5x the blank contamination.
S19E017-CCB3	Lead	0.013 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19E017-CCB4		0.012 mg/Kg*	
S19E017-CCB5		0.014 mg/Kg*	
X915207-BLK1		0.044 mg/Kg	
S19E017-CCB6		0.011 mg/Kg*	
S19E017-CCB7		0.017 mg/Kg*	
S19E017-CCB8		0.018 mg/Kg*	
S19E017-CCB9		0.024 mg/Kg*	
S19E017-CCBA		0.021 mg/Kg*	

> – Greater Than CCB – Continuing Calibration Blank BLK – Method Blank
mg/Kg – Milligrams per Kilogram * – Conversion from water to soil units using the prep factor and percent solid
% – Percent

Laboratory Control Sample

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required on this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

No field duplicate pairs were identified on this SDG. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.64 SVL Data Package X9D0341 (-10 Mesh)

Data package X9D0341 contained the analytical results for eight samples and one field duplicate sample. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. A cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded, and validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH 33 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon 38 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
S19E017-CCB3	Lead	0.013 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19E017-CCB4		0.012 mg/Kg*	
S19E017-CCB5		0.014 mg/Kg*	
S19E017-CCB6		0.011 mg/Kg*	
S19E017-CCB7		0.017 mg/Kg*	
X916088-BLK1		0.11 mg/Kg	
S19E017-CCB8		0.018 mg/Kg*	
S19E017-CCB9		0.024 mg/Kg*	
S19E017-CCBA		0.021 mg/Kg*	

> – Greater Than CCB – Continuing Calibration Blank BLK – Method Blank % – Percent
mg/Kg – Milligrams per Kilogram * – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Sample

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required on this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair was R80-014F/R80-015F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.65 SVL Data Package X9D0345 (-10 Mesh)

Data package X9D0345 contained the analytical results for sixteen samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. A cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded, and validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 32 and 36 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon between 37 and 46 days after

collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X919056-BLK1 **X920161-BLK1**	Organic Carbon	0.00937% 0.0201%	None. The associated results were reported at concentrations >5x the blank contamination.
S19E033-CCB2 **S19E033-CCB3** **S19E033-CCB4** **S19E033-CCB5** **S19E033-CCB6**	Lead	0.024 mg/Kg* 0.032 mg/Kg* 0.043 mg/Kg* 0.036 mg/Kg* 0.052 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank BLK – Method Blank
mg/Kg – Milligrams per Kilogram * – Conversion from water to soil units using the prep factor and percent solid
% – Percent

Laboratory Control Sample

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required on this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

No field duplicate pairs were identified on this SDG. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.66 SVL Data Package X9D0346 (-60 Mesh)

Data package X9D0346 contained the analytical results for eight samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were

hand-entered on the sample reporting forms. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were present and intact on the coolers. The sample custodian noted that the samples were received properly preserved and intact. A cooler temperature indicator bottle was not received by SVL. Cooler temperature was not recorded, and validator could not confirm the recommended range of 4°C±2°C. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and Organic Carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 31 and 36 days after collection, which exceeds the holding time requirement of two days. The samples were analyzed for Organic Carbon between 38 and 41 days after collection, which exceeds the holding time requirement of 28 days. Therefore, the pH and Organic Carbon results were qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
S19E033-CCB2	Lead	0.024 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19E033-CCB3		0.032 mg/Kg*	
S19E033-CCB4		0.043 mg/Kg*	
X916084-BLK1		0.052 mg/Kg	
S19E033-CCB5		0.036 mg/Kg*	
S19E033-CCB6		0.052 mg/Kg*	

> – Greater Than CCB – Continuing Calibration Blank BLK – Method Blank
mg/Kg – Milligrams per Kilogram * – Conversion from water to soil units using the prep factor and percent solid
% – Percent

Laboratory Control Sample

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. A PDS was not required on this SDG.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

No field duplicate pairs were identified on this SDG. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.67 SVL Data Package X9E0133 (-10 Mesh)

Data package X9E0133 contained the analytical results for fifteen samples and one field duplicate sample. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. No detections between the reporting limit and method detection limit were reported and qualifications related to the sample quantitation limit were not required. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were used on the coolers and the sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures were not recorded upon arrival at SVL and the samples were not received on ice. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 35 and 42 days after collection, which exceeds the holding time requirement of

two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed 19 to 26 days over the 28-day hold time and results were also qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
X919117-BLK1 **6/1/19 12:28** All Samples in SDG	Lead	0.039 mg/kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19F002-CCB4 **6/1/19 13:15** B01-P3-2-027 B01-P3-2-029 B01-P3-2-035M B01-P3-2-037M U03-1309M U03-3316 U03-3317M U03-3325 U04-10345	Lead	0.014 mg/kg*	

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – values for ICB and CCB are shown in "Prep Equivalent Units"; on the same basis as the Method Blank

Laboratory Control Samples

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pair were U03-10345/U04-10345. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.68 SVL Data Package X9E0137 (-10 Mesh)

Data package X9E0137 contained the analytical results for twelve samples and three field duplicates. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. No detections between the reporting limit and method detection limit were reported and qualifications related to the sample quantitation limit were not required. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were used on the coolers and the sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures were not recorded upon arrival at SVL and the samples were not received on ice. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 28 and 36 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed 12 to 20 days over the 28-hold time and results were also qualified as estimated (J/UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19E049-CCB1 **5/24/2019 8:09:38** B01-P3-3-046 B01-P3-3-050 B02-P3-3-050 U03-2315 U03-2316	Manganese	-0.34 mg/kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19E049-CCB3 **5/24/19 10:20** B01-P3-3-049 B01-P3-3-078 B01-P3-3-080 ERA2-22M ERA-22M U03-10346M U03-1311M U03-2312 U03-3326M U04-2315	Cadmium	0.10 mg/kg*	None. The associated results were reported at concentrations >5x the blank contamination.
X919116-BLK1 Associated with all Samples in SDG	Lead	0.034 mg/kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19F002-CCB6 Associated with all Samples in SDG	Lead	0.015 mg/kg*	

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – values for ICB and CCB are shown in "Prep Equivalent Units"; on the same basis as the Method Blank

Laboratory Control Samples

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were B01-P3-3-050/B02-P3-3-050, U03-2315/U04-2315, and ERA-22M/ERA2-22M. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Zinc was detected in the ICSA solution at a concentration greater than the MDL. Interferent element iron was present in most of the samples at concentrations greater than in the ICSs. As such, these samples were evaluated for positive biases suggested by the ICSA. Data qualifications were not required since the positive bias was less than 25% of the associated sample result.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.69 SVL Data Package X9E0140 (-60 Mesh)

Data package X9E0140 contained the analytical results for seven samples and three field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. No detections between the reporting limit and method detection limit were reported and qualifications related to the sample quantitation limit were not required. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were used on the coolers and the sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures were not recorded upon arrival at SVL and the samples were not received on ice. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 29 and 42 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed 13 to 26 days over the 28-hold time and results were also qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19E049-CCB5 **5/24/19 11:00** B01-P3-2-029 B01-P3-2-032M B01-P3-3-038M B01-P3-3-045 U03-1309M U04-10345	Cadmium	0.10 mg/kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19E049-CCB6 **5/24/19 11:55** B01-P3-3-045 B01-P3-3-080 B02-P3-3-050 U03-3326M U04-2315	Cadmium	0.08 mg/kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19F001-CCB2 **6/1/19 10:17** B01-P3-2-029 B01-P3-2-032M B01-P3-3-038M B01-P3-3-045 U03-1309M U04-10345	Lead	0.033 mg/kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19F001-CCB3 **6/1/19 10:44** B01-P3-3-080 B02-P3-3-050 U03-3326M U04-2315	Lead	0.025 mg/kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – values for ICB and CCB are shown in "Prep Equivalent Units"; on the same basis as the Method Blank

Laboratory Control Samples

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

With the exceptions listed in the table below, Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
U03-1309M	Zinc	**139/141** (75-120)	0.3 (35)	As the potential bias was considered to be high, the associated zinc result for sample U03-1309M was qualified as estimated (J MS-H)

% – Percent
%R – Percent Recoveries
J – Estimated
H – High Bias
MS – Matrix Spike
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate samples are B02-P3-3-050, U04-10345, and U04-2315; however, the parent samples were not selected for analysis and field precision could not be assessed.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits, except as noted in the table below.

Sample	Internal Standard	Internal Standard %R (Limits)	Associated Analytes	Data Qualification
B01-P3-3-080	Ge-72	**130** (30-120)	As	The As result for sample B01-P3-3-080 was qualified as estimated (J IS-I).
B02-P3-3-050	Ge-72	**121** (30-120)	As	The As result for sample B02-P3-3-050 was qualified as estimated (J IS-I).
U04-2315	Ge-72	**123** (30-120)	As	The As result for sample U04-2315 was qualified as estimated (J IS-I).

% – Percent
%R – Percent Recoveries
I – Indeterminate Bias
IS – Internal Standard
J – Estimated

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Lead and zinc were detected in the ICSA solution at concentrations greater than the MDL. Interferent element iron was present in most of the samples at concentrations greater than in the ICSs. As such, these samples were evaluated for positive biases suggested by the ICSA. Data qualifications were not required since the positive bias was less than 25% of the associated sample result.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.70 SVL Data Package X9E0289 (-10 Mesh)

Data package X9E0289 contained the analytical results for thirteen samples and three field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. No detections between the reporting limit and method detection limit were reported and qualifications related to the sample quantitation limit were not required. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were used on the coolers and the sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures were not recorded upon arrival at SVL and the samples were not received on ice. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 32 and 45 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed 5 to 20 days over the 28-hold time and results were also qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

Target analytes were not detected in the method and calibration blanks, with the exception that trace levels of lead that were detected in the calibration blanks. These calibration blanks were not associated with the X9E0289 samples.

Laboratory Control Samples

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were U03-1400/U04-1400, U03-2318M/U04-2318M, and U03-2323/U04-2323. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Cadmium and zinc were detected in the ICSA solution at concentrations greater than the MDL. Interferent element iron was present in most of the samples at concentrations greater than in the ICSs. As such, these samples were evaluated for positive biases suggested by the ICSA. Data qualifications were not required since the positive bias was less than 25% of the associated sample result.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.71 SVL Data Package X9E0299 (-10 Mesh)

Data package X9E0299 contained the analytical results for sixteen samples and three field duplicate samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. No detections between the reporting limit and method detection limit were reported and qualifications related to the sample quantitation limit were not required. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were used on the coolers and the sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures were not recorded upon arrival at SVL and the samples were not received on ice. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 39 and 46 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed 12 to 26 days over the 28-hold time and results were also qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19F019-CCB5 **6/9/2019 6:34** B01-P3-2-045M B01-P3-2-047 B01-P3-2-048M B01-P3-2-061 B01-P3-3-053 B01-P3-3-056 B01-P3-3-057 B01-P3-3-059 B02-P3-3-053 B02-P3-3-057 B02-P3-3-059 U03-3318	Lead	0.014 mg/kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19F019-CCB6 **6/9/2019 6:59** B01-P3-3-056 B01-P3-3-057 B01-P3-3-059 B02-P3-3-057 B02-P3-3-059	Lead	0.013 mg/kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – values for ICB and CCB are shown in "Prep Equivalent Units"; on the same basis as the Method Blank

Laboratory Control Samples

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

The field duplicate pairs were B01-P3-3-053/B02-P3-3-053, B01-P3-3-057/B02-P3-3-057, and B01-P3-3-059/B02-P3-3-059. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.72 SVL Data Package X9E0309 (-60 Mesh)

Data package X9E0309 contained the analytical results for twelve samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. No detections between the reporting limit and method detection limit were reported and qualifications related to the sample quantitation limit were not required. The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain-of-custody (COC). Custody seals were used on the coolers and the sample custodian noted that the samples were received properly preserved and intact. Cooler temperatures were not recorded upon arrival at SVL and the samples were not received on ice. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

With the exception of paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 32 and 46 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed 5 to 36 days over the 28-hold time and results were also qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration (mg/Kg)	Data Qualification
S19E049-CCB9 **5/24/19 14:39** B01-P3-2-042M B01-P3-2-044M B01-P3-2-048M B01-P3-3-056 B01-P3-3-059 U03-10335 U03-3321	Cadmium	0.14 mg/kg*	The associated results reported at concentrations <5x the concentration of the blank contamination were qualified as non-detect (U MB-I).
S19F002-CCB2 **6/1/19 12:04** B01-P3-2-042M B01-P3-2-044M B01-P3-2-048M B01-P3-3-056 B01-P3-3-059 U02-1103 U03-10335 U03-1316M U03-1400 U03-2318M U03-2323 U03-3321	Lead	0.012 mg/kg*	None. The associated results were reported at concentrations >5x the blank contamination.

< – Less Than
mg/Kg – Milligrams per Kilogram
> – Greater Than
CCB – Continuing Calibration Blank
MB – Method Blank
I – Indeterminate Bias
U – Non-detect
* – values for ICB and CCB are shown in "Prep Equivalent Units"; on the same basis as the Method Blank

Laboratory Control Samples

An LCS/LCSD was performed by the laboratory associated with each preparation batch as applicable to the method. The associated percent recoveries and RPDs met the applicable criteria noted in Section 2.0.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Recoveries for the analytes were within the acceptance range of 75-125%.

Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

Field duplicate pairs were not associated with this data package. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the proper frequency. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Zinc was detected in the ICSA solution at a concentration greater than the MDL. Interferent element iron was present in most of the samples at concentrations greater than in the ICS. As such, these samples were evaluated for positive biases suggested by the ICSA. Data qualifications were not required since the positive bias was less than 25% of the associated sample result.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.73 SVL Data Package X9E0337 (-10 Mesh)

Data package X9E0337 contained the analytical results for 11 samples and one field duplicate. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under chain of custody (COC). Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL were noted as N/A and were not documented. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

Except for paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 34 and 43 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed between 35 and 44 days after collection which exceeds the hold time of 28-days. The organic carbon results were not detected and were qualified as estimated (UJ HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X921285-BLK1 R80-016F R80-017F R80-018F R80-019F R80-020F R80-021F R80-022F R80-023F R80-024F R80-025F R59-005F	Organic Carbon	0.0369 %	None. Associated results were not detected.
X920223-BLK1 R80-016F R80-017F R80-018F R80-019F R80-020F R80-021F R80-022F R80-023F R80-024F R80-025F R59-005F	Lead	0.046 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19F019-CCB5 6/9/19 06:31 **S19F019-CCB6** 6/9/19 06:59 **S19F019-CCB7** 6/9/19 07:24 **S19F019-CCB8** 6/9/19 07:49 All samples listed above for **X920223-BLK1**	Lead Lead Lead Lead	0.014 mg/Kg* 0.013 mg/Kg* 0.026 mg/Kg* 0.017 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than CCB – Continuing Calibration Blank
mg/Kg – Milligrams per Kilogram % – Percent
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

A non-project sample was used for the MS/MSD. Results were not evaluated.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not required.

Serial Dilutions

A non-project sample was used for the serial dilution for the ICP and ICP-MS analyses. Results were not evaluated.

Field Duplicate Analysis

The field duplicate pair was R80-024F / R80-025F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.74 SVL Data Package X9E0342 (-10 Mesh)

Data package X9E0342 contained the analytical results for sixteen samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under COC. Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL were noted as N/A and were not documented. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

Except for paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 46 and 62 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed between 50 and 64 days after collection which exceeds the hold time of 28-days and results were qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X921281-BLK1 R306-005F	Organic Carbon	0.019 %	None. The associated results were reported at concentrations >5x the blank contamination.
X921283-BLK1 R83-006F R83-007F R83-008F R83-009F R83-010F R83-011F R93-007F R95-003F R97-011F R97-012F R97-013F R97-014F R97-015F R97-016F R97-017F	Organic Carbon	0.00924%	None. Associated results were not detected.
X922041-BLK1 R306-005F	Iron	11.7 mg/Kg	None. The associated result was reported at a concentration >5x the blank contamination.
X922041-BLK1 R306-005F	Manganese	0.41 mg/Kg	None. The associated result was reported at a concentration >5x the blank contamination.
X920224-BLK1 R83-006F R83-007F R83-008F R83-009F R83-010F R83-011F R93-007F R95-003F R97-011F R97-012F R97-013F R97-014F R97-015F R97-016F R97-017F	Lead	0.136 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
X920225-BLK1 R306-005F	Lead	0.0.031 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19F019-CCB7 6/9/19 07:24 **S19F019-CCB8** 6/9/19 07:49 **S19F019-CCB9** 6/9/19 08:15 **S19F019-CCBA** 6/9/19 08:38 **S19F019-CCBB**	Lead Lead Lead Lead Lead	0.026 mg/Kg* 0.017 mg/Kg* 0.020 mg/Kg* 0.020 mg/Kg* 0.028 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

Associated Samples	Analyte	Concentration	Data Qualification
6/9/19 09:06 All samples listed above for X920224-BLK1 and X920225-BLK1			

> – Greater Than CCB – Continuing Calibration Blank
mg/Kg – Milligrams per Kilogram % – Percent
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

A non-project sample was used for the MS/MSD. Results were not evaluated.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not required.

Serial Dilutions

Two non-project samples were used for the serial dilution for the ICP and ICP-MS analyses. Results were not evaluated.

Field Duplicate Analysis

Field duplicate pairs were not associated with this data package. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries for project samples were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.75 SVL Data Package X9E0351 (-60 Mesh)

Data package X9E0351 contained the analytical results for nine samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under COC. Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL were noted as N/A and were not documented. Based on the stability of the

parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

Except for paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH from 40 to 63 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed 43 to 66 days after collection which exceeds the hold time of 28-days and results were qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X921281-BLK1 R83-006F R83-009F R97-011F R97-014F R97-017F R80-016F R80-019F R80-022F R80-025F	Organic Carbon	0.019 %	None. The associated results were either not detected or reported at concentrations >5x the blank contamination.
X922041-BLK1 R83-006F R83-009F R97-011F R97-014F R97-017F R80-016F R80-019F R80-022F R80-025F	Iron	11.7 mg/Kg	None. The associated result was reported at a concentration >5x the blank contamination.

Associated Samples	Analyte	Concentration	Data Qualification
X922041-BLK1 R83-006F R83-009F R97-011F R97-014F R97-017F R80-016F R80-019F R80-022F R80-025F	Manganese	0.41 mg/Kg	None. The associated result was reported at a concentration >5x the blank contamination.
X920225-BLK1 R83-006F R83-009F R97-011F R97-014F R97-017F R80-016F R80-019F R80-022F R80-025F	Lead	0.0.031 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
S19F019-CCBA 6/9/19 08:38 **S19F019-CCBB** 6/9/19 09:06 **S19F019-CCBC** 6/9/19 09:29 All samples listed above for X920225-BLK1	Lead Lead Lead	0.020 mg/Kg* 0.028 mg/Kg* 0.038 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

% – Percent > - Greater Than
CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

A non-project sample was used for the MS/MSD. Results were not evaluated.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not required.

Serial Dilutions

One non-project sample was used for the serial dilution for the ICP and ICP-MS analyses. Results were not evaluated.

Field Duplicate Analysis

Field duplicate pairs were not associated with this data package. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries for project samples were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.76 SVL Data Package X9E0523 (-10 Mesh)

Data package X9E0523 contained the analytical results for seven samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under COC. Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL were noted as N/A and were not documented. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

Except for paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH from 27 to 61 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed 37 to 71 days after collection which exceeds the hold time of 28-days and results were qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
S19F018-CCB2 6/9/19 06:21 R116-006F R303-006F R307-005F R47-007F R50-006F R51-006F R93A-001F	Lead	0.011 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.
S19F018-CCB3 6/9/19 06:46 R116-006F R47-007F R50-006F R51-006F R93A-001F	Lead	0.050 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination.

> – Greater Than mg/Kg – Milligrams per Kilogram
CCB – Continuing Calibration Blank
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R307-005F was used as the MS/MSD spike sample for the ICP and ICP-MS analyses. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

RPDs for the analytes were <35%. Recoveries for the analytes were within the acceptance range of 75-125% with the exceptions shown below:

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
R307-005F	Arsenic	**63.4 / 35.2** (75-125)	10.4 (35)	As the potential bias was low, the associated arsenic result for sample R307-005F was qualified as estimated (J MS-L)

% – Percent
%R – Percent Recoveries
J – Estimated
L – Low Bias
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

Sample R307-005F was used for the serial dilution for the ICP and ICP-MS analyses.

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective method detection limits (MDL). Analytes meeting this criterion were chromium, copper, iron, lead, manganese and zinc. A serial dilution was performed for these analytes.

The applicable percent differences were within ±10% for the 1:5 dilution of the sample. The percent difference for arsenic was 15% but the sample concentration was not >50x the MDL and serial dilution was not required. No qualifiers were assigned.

Field Duplicate Analysis

Field duplicate pairs were not associated with this data package. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries for project samples were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes

were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.77 SVL Data Package X9E0524 (-10 Mesh)

Data package X9E0524 contained the analytical results for eleven samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under COC. Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL were noted as N/A and were not documented. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

Except for paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 25 and 63 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed between 35 to 73 days after sample

collection which exceeds the holding time requirement of 28 days and results were qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X922057-BLK1 R01-014F R01-015F R01-016F R01-017F R118-010F R118-011F R118-012F R118-013F R118-014F R301-005F R302-006F	Organic Carbon	-0.00968	None. The associated detected results and reporting limits were >5x the negative blank concentration.
X922156-BLK1 R01-014F R01-015F R01-016F R01-017F R118-010F R118-011F R118-012F R118-013F R118-014F R301-005F R302-006F	Iron	38.5 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.
X922161-BLK1 R01-014F R01-015F R01-016F R01-017F R118-010F R118-011F R118-012F R118-013F R118-014F R301-005F R302-006F	Lead	0.054 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination.

Associated Samples	Analyte	Concentration	Data Qualification
S19F018-CCB3 6/9/19 06:46	Lead	0.050 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination
S19F018-CCB4 6/9/19 07:11	Lead	0.018 mg/Kg*	
S19F018-CCB5 6/9/19 07:36	Lead	0.011 mg/Kg*	
All samples listed above for X922161-BLK1			

% – Percent
CCB – Continuing Calibration Blank
> – Greater Than
mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R01-014F was used as the MS/MSD spike sample for the ICP and ICP-MS analyses. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Recoveries for the analytes were within the acceptance range of 75-125% and RPDs for the analytes were <35% with the exceptions shown below:

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
R01-014F	Manganese	**196/225/228*** (75-125)	5.0/5.4* (<35)	As the potential bias was high, the associated manganese result for sample R01-014F was qualified as estimated (J MS-H)

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
R01-014F	Zinc	**227/296/255*** (75-125)	12.5/5.4 (<35)	As the potential bias was high, the associated zinc result for sample R01-014F was qualified as estimated (J MS-H)

% – Percent
%R – Percent Recoveries
J – Estimated
H – High Bias
I – Indeterminant Bias
MS – Matrix Spike
MS/MSD – Matrix Spike/Matrix Spike Duplicate
*MSD – ran in duplicate
RPD – Relative Percent Difference
< – Less Than

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

Sample R01-014F was used for the serial dilution for the ICP and ICP-MS analyses.

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective method detection limits (MDLs). Analytes meeting this criterion were chromium, copper, iron, lead, manganese and zinc. A serial dilution was performed for these analytes except for chromium.

The applicable percent difference were within ±10% for the 1:5 dilution of the sample with the exception below.

Sample ID	Analyte	Initial Sample Result (mg/Kg)	Serial Dilution Result (mg/Kg)	SD %D	Data Qualification
R23-003F	Iron	48200	57700	17.9 (10)	The bias is considered to be low because the original result is less than the diluted result and the diluted result is considered to be more accurate. The associated result was qualified estimated, J SD-L

%D – Percent Difference
ID – Identification
J – Estimated
L – Low Bias
SD – Serial Dilution
mg/kg – Milligrams per Kilogram

Field Duplicate Analysis

Field duplicate pairs were not associated with this data package. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries for project samples were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.78 SVL Data Package X9E0526 (-60 Mesh)

Data package X9E0526 contained the analytical results for four samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under COC. Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL were noted as N/A and were not documented. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

Except for paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 23 and 62 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed between 42 to 74 days after sample collection which exceeds the holding time requirement of 28 days and results were qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X922056-BLK1 R116-006F R303-006F R307-005F R50-006F	Organic Carbon	0.00968 %	None. The associated results were either not detected or reported at concentrations >5x the blank contamination.
X922158-BLK1 R116-006F R303-006F R307-005F R50-006F	Lead	0.046 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination
S19F018-CCB5 6/9/19 07:36 **S19F018-CCB6** 6/9/19 08:01 All samples listed above for X922158-BLK1	Lead Lead	0.011 mg/Kg* 0.033 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination

% – Percent > – Greater Than
CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R307-005F was used as the MS/MSD spike sample for the ICP and ICP-MS analyses. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

RPDs for the analytes were <35%. Recoveries for the analytes were within the acceptance range of 75-125%.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not required.

Serial Dilutions

Sample R307-005F was used for the serial dilution for the ICP and ICP-MS analyses.

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective detection limits. With the exceptions noted in the table below, the applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Sample ID	Analyte	Initial Sample Result (mg/Kg)	Serial Dilution Result (mg/Kg)	SD %D	Data Qualification
R307-005F	Iron	99500	115000	14.3 (10	The bias is considered to be low because the original result is less than the diluted result and the diluted result is considered to be more accurate. The associated result was qualified estimated, J SD-L
	Manganese	1410	1980	18.1 (10)	

%D – Percent Difference
ID – Identification
J – Estimated
L – Low Bias
SD – Serial Dilution
mg/kg – Milligrams per Kilogram

Field Duplicate Analysis

Field duplicate pairs were not associated with this data package. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries for project samples were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes

were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.79 SVL Data Package X9E0527 (-60 Mesh)

Data package X9E0527 contained the analytical results for five samples. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under COC. Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL were noted as N/A and were not documented. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

Except for paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 25 and 63 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, organic carbon samples were analyzed between 35 to 73 days after sample

collection which exceeds the holding time requirement of 28 days and results were qualified as estimated (UJ/J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X922056-BLK1 R01-014F R01-017F R118-011F R118-014F R302-006F	Organic Carbon	0.00968 %	None. The associated results were either not detected or reported at concentrations >5x the blank contamination.
X922159-BLK1 R01-014F R01-017F R118-011F R118-014F R302-006F	Lead	0.064 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination
S19F018-CCB6 6/9/19 08:01 **S19F018-CCB7** 6/9/19 08:22 All samples listed above for X922159-BLK1	Lead Lead	0.033 mg/Kg* 0.020 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination

% – Percent
> – Greater Than
CCB – Continuing Calibration Blank
mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

Sample R01-014F was used as the MS/MSD spike sample for the ICP and ICP-MS analyses. Sample results greater than four times the spike amount were not appropriate for assessing matrix interferences. An overall assessment of matrix spike and matrix spike duplicate results are discussed in Section 6.0.

Recoveries for the analytes were within the acceptance range of 75-125% and RPDs for the analytes were <35% with the exceptions shown below:

Sample	Analyte	MS/MSD %R (Limits)	RPD (Limits)	Data Qualification
R01-014F	Manganese	**155**/112/**140*** (75-125)	8.6/3.0* (<35)	As the potential bias was high, the associated manganese result for sample R01-014F was qualified as estimated (J MS-H)

%R – Percent Recoveries
MS – Matrix Spike
*MSD – ran in duplicate
J – Estimated
MS/MSD – Matrix Spike/Matrix Spike Duplicate
RPD – Relative Percent Difference
H – High Bias
< – Less Than

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

Sample R01-014F was used for the serial dilution for the ICP and ICP-MS analyses.

A serial dilution is pertinent to analytes present at concentrations greater than 50 times their respective MDL. The applicable percent differences were within ±10% for the 1:5 dilution of the sample.

Field Duplicate Analysis

Field duplicate pairs were not associated with this data package. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries for project samples were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.80 SVL Data Package X9E0700 (-10 Mesh)

Data package X9E0700 contained the analytical results for five samples and five field duplicates. The laboratory IDs and corresponding field IDs are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under COC. Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL were noted as N/A and were not documented. Based on the stability of the parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

Except for paste pH, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 23 and 28 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X905045-BLK1 R19-012F R19-013F	Organic Carbon	0.00964 %	None. The associated results were reported at concentrations >5x the blank contamination.
S19F037-CCB2 6/14/19 07:24 R19-008F R19-009F R19-010F R19-011F R19-012F R19-013F R19-014F R19-015F R56-006F R56-007F	Lead	0.014 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination
S19F037-CCB3 6/14/19 07:29 R19-009F R19-010F R19-011F R19-012F R19-013F R19-014F R19-015F	Lead	0.026 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination

% – Percent > – Greater Than
CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

A non-project sample (R55M-006F) was used for the MS/MSD. Results were not evaluated.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not required.

Serial Dilutions

One non-project sample was used for the serial dilution for the ICP and ICP-MS analyses. Results were not evaluated.

Field Duplicate Analysis

The five field duplicate pairs were R19-008F/R19-009F, R19-010F/R19-011F, R19-012F/R19-013F, R19-014F/R19-015F, and R56-006F /R56-007F. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes with the exception below. An overall assessment of field duplicate results is discussed in Section 6.0.

Sample ID	Analyte	Parent Sample Result (mg/Kg)	Field Duplicate Sample Result (mg/Kg)	Criteria	Data Qualification
R56-006F R56-007F	Manganese	1080	1950	RPD >50%	The associated parent and field duplicate results were qualified as estimated (J FD-I).

> – Greater Than
% – Percent
ID – Identification
FD – Field Duplicate
I – Indeterminate Bias
mg/Kg – Milligrams per Kilogram
J – Estimated

Internal Standards (ICP-MS)

The internal standard recoveries for project samples were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

5.81 SVL Data Package X9E0703 (-60 Mesh)

Data package X9E0703 contained the analytical results for three samples. The laboratory ID and corresponding field ID are presented in Attachment A.

Overall Assessment

The data are considered usable for meeting project objectives with the qualifications noted in the following narrative. The data qualifiers and associated qualifier and bias codes were hand-entered on the sample reporting forms. Results between the reporting limit and method detection limit were qualified as estimated (J SQL-I). The sample reporting forms are included in Appendix A.

COC and Sample Receipt Documentation

The samples were shipped to SVL under COC. Custody seals were present and intact. The sample custodian noted that the samples were intact.

The QAPP has a temperature requirement of 4°C +/- 2°C. Cooler temperatures upon arrival at SVL were noted as N/A and were not documented. Based on the stability of the

parameters of interest and the preparation procedure to air dry and sieve the samples prior to analysis, data qualification was not considered necessary.

Holding Times

Except for paste pH and organic carbon, the samples were prepared and analyzed within the required holding time limits. The samples were analyzed for paste pH between 23 and 28 days after collection, which exceeds the holding time requirement of two days. Therefore, the pH results were qualified as estimated (J HT-I) with an indeterminate bias. In addition, the holding time requirement of 28 days for organic carbon was exceeded for samples R19-010F (30 days) and R19-013F (33 days) and results were qualified as estimated (J HT-I) with an indeterminate bias.

Method Blanks and Calibration Blanks

With the exceptions listed in the table below, target analytes were not detected in the method and calibration blanks.

Associated Samples	Analyte	Concentration	Data Qualification
X905045-BLK1 R19-013F	Organic Carbon	0.00964 %	None. The associated results were reported at concentrations >5x the blank contamination.
X923181-BLK1 R19-010F R19-013F R56-007F	Lead	0.094 mg/Kg	None. The associated results were reported at concentrations >5x the blank contamination
S19F037-CCB3 6/14/19 07:29 **S19F037-CCB4** 6/14/19 08:09 R19-010F R19-013F R56-007F	Lead Lead	0.026 mg/Kg* 0.037 mg/Kg*	None. The associated results were reported at concentrations >5x the blank contamination

% – Percent > – Greater Than
CCB – Continuing Calibration Blank mg/Kg – Milligrams per Kilogram
* – Conversion from water to soil units using the prep factor and percent solid

Laboratory Control Samples

An LCS was performed by the laboratory for each preparation batch for the ICP, ICP/MS, organic carbon, and paste pH analyses. The associated percent recoveries met the control limits specified in the analytical report.

Laboratory Duplicate Sample Analysis

Laboratory duplicates were performed on the samples and associated analyses listed in Attachment C. The concentration-dependent evaluation criteria listed in Table 3-1 were met for the analytes.

Matrix Spike Analysis

MS/MSD results were reported for the ICP and ICP-MS analyses. A non-project sample (R55M-006F) was used and results were not evaluated.

Post Digestion Spikes (PDS)

A PDS is required when the MS or MSD recovery is outside acceptance limits or at the analyst's discretion. PDS samples were not reported.

Serial Dilutions

A non-project sample (R55M-006F) was used for the serial dilution for the ICP and ICP-MS analyses. Results were not evaluated.

Field Duplicate Analysis

Field duplicate pairs were not associated with this data package. An overall assessment of field duplicate results is discussed in Section 6.0.

Internal Standards (ICP-MS)

The internal standard recoveries for project samples were within the acceptance limits of 30-120%.

Interference Check Standards (ICS)

The ICS AB solutions were analyzed at the beginning of the analytical run. The target analytes were recovered within the acceptance range of 80-120%. Interfering elements associated to the sample target analytes were evaluated for interferences. Target analytes were not detected in the ICSA solution at concentrations greater than the MDL, indicating interferences were not found.

Calibration

Initial and continuing calibration verifications were done at the proper frequency and met the applicable criteria.

6. METHOD AND FIELD QUALITY PARAMETERS

The results obtained for the method and field quality control samples are discussed in the sections below.

6.1 Rinsate Blank Results

Rinsate blanks were not collected in association with this sampling event.

6.2 Field Duplicate Agreement

The table provided in Attachment C lists the site-samples and associated field duplicate pairs.

The field duplicate pairs collected for this sampling event did not meet the QAP frequency for field duplicate samples (10% per analysis method or once per week). However, 74 duplicate sample pairs were collected for the 10 mesh samples (630 total samples collected) for a 11.8% frequency and 21 field duplicate sample pairs were collected in association with the 60 mesh samples (213 total samples collected) for an 9.9% frequency. With the exceptions listed in Section 5.0, the field duplicate results satisfied the applicable evaluation criteria listed in Table 3-1. As field duplicate precision measurements outside acceptance criteria accounted for less than 35% of the field duplicates conducted, data qualification was limited to the affected parent sample and associated field duplicate results.

6.3 Laboratory Duplicate Agreement

The table provided in Attachment D illustrates the site-samples and associated laboratory duplicate pairs.

Laboratory duplicates were performed in accordance with the associated methods. Laboratory duplicates are selected by the laboratory and are not always performed on client/project-specific samples. Therefore, while the method-required frequency was met, the frequency of laboratory duplicates performed on project-specific samples did not meet the QAP frequency of one per twenty samples of a given matrix. However, additional precision data is offered by the comparison of LCS/LCSD, MS/MSD, and field duplicate results. With the exceptions listed in Section 5.0, the laboratory duplicate results satisfied the applicable evaluation criteria listed in Table 3-1.

With the exception listed in Section 5.1, the laboratory duplicate criteria between the parent and duplicate results were within the applicable concentration dependent evaluation criteria listed in Table 3-1.

6.4 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

The table provided in Attachment E lists the samples analyzed as MS/MSDs.

Forty-one MS/MSDs were performed on the 10 mesh samples (630 total samples collected) for a 6.5% frequency, and eighteen MS/MSDs were performed on the 60 mesh samples (213 total samples collected) for a 8.5% frequency; these frequencies met the historical frequency of one per twenty samples of a given matrix. With the exceptions listed in Section 5.0, the MS/MSD results satisfied the applicable evaluation criteria listed in Table 3-1 for accuracy and precision. As MS/MSD recoveries and precision measurements outside acceptance criteria accounted for less than 35% of the MS/MSD analyses conducted, data qualification was limited to the affected parent sample results, and application of overall data qualification to other sample results was not considered necessary.

7. OVERALL ASSESSMENT

The sample data are considered to be acceptable for use in meeting project objectives as qualified. This data validation report is accompanied by a separate DQAR in which the quality and usability of the data with respect to making project decisions is discussed. The DQAR is the written record of the reconciliation of the analytical data with the end use of the data and project objectives. This report contains detailed and specific discussions on the quality and usability of the analytical data for making specific project decisions.

A general overall assessment of each of the QAP's data quality assurance objectives is provided below.

7.1 Reporting Limits

Reporting limits (RLs) are established by the analytical laboratory based on the method detection limits (MDLs), historical data, and comparison to USEPA limits for the respective methods. With the exceptions listed below, the reporting limits satisfied the reporting limit requirements specified in the QAP.

The laboratory reported positive results between the MDL and the RL. To reflect the higher degree of uncertainty associated with values reported between the MDL and RL, these results were qualified as estimated ("J"). A qualifier code of SQL, denoting sample quantitation limit, was assigned to any results requiring qualification for this reason.

Several samples were analyzed at dilutions, which resulted in sample results reported as non-detect at elevated RLs. Therefore, these non-detect result will need to be evaluated by the end user of the data with respect to project objectives.

7.2 Accuracy

Accuracy is defined as the degree of agreement of a measurement to an accepted reference or true value. Accuracy was measured as the percent recovery (%R) of an analyte in a reference standard or spiked sample.

The initial calibration and initial and continuing calibration checks were within the QAP criteria. This demonstrates acceptable accuracy and traceability to a known and verified standard.

The linear range and CRDL checks for metals were evaluated and demonstrate acceptable accuracy across the range of concentrations reported.

Interference check samples were within the QAP criteria and successfully demonstrate that spectral interferences were corrected for accurately.

The ICPMS tuning was performed in accordance with the method and QAP and demonstrates that the instruments accurately identify the masses of the reported analytes.

The LCS/LCSD results and calibration standards were within acceptance limits demonstrating acceptable overall accuracy of the analytical system. As such, acceptable accuracy with respect to the analytical methods was demonstrated.

With the exceptions listed in Section 5.0, the MS/MSD recoveries and serial dilution percent differences were within the acceptance limits. No data were qualified as unusable on the basis of MS/MSD or serial dilution results. As such, acceptable accuracy with respect to the analytical methods and site-specific sample matrix was demonstrated.

No results were qualified as unusable on the basis of accuracy. As such, the overall level of accuracy demonstrated by the QC analyses is considered acceptable.

7.3 Precision

Precision is defined as the agreement between a set of replicate measurements without assumption or knowledge of the true value. Precision of laboratory measurements was evaluated by the comparison of laboratory duplicates, LCS to LCSD results, MS to MSD results, and parent to field duplicate results. Precision is expressed as an RPD or absolute difference between field duplicate results or laboratory duplicate results.

The tables provided in Attachment C and Attachment D illustrate the site-samples and associated field duplicate pairs and laboratory duplicate samples, respectively. The table in Attachment E lists the site-samples selected for MS/ MSD analysis.

With the exceptions listed in Section 5.0, the laboratory duplicate results, LCS/LCSD RPD results, MS/MSD RPD results, and field duplicate results satisfied the concentration-dependent field and laboratory duplicate precision criteria listed in Table 3-1 for the reported parameters.

The majority of the reported results were unqualified, and no results were qualified as unusable on the basis of precision. As such, the overall level of precision demonstrated by the QC analyses is considered acceptable.

7.4 Completeness

The results are considered usable as qualified. As such, the analytical completeness for the supplemental sampling, defined as the ratio of the number of valid analytical results (valid analytical results include estimated values) to the total number of analytical results requested on samples submitted for analysis, is 100%, which satisfies the QAP requirement of 80%. As such, the results are considered acceptable for use in meeting project objectives, as qualified.

7.5 Representativeness

Representativeness is the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness was maintained during sampling efforts by conducting sampling in compliance with the relevant SOPs.

Consistent, uniform sample collection protocols, including such tasks as storage, preservation and transportation, were used to assure that the representativeness of the samples gathered met project objectives. Proper documentation by the field and laboratory personnel verified that the protocols were followed and that sample identification as well as sample integrity was preserved.

However, the samples were held before being shipped to the laboratory and the samples were shipped without ice in the cooler. While this is a deviation to normal procedures, based on the stability of the parameters of interest, these deviations from the QAP are not considered to adversely affect the representativeness or usability of the data.

7.6 Comparability

Comparability expresses the confidence with which one data set can be compared to another. Comparability can be related to accuracy and precision because these quantities are measures of data reliability. Data are comparable if collection techniques, measurement procedures, method, and reporting limits are equivalent for the samples within a sample set. As the samples in this set were collected and analyzed in accordance

with the quality assurance and quality control measures prescribed in the QAP; and acceptable levels of overall accuracy and precision were attained, the data within this set are considered to be comparable to each other.

ATTACHMENTS

Attachment A – Data Package and Sample Identification Summary

Attachment B – Summary of Qualified Data

Attachment C – Summary of Field Duplicate Samples

Attachment D – Summary of Laboratory Duplicate Samples

Attachment E – Summary of Matrix Spike/Matrix Spike Duplicate Samples

Attachment A
Data Package and Sample Identificaton Summary

Report Section	Data Package	Field Sample Identification	Mesh Size
5.1	X8L0045	R19-001F	10
5.1	X8L0045	R19-002F	10
5.1	X8L0045	R19-003F	10
5.1	X8L0045	R19-004F	10
5.1	X8L0045	R19-006F	10
5.1	X8L0045	R19-007F	10
5.1	X8L0045	R20-001F	10
5.1	X8L0045	R20-002F	10
5.1	X8L0045	R20-003F	10
5.1	X8L0045	R20-004F	10
5.1	X8L0045	R20-006F	10
5.1	X8L0045	R21-001F	10
5.1	X8L0045	R21-002F	10
5.1	X8L0045	R21-003F	10
5.1	X8L0045	R21-004F	10
5.1	X8L0045	R22-001F	10
5.1	X8L0045	R22-002F	10
5.1	X8L0045	R22-003F	10
5.1	X8L0045	R22-004F	10
5.1	X8L0045	R23-001F	10
5.1	X8L0045	R23-002F	10
5.1	X8L0045	R23-006F	10
5.2	X8L0051	R19-003F	60
5.2	X8L0051	R19-006F	60
5.2	X8L0051	R20-002F	60
5.2	X8L0051	R21-002F	60
5.2	X8L0051	R22-003F	60
5.2	X8L0051	R23-001F	60
5.3	X8L0101	R23-003F	10
5.3	X8L0101	R23-004F	10
5.3	X8L0101	R24-001F	10
5.3	X8L0101	R24-002F	10
5.3	X8L0101	R24-003F	10
5.3	X8L0101	R24-004F	10
5.3	X8L0101	R24-006F	10
5.3	X8L0101	R25-001F	10
5.3	X8L0101	R25-002F	10
5.3	X8L0101	R25-003F	10
5.3	X8L0101	R25-004F	10
5.3	X8L0101	R26-001F	10
5.3	X8L0101	R26-002F	10
5.3	X8L0101	R26-003F	10
5.3	X8L0101	R26-004F	10
5.4	X8L0102	R27-001F	10
5.4	X8L0102	R27-002F	10
5.4	X8L0102	R27-003F	10
5.4	X8L0102	R27-004F	10
5.4	X8L0102	R28-001F	10

Attachment A
Data Package and Sample Identificaton Summary

Report Section	Data Package	Field Sample Identification	Mesh Size
5.4	X8L0102	R28-002F	10
5.4	X8L0102	R28-003F	10
5.4	X8L0102	R28-004F	10
5.4	X8L0102	R29-001F	10
5.4	X8L0102	R29-002F	10
5.4	X8L0102	R29-003F	10
5.4	X8L0102	R29-004F	10
5.4	X8L0102	R29-006F	10
5.4	X8L0102	R30-001F	10
5.4	X8L0102	R30-002F	10
5.5	X8L0103	R24-003F	60
5.5	X8L0103	R24-006F	60
5.5	X8L0103	R25-003F	60
5.5	X8L0103	R26-003F	60
5.5	X8L0103	R27-003F	60
5.5	X8L0103	R28-001F	60
5.5	X8L0103	R28-004F	60
5.5	X8L0103	R29-002F	60
5.5	X8L0103	R30-002F	60
5.6	X8L0136	R30-003F	10
5.6	X8L0136	R30-004F	10
5.6	X8L0136	R30-006F	10
5.6	X8L0136	R31-001F	10
5.6	X8L0136	R31-002F	10
5.6	X8L0136	R31-003F	10
5.6	X8L0136	R31-004F	10
5.6	X8L0136	R32-001F	10
5.6	X8L0136	R32-002F	10
5.6	X8L0136	R32-003F	10
5.6	X8L0136	R32-004F	10
5.6	X8L0136	R33-001F	10
5.6	X8L0136	R33-002F	10
5.6	X8L0136	R33-003F	10
5.6	X8L0136	R33-004F	10
5.6	X8L0136	R33-005F	10
5.7	X8L0137	R34-001F	10
5.7	X8L0137	R34-002F	10
5.7	X8L0137	R34-003F	10
5.7	X8L0137	R34-004F	10
5.7	X8L0137	R35-003F	10
5.7	X8L0137	R35-007F	10
5.7	X8L0137	R35-008F	10
5.7	X8L0137	R35-010F	10
5.7	X8L0137	R35-011F	10
5.7	X8L0137	R36-001F	10
5.7	X8L0137	R36-002F	10
5.7	X8L0137	R36-003F	10
5.7	X8L0137	R36-004F	10

Attachment A
Data Package and Sample Identificaton Summary

Report Section	Data Package	Field Sample Identification	Mesh Size
5.7	X8L0137	R37-001F	10
5.7	X8L0137	R37-002F	10
5.7	X8L0137	R37-004F	10
5.7	X8L0137	R37-005F	10
5.7	X8L0137	R37-006F	10
5.7	X8L0137	R37-007F	10
5.8	X8L0138	R31-002F	60
5.8	X8L0138	R32-002F	60
5.8	X8L0138	R33-003F	60
5.8	X8L0138	R34-001F	60
5.8	X8L0138	R34-004F	60
5.8	X8L0138	R35-008F	60
5.8	X8L0138	R36-001F	60
5.8	X8L0138	R36-004F	60
5.8	X8L0138	R37-004F	60
5.8	X8L0138	R37-007F	60
5.9	X8L0192	R38-001F	10
5.9	X8L0192	R38-002F	10
5.9	X8L0192	R38-003F	10
5.9	X8L0192	R38-004F	10
5.9	X8L0192	R38-005F	10
5.9	X8L0192	R40-001F	10
5.9	X8L0192	R40-002F	10
5.9	X8L0192	R40-003F	10
5.9	X8L0192	R40-004F	10
5.9	X8L0192	R41-001F	10
5.9	X8L0192	R41-002F	10
5.9	X8L0192	R41-003F	10
5.9	X8L0192	R41-004F	10
5.9	X8L0192	R41-005F	10
5.9	X8L0192	R41-006F	10
5.9	X8L0192	R42-001F	10
5.9	X8L0192	R42-002F	10
5.9	X8L0192	R42-003F	10
5.10	X8L0193	R42-004F	10
5.10	X8L0193	R79-001F	10
5.10	X8L0193	R79-002F	10
5.10	X8L0193	R79-003F	10
5.10	X8L0193	R79-004F	10
5.10	X8L0193	R14-001F	10
5.10	X8L0193	R14-002F	10
5.10	X8L0193	R14-003F	10
5.10	X8L0193	R14-004F	10
5.10	X8L0193	R14-005F	10
5.10	X8L0193	R15-001F	10
5.10	X8L0193	R15-002F	10
5.10	X8L0193	R15-003F	10
5.10	X8L0193	R15-004F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.10	X8L0193	R15-005F	10
5.10	X8L0193	R15-006F	10
5.10	X8L0193	R15-007F	10
5.10	X8L0193	R18-001F	10
5.10	X8L0193	R18-002F	10
5.11	X8L0196	R38-003F	60
5.11	X8L0196	R40-001F	60
5.11	X8L0196	R40-004F	60
5.11	X8L0196	R41-003F	60
5.11	X8L0196	R41-006F	60
5.11	X8L0196	R42-003F	60
5.11	X8L0196	R79-002F	60
5.11	X8L0196	R14-001F	60
5.11	X8L0196	R14-004F	60
5.11	X8L0196	R15-002F	60
5.11	X8L0196	R15-005F	60
5.11	X8L0196	R18-001F	60
5.12	X8L0282	R18-003F	10
5.12	X8L0282	R18-004F	10
5.12	X8L0282	R01-001F	10
5.12	X8L0282	R01-002F	10
5.12	X8L0282	R01-003F	10
5.12	X8L0282	R01-004F	10
5.12	X8L0282	R01-005F	10
5.12	X8L0282	R46-001F	10
5.12	X8L0282	R46-002F	10
5.12	X8L0282	R46-003F	10
5.12	X8L0282	R46-004F	10
5.12	X8L0282	R46-005F	10
5.12	X8L0282	R44-001F	10
5.12	X8L0282	R44-002F	10
5.12	X8L0282	R44-003F	10
5.12	X8L0282	R44-004F	10
5.12	X8L0282	R44-005F	10
5.13	X8L0283	R47-001F	10
5.13	X8L0283	R47-002F	10
5.13	X8L0283	R47-003F	10
5.13	X8L0283	R47-004F	10
5.13	X8L0283	R47-005F	10
5.13	X8L0283	R48-001F	10
5.13	X8L0283	R48-002F	10
5.13	X8L0283	R48-003F	10
5.13	X8L0283	R48-004F	10
5.13	X8L0283	R50-001F	10
5.13	X8L0283	R50-002F	10
5.13	X8L0283	R50-003F	10
5.13	X8L0283	R50-004F	10
5.13	X8L0283	R51-001F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.13	X8L0283	R51-002F	10
5.14	X8L0308	R51-003F	10
5.14	X8L0308	R51-004F	10
5.14	X8L0308	R51-005F	10
5.14	X8L0308	R52-001F	10
5.14	X8L0308	R52-002F	10
5.14	X8L0308	R52-003F	10
5.14	X8L0308	R52-005F	10
5.14	X8L0308	R55-001F	10
5.14	X8L0308	R55-002F	10
5.14	X8L0308	R55-003F	10
5.14	X8L0308	R55-004F	10
5.14	X8L0308	R55-005F	10
5.15	X8L0311	R01-001F	60
5.15	X8L0311	R01-004F	60
5.15	X8L0311	R46-002F	60
5.15	X8L0311	R46-005F	60
5.15	X8L0311	R44-003F	60
5.15	X8L0311	R47-003F	60
5.15	X8L0311	R48-001F	60
5.15	X8L0311	R48-004F	60
5.15	X8L0311	R50-003F	60
5.15	X8L0311	R51-002F	60
5.15	X8L0311	R51-003F	60
5.15	X8L0311	R52-001F	60
5.15	X8L0311	R52-005F	60
5.15	X8L0311	R55-003F	60
5.16	X8L0362	R4-001F	10
5.16	X8L0362	R4-002F	10
5.16	X8L0362	R4-003F	10
5.16	X8L0362	R4-004F	10
5.16	X8L0362	R4-005F	10
5.16	X8L0362	R6-001F	10
5.16	X8L0362	R6-002F	10
5.16	X8L0362	R6-003F	10
5.16	X8L0362	R6-004F	10
5.16	X8L0362	R10-001F	10
5.16	X8L0362	R10-002F	10
5.16	X8L0362	R10-003F	10
5.16	X8L0362	R10-004F	10
5.16	X8L0362	R11-001F	10
5.16	X8L0362	R11-002F	10
5.16	X8L0362	R11-003F	10
5.17	X8L0367	R11-004F	10
5.17	X8L0367	R11-005F	10
5.17	X8L0367	R85-001F	10
5.17	X8L0367	R85-002F	10
5.17	X8L0367	R85-003F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.17	X8L0367	R85-004F	10
5.17	X8L0367	R86-001F	10
5.17	X8L0367	R86-002F	10
5.17	X8L0367	R86-003F	10
5.17	X8L0367	R86-004F	10
5.18	X8L0411	R4-003F	60
5.18	X8L0411	R6-001F	60
5.18	X8L0411	R6-004F	60
5.18	X8L0411	R10-003F	60
5.18	X8L0411	R11-002F	60
5.18	X8L0411	R11-005F	60
5.18	X8L0411	R85-003F	60
5.18	X8L0411	R86-002F	60
5.19	X8L0423	R56-001F	10
5.19	X8L0423	R56-002F	10
5.19	X8L0423	R56-003F	10
5.19	X8L0423	R56-004F	10
5.19	X8L0423	R56-005F	10
5.19	X8L0423	R57-001F	10
5.19	X8L0423	R57-002F	10
5.19	X8L0423	R57-003F	10
5.19	X8L0423	R57-004F	10
5.19	X8L0423	R58-001F	10
5.19	X8L0423	R58-002F	10
5.19	X8L0423	R58-003F	10
5.19	X8L0423	R58-004F	10
5.20	X8L0431	R60-001F	10
5.20	X8L0431	R60-002F	10
5.20	X8L0431	R62-001F	10
5.20	X8L0431	R62-002F	10
5.20	X8L0431	R62-003F	10
5.20	X8L0431	R62-004F	10
5.20	X8L0431	R63-001F	10
5.20	X8L0431	R63-002F	10
5.20	X8L0431	R63-003F	10
5.20	X8L0431	R63-004F	10
5.20	X8L0431	R78-001F	10
5.20	X8L0431	R78-002F	10
5.20	X8L0431	R78-003F	10
5.20	X8L0431	R78-004F	10
5.20	X8L0431	R78-005F	10
5.21	X8L0435	R80-001F	10
5.21	X8L0435	R80-002F	10
5.21	X8L0435	R80-003F	10
5.21	X8L0435	R80-004F	10
5.21	X8L0435	R80-005F	10
5.21	X8L0435	R80-006F	10
5.21	X8L0435	R83-001F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.21	X8L0435	R83-002F	10
5.21	X8L0435	R83-003F	10
5.21	X8L0435	R83-004F	10
5.21	X8L0435	R84-001F	10
5.21	X8L0435	R84-002F	10
5.21	X8L0435	R84-003F	10
5.21	X8L0435	R84-004F	10
5.21	X8L0435	R84-005F	10
5.21	X8L0435	R84-006F	10
5.22	X8L0439	R56-002F	60
5.22	X8L0439	R56-005F	60
5.22	X8L0439	R57-003F	60
5.22	X8L0439	R58-002F	60
5.22	X8L0439	R60-001F	60
5.22	X8L0439	R62-002F	60
5.22	X8L0439	R63-001F	60
5.22	X8L0439	R63-004F	60
5.22	X8L0439	R78-003F	60
5.22	X8L0439	R80-003F	60
5.22	X8L0439	R80-006F	60
5.22	X8L0439	R83-003F	60
5.22	X8L0439	R84-002F	60
5.22	X8L0439	R84-005F	60
5.23	X8L0492	R87-001F	10
5.23	X8L0492	R87-002F	10
5.23	X8L0492	R87-003F	10
5.23	X8L0492	R87-004F	10
5.23	X8L0492	R89-001F	10
5.23	X8L0492	R89-002F	10
5.23	X8L0492	R89-003F	10
5.23	X8L0492	R89-004F	10
5.23	X8L0492	R90-001F	10
5.23	X8L0492	R90-002F	10
5.23	X8L0492	R90-003F	10
5.23	X8L0492	R90-004F	10
5.23	X8L0492	R93-001F	10
5.23	X8L0492	R93-002F	10
5.23	X8L0492	R93-003F	10
5.24	X8L0506	R93-004F	10
5.24	X8L0506	R93-005F	10
5.24	X8L0506	R94-001F	10
5.24	X8L0506	R94-002F	10
5.24	X8L0506	R94-003F	10
5.24	X8L0506	R94-004F	10
5.24	X8L0506	R95-001F	10
5.24	X8L0506	R95-002F	10
5.24	X8L0506	R116-001F	10
5.24	X8L0506	R116-002F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.24	X8L0506	R116-003F	10
5.24	X8L0506	R116-004F	10
5.24	X8L0506	R118-001F	10
5.24	X8L0506	R118-002F	10
5.24	X8L0506	R118-003F	10
5.24	X8L0506	R118-005F	10
5.24	X8L0506	R118-006F	10
5.24	X8L0506	R118-008F	10
5.24	X8L0506	R120-001F	10
5.24	X8L0506	R120-002F	10
5.24	X8L0506	R120-003F	10
5.24	X8L0506	R120-004F	10
5.24	X8L0506	R120-005F	10
5.25	X8L0508	R87-002F	60
5.25	X8L0508	R89-001F	60
5.25	X8L0508	R89-004F	60
5.25	X8L0508	R90-003F	60
5.25	X8L0508	R93-002F	60
5.25	X8L0508	R93-005F	60
5.25	X8L0508	R94-003F	60
5.25	X8L0508	R95-002F	60
5.25	X8L0508	R116-003F	60
5.25	X8L0508	R118-002F	60
5.25	X8L0508	R118-006F	60
5.25	X8L0508	R120-002F	60
5.25	X8L0508	R120-005F	60
5.26	X8L0534	R09-001F	10
5.26	X8L0534	R09-002F	10
5.26	X8L0534	R09-003F	10
5.26	X8L0534	R09-004F	10
5.26	X8L0534	R09-005F	10
5.26	X8L0534	R09-006F	10
5.26	X8L0534	R09-007F	10
5.26	X8L0534	R75-001F	10
5.26	X8L0534	R75-002F	10
5.26	X8L0534	R75-003F	10
5.26	X8L0534	R75-004F	10
5.26	X8L0534	R75-005F	10
5.26	X8L0534	R91-001F	10
5.27	X8L0537	R91-002F	10
5.27	X8L0537	R91-003F	10
5.27	X8L0537	R91-004F	10
5.27	X8L0537	R91-005F	10
5.27	X8L0537	R92-001F	10
5.27	X8L0537	R92-002F	10
5.27	X8L0537	R92-003F	10
5.27	X8L0537	R92-004F	10
5.27	X8L0537	R122-001F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.27	X8L0537	R122-002F	10
5.27	X8L0537	R122-003F	10
5.27	X8L0537	R122-004F	10
5.27	X8L0537	R122-005F	10
5.28	X8L0540	R09-003F	60
5.28	X8L0540	R09-006F	60
5.28	X8L0540	R75-003F	60
5.28	X8L0540	R91-001F	60
5.28	X8L0540	R91-003F	60
5.28	X8L0540	R92-001F	60
5.28	X8L0540	R122-002F	60
5.28	X8L0540	R122-005F	60
5.29	X8L0566	R02-001F	10
5.29	X8L0566	R02-002F	10
5.29	X8L0566	R02-003F	10
5.29	X8L0566	R02-004F	10
5.29	X8L0566	R02-005F	10
5.29	X8L0566	R03A-001F	10
5.29	X8L0566	R03A-002F	10
5.29	X8L0566	R03A-003F	10
5.29	X8L0566	R03A-004F	10
5.29	X8L0566	R03A-005F	10
5.29	X8L0566	R03B-001F	10
5.29	X8L0566	R03B-002F	10
5.29	X8L0566	R03B-003F	10
5.29	X8L0566	R03B-004F	10
5.30	X8L0569	R03B-005F	10
5.30	X8L0569	R03B-006F	10
5.30	X8L0569	R03B-007F	10
5.30	X8L0569	R52-004F	10
5.30	X8L0569	R97-001F	10
5.30	X8L0569	R97-002F	10
5.30	X8L0569	R97-003F	10
5.30	X8L0569	R97-004F	10
5.30	X8L0569	R97-005F	10
5.30	X8L0569	R97-006F	10
5.30	X8L0569	R97-007F	10
5.30	X8L0569	R98-001F	10
5.30	X8L0569	R98-002F	10
5.30	X8L0569	R98-003F	10
5.30	X8L0569	R98-004F	10
5.31	X8L0570	R02-003F	60
5.31	X8L0570	R03A-001F	60
5.31	X8L0570	R03A-004F	60
5.31	X8L0570	R03B-002F	60
5.31	X8L0570	R03B-005F	60
5.31	X8L0570	R52-004F	60
5.31	X8L0570	R97-003F	60

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.31	X8L0570	R97-005F	60
5.31	X8L0570	R98-001F	60
5.31	X8L0570	R98-004F	60
5.32	X9A0057	R103-001F	10
5.32	X9A0057	R103-002F	10
5.32	X9A0057	R103-003F	10
5.32	X9A0057	R103-004F	10
5.32	X9A0057	R104-001F	10
5.32	X9A0057	R104-002F	10
5.32	X9A0057	R104-003F	10
5.32	X9A0057	R104-004F	10
5.32	X9A0057	R104-005F	10
5.32	X9A0057	R105-001F	10
5.32	X9A0057	R105-002F	10
5.32	X9A0057	R105-003F	10
5.32	X9A0057	R105-004F	10
5.32	X9A0057	R117-001F	10
5.32	X9A0057	R117-002F	10
5.32	X9A0057	R117-003F	10
5.32	X9A0057	R117-004F	10
5.32	X9A0057	R117-005F	10
5.33	X9A0058	R103-002F	60
5.33	X9A0058	R104-001F	60
5.33	X9A0058	R104-004F	60
5.33	X9A0058	R105-002F	60
5.33	X9A0058	R117-001F	60
5.33	X9A0058	R117-004F	60
5.34	X9A0392	R121-001F	10
5.35	X9A0393	R36-005	60
5.35	X9A0393	R121-001F	60
5.36	X9A0414	B01-P1-2-025	10
5.36	X9A0414	B01-P1-3-014	10
5.36	X9A0414	B01-P1-3-016	10
5.36	X9A0414	B01-P2-2-012	10
5.36	X9A0414	ERA-29	10
5.36	X9A0414	RAN-01	10
5.36	X9A0414	RAN-02	10
5.36	X9A0414	U02-3200	10
5.36	X9A0414	U02-3102	10
5.36	X9A0414	U02-3104	10
5.36	X9A0414	B01-P1-2-021	10
5.36	X9A0414	B01-P1-3-013	10
5.36	X9A0414	B01-P1-3-024	10
5.36	X9A0414	B01-P1-3-025	10
5.36	X9A0414	B01-P2-2-004	10
5.36	X9A0414	U03-2200	10
5.36	X9A0414	U02-2102	10
5.36	X9A0414	U02-2100	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.36	X9A0414	U02-10154	10
5.36	X9A0414	U03-3200M	10
5.36	X9A0414	U02-3100	10
5.36	X9A0414	U03-10202	10
5.37	X9A0418	B01-P1-2-025	60
5.37	X9A0418	B01-P2-2-012	60
5.37	X9A0418	RAN-02	60
5.37	X9A0418	U02-3104	60
5.37	X9A0418	B01-P1-3-024	60
5.37	X9A0418	U03-2200	60
5.37	X9A0418	U02-10154	60
5.37	X9A0418	U03-10202	60
5.38	X9B0036	R09M-008F	60
5.38	X9B0036	R09M-011F	60
5.38	X9B0036	R09M-014F	60
5.38	X9B0036	R77M-002F	60
5.39	X9B0346	R101-001F	60
5.40	X9B0345	R101-001F	10
5.40	X9B0345	R101-002F	10
5.40	X9B0345	R102-001F	10
5.41	X9C0439	R302-001F	10
5.41	X9C0439	R302-002F	10
5.41	X9C0439	R302-003F	10
5.41	X9C0439	R302-004F	10
5.41	X9C0439	R302-005F	10
5.41	X9C0439	R303-001F	10
5.41	X9C0439	R303-002F	10
5.41	X9C0439	R303-003F	10
5.41	X9C0439	R303-004F	10
5.41	X9C0439	R303-005F	10
5.41	X9C0439	R304-001F	10
5.41	X9C0439	R304-002F	10
5.41	X9C0439	R304-003F	10
5.41	X9C0439	R304-004F	10
5.41	X9C0439	R304-005F	10
5.41	X9C0439	R61-001F	10
5.41	X9C0439	R61-002F	10
5.42	X9B0034	R09M-008F	10
5.42	X9B0034	R09M-009F	10
5.42	X9B0034	R09M-010F	10
5.42	X9B0034	R09M-011F	10
5.42	X9B0034	R09M-012F	10
5.42	X9B0034	R09M-013F	10
5.42	X9B0034	R09M-014F	10
5.42	X9B0034	R75M-006F	10
5.42	X9B0034	R77M-001F	10
5.42	X9B0034	R77M-002F	10
5.42	X9B0034	R77M-003F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.42	X9B0034	R77M-004F	10
5.43	X9C0444	TC East 001F	60
5.43	X9C0444	TC East 004F	60
5.43	X9C0444	TC West 001F	60
5.43	X9C0444	TC West 004F	60
5.43	X9C0444	R301-002F	60
5.43	X9C0444	R302-001F	60
5.43	X9C0444	R302-004F	60
5.43	X9C0444	R303-001F	60
5.43	X9C0444	R303-004F	60
5.43	X9C0444	R304-002F	60
5.43	X9C0444	R304-005F	60
5.44	X9C0434	TC East 001F	10
5.44	X9C0434	TC East 002F	10
5.44	X9C0434	TC East 003F	10
5.44	X9C0434	TC East 004F	10
5.44	X9C0434	TC East 005F	10
5.44	X9C0434	TC West 001F	10
5.44	X9C0434	TC West 002F	10
5.44	X9C0434	TC West 003F	10
5.44	X9C0434	TC West 004F	10
5.44	X9C0434	R301-001F	10
5.44	X9C0434	R301-002F	10
5.44	X9C0434	R301-003F	10
5.44	X9C0434	R301-004F	10
5.45	X9B0037	U03-1202M	10
5.45	X9B0037	U03-1200M	10
5.45	X9B0037	U03-7302M	10
5.45	X9B0037	B01-P3-3-012	10
5.45	X9B0037	B01-P3-3-010	10
5.45	X9B0037	B01-P3-3-075	10
5.45	X9B0037	RAN-03	10
5.45	X9B0037	RAN-04	10
5.45	X9B0037	RAN-05	10
5.45	X9B0037	RAN-06	10
5.45	X9B0037	RAN-07	10
5.45	X9B0037	RAN-08	10
5.46	X9B0038	U03-1202M	60
5.46	X9B0038	B01-P3-3-012	60
5.46	X9B0038	RAN-03	60
5.46	X9B0038	RAN-06	60
5.47	X9B0206	RAN-09	10
5.47	X9B0206	RAN-10	10
5.47	X9B0206	RAN-11	10
5.47	X9B0206	RAN-12	10
5.47	X9B0206	RAN-13	10
5.48	X9B0207	RAN-09	60
5.48	X9B0207	RAN-12	60

Attachment A
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Report Section	Data Package	Field Sample Identification	Mesh Size
5.49	X9C0533	U03-1301	10
5.49	X9C0533	U03-2305M	10
5.49	X9C0533	U03-2302	10
5.49	X9C0533	U03-3302	10
5.49	X9C0533	U03-3300M	10
5.49	X9C0533	U03-7303M	10
5.49	X9C0533	U03-7304M	10
5.49	X9C0533	U04-7304M	10
5.49	X9C0533	U03-7305M	10
5.49	X9C0533	B01-P3-2-001	10
5.49	X9C0533	B01-P3-2-010	10
5.49	X9C0533	B02-P3-2-010	10
5.49	X9C0533	B01-P3-2-012	10
5.49	X9C0533	B01-P3-2-052	10
5.50	X9C0536	B01-P3-3-001	10
5.50	X9C0536	B01-P3-3-005M	10
5.50	X9C0536	B01-P3-3-021	10
5.50	X9C0536	B01-P3-3-077	10
5.50	X9C0536	B02-P3-2-007	10
5.50	X9C0536	B01-P3-2-007	10
5.50	X9C0536	B01-P3-2-008	10
5.50	X9C0536	B02-P3-2-008	10
5.50	X9C0536	B01-P3-2-055	10
5.50	X9C0536	B02-P3-2-055	10
5.50	X9C0536	B01-P3-3-004	10
5.50	X9C0536	B02-P3-3-004	10
5.50	X9C0536	B01-P3-3-017M	10
5.50	X9C0536	B01-P3-3-020	10
5.50	X9C0536	B01-P3-2-004	10
5.51	X9C0538	U03-1301	60
5.51	X9C0538	U03-3302	60
5.51	X9C0538	U03-7304M	60
5.51	X9C0538	B01-P3-2-001	60
5.51	X9C0538	B01-P3-2-012	60
5.51	X9C0538	B01-P3-3-005M	60
5.51	X9C0538	B01-P3-2-007	60
5.51	X9C0538	B02-P3-2-008	60
5.51	X9C0538	B01-P3-3-004	60
5.51	X9C0538	B01-P3-3-020	60
5.52	X9E0093	U03-1302M	10
5.52	X9E0093	U03-3305M	10
5.52	X9E0093	U04-3305M	10
5.52	X9E0093	U03-3303M	10
5.52	X9E0093	U03-7300M	10
5.52	X9E0093	U03-7301M	10
5.52	X9E0093	B01-P3-3-022	10
5.52	X9E0093	B01-P3-3-025M	10
5.52	X9E0093	U03-9302M	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.52	X9E0093	B01-P3-2-015M	10
5.52	X9E0093	B01-P3-2-017M	10
5.52	X9E0093	U03-1306	10
5.52	X9E0093	U03-1304	10
5.52	X9E0093	U03-3311	10
5.52	X9E0093	U03-3309	10
5.52	X9E0093	U03-3308	10
5.53	X9E0097	U03-3306	10
5.53	X9E0097	U03-10357	10
5.53	X9E0097	U03-3324	10
5.53	X9E0097	B01-P3-2-022	10
5.53	X9E0097	B01-P3-2-023	10
5.53	X9E0097	B01-P3-3-032	10
5.53	X9E0097	B01-P3-3-034M	10
5.53	X9E0097	ERA-28M	10
5.53	X9E0097	U03-1307M	10
5.53	X9E0097	U03-10319	10
5.53	X9E0097	U03-10308	10
5.53	X9E0097	U03-10340	10
5.53	X9E0097	U03-3314	10
5.53	X9E0097	U03-3312	10
5.53	X9E0097	U04-3312	10
5.53	X9E0097	U03-10345	10
5.54	X9E0099	U03-1302M	60
5.54	X9E0099	U03-3303M	60
5.54	X9E0099	B01-P3-3-022	60
5.54	X9E0099	B01-P3-2-015M	60
5.54	X9E0099	U03-1304	60
5.54	X9E0099	U03-3308	60
5.54	X9E0099	U03-3324	60
5.54	X9E0099	B01-P3-3-032	60
5.54	X9E0099	U03-1307M	60
5.54	X9E0099	U03-10340	60
5.54	X9E0099	U04-3312	60
5.55	X9C0514	R12-001F	10
5.55	X9C0514	R12-002F	10
5.55	X9C0514	R12-003F	10
5.56	X9C0519	R84-007F	10
5.56	X9C0519	R84-008F	10
5.56	X9C0519	R84-009F	10
5.56	X9C0519	R84-010F	10
5.56	X9C0519	R87-005F	10
5.56	X9C0519	R87-006F	10
5.56	X9C0519	R89A-001F	10
5.56	X9C0519	R89A-002F	10
5.56	X9C0519	R89A-003F	10
5.56	X9C0519	R89A-004F	10
5.56	X9C0519	R89A-005F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.57	X9C0522	R12-003F	60
5.57	X9C0522	R84-009F	60
5.57	X9C0522	R87-005F	60
5.57	X9C0522	R89A-003F	60
5.58	X9D0024	R59-001F	10
5.58	X9D0024	R59-002F	10
5.58	X9D0024	R59-003F	10
5.58	X9D0024	R59-004F	10
5.58	X9D0024	R64-001F	10
5.58	X9D0024	R65-001F	10
5.58	X9D0024	R65-002F	10
5.58	X9D0024	R65-003F	10
5.58	X9D0024	R67-001F	10
5.58	X9D0024	R68-001F	10
5.58	X9D0024	R68-002F	10
5.59	X9D0029	R68-003F	10
5.59	X9D0029	R69-001F	10
5.59	X9D0029	R69-002F	10
5.59	X9D0029	R69-003F	10
5.59	X9D0029	R6/71-008F	10
5.59	X9D0029	R6/71-009F	10
5.59	X9D0029	R81-001F	10
5.59	X9D0029	R81-002F	10
5.59	X9D0029	R81-003F	10
5.59	X9D0029	R81-004F	10
5.59	X9D0029	R81-005F	10
5.59	X9D0029	R82-001F	10
5.59	X9D0029	R82-002F	10
5.59	X9D0029	R82-003F	10
5.60	X9D0033	R59-001F	60
5.60	X9D0033	R59-004F	60
5.60	X9D0033	R64-001F	60
5.60	X9D0033	R65-002F	60
5.60	X9D0033	R68-003F	60
5.60	X9D0033	R69-002F	60
5.60	X9D0033	R81-001F	60
5.60	X9D0033	R81-004F	60
5.60	X9D0033	R82-002F	60
5.61	X9D0226	R01-006F	10
5.61	X9D0226	R01-007F	10
5.61	X9D0226	R01-008F	10
5.61	X9D0226	R01-009F	10
5.61	X9D0226	R01-010F	10
5.61	X9D0226	R01-011F	10
5.61	X9D0226	R01-012F	10
5.61	X9D0226	R01-013F	10
5.62	X9D0229	R18-005F	10
5.62	X9D0229	R18-008F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.62	X9D0229	R18-009F	10
5.62	X9D0229	R18-010F	10
5.62	X9D0229	R50-005F	10
5.62	X9D0229	R52A-001F	10
5.62	X9D0229	R52A-002F	10
5.62	X9D0229	R52A-003F	10
5.62	X9D0229	R52A-004F	10
5.62	X9D0229	R52A-005F	10
5.62	X9D0229	R55M-001F	10
5.62	X9D0229	R55M-002F	10
5.62	X9D0229	R55M-003F	10
5.62	X9D0229	R55M-004F	10
5.62	X9D0229	R55M-005F	10
5.63	X9D0232	R01-008F	60
5.63	X9D0232	R01-011F	60
5.63	X9D0232	R18-005F	60
5.63	X9D0232	R18-010F	60
5.63	X9D0232	R52A-002F	60
5.63	X9D0232	R52A-005F	60
5.63	X9D0232	R55M-003F	60
5.64	X9D0341	R80-007F	10
5.64	X9D0341	R80-008F	10
5.64	X9D0341	R80-009F	10
5.64	X9D0341	R80-010F	10
5.64	X9D0341	R80-011F	10
5.64	X9D0341	R80-012F	10
5.64	X9D0341	R80-013F	10
5.64	X9D0341	R80-014F	10
5.64	X9D0341	R80-015F	10
5.65	X9D0345	R305-001F	10
5.65	X9D0345	R305-002F	10
5.65	X9D0345	R305-003F	10
5.65	X9D0345	R305-004F	10
5.65	X9D0345	R306-001F	10
5.65	X9D0345	R306-002F	10
5.65	X9D0345	R306-003F	10
5.65	X9D0345	R306-004F	10
5.65	X9D0345	R307-001F	10
5.65	X9D0345	R307-002F	10
5.65	X9D0345	R307-003F	10
5.65	X9D0345	R307-004F	10
5.65	X9D0345	R310-001F	10
5.65	X9D0345	R310-002F	10
5.65	X9D0345	R310-003F	10
5.65	X9D0345	R310-004	10
5.66	X9D0346	R80-007F	60
5.66	X9D0346	R80-010F	60
5.66	X9D0346	R80-013F	60

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.66	X9D0346	R305-002F	60
5.66	X9D0346	R306-003F	60
5.66	X9D0346	R307-002F	60
5.66	X9D0346	R310-001F	60
5.66	X9D0346	R310-004F	60
5.67	X9E0133	U03-1309M	10
5.67	X9E0133	U03-3317M	10
5.67	X9E0133	U03-3316	10
5.67	X9E0133	U04-10345	10
5.67	X9E0133	U03-3325	10
5.67	X9E0133	B01-P3-2-027	10
5.67	X9E0133	B01-P3-2-029	10
5.67	X9E0133	B01-P3-2-035M	10
5.67	X9E0133	B01-P3-2-037M	10
5.67	X9E0133	B01-P3-3-038M	10
5.67	X9E0133	B01-P3-3-041	10
5.67	X9E0133	B01-P3-2-028M	10
5.67	X9E0133	B01-P3-2-032M	10
5.67	X9E0133	B01-P3-2-034	10
5.67	X9E0133	B01-P3-3-043	10
5.67	X9E0133	B01-P3-3-045	10
5.68	X9E0137	B01-P3-3-046	10
5.68	X9E0137	B01-P3-3-050	10
5.68	X9E0137	B02-P3-3-050	10
5.68	X9E0137	U03-2316	10
5.68	X9E0137	U03-2315	10
5.68	X9E0137	U04-2315	10
5.68	X9E0137	U03-2312	10
5.68	X9E0137	U03-10346M	10
5.68	X9E0137	U03-3326M	10
5.68	X9E0137	B01-P3-3-078	10
5.68	X9E0137	B01-P3-3-049	10
5.68	X9E0137	B01-P3-3-080	10
5.68	X9E0137	U03-1311M	10
5.68	X9E0137	ERA-22M	10
5.68	X9E0137	ERA2-22M	10
5.69	X9E0140	U03-1309M	60
5.69	X9E0140	U04-10345	60
5.69	X9E0140	B01-P3-2-029	60
5.69	X9E0140	B01-P3-3-038M	60
5.69	X9E0140	B01-P3-2-032M	60
5.69	X9E0140	B01-P3-3-045	60
5.69	X9E0140	B02-P3-3-050	60
5.69	X9E0140	U04-2315	60
5.69	X9E0140	U03-3326M	60
5.69	X9E0140	B01-P3-3-080	60
5.70	X9E0289	U03-1400	10
5.70	X9E0289	U04-1400	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.70	X9E0289	U03-1317M	10
5.70	X9E0289	U03-1316M	10
5.70	X9E0289	U03-1313	10
5.70	X9E0289	U02-1105M	10
5.70	X9E0289	U02-1103	10
5.70	X9E0289	U02-1102M	10
5.70	X9E0289	U02-1100M	10
5.70	X9E0289	U03-2323	10
5.70	X9E0289	U04-2323	10
5.70	X9E0289	U03-2320	10
5.70	X9E0289	U03-2318M	10
5.70	X9E0289	U04-2318M	10
5.70	X9E0289	U03-10324	10
5.70	X9E0289	U03-10335	10
5.71	X9E0299	U03-3400	10
5.71	X9E0299	U03-3322	10
5.71	X9E0299	U03-3321	10
5.71	X9E0299	U03-3320	10
5.71	X9E0299	U03-3318	10
5.71	X9E0299	B01-P3-2-044M	10
5.71	X9E0299	B01-P3-2-047	10
5.71	X9E0299	B01-P3-2-061	10
5.71	X9E0299	B01-P3-2-042M	10
5.71	X9E0299	B01-P3-2-043M	10
5.71	X9E0299	B01-P3-2-045M	10
5.71	X9E0299	B01-P3-2-048M	10
5.71	X9E0299	B01-P3-3-053	10
5.71	X9E0299	B02-P3-3-053	10
5.71	X9E0299	B01-P3-3-056	10
5.71	X9E0299	B01-P3-3-057	10
5.71	X9E0299	B02-P3-3-057	10
5.71	X9E0299	B01-P3-3-059	10
5.71	X9E0299	B02-P3-3-059	10
5.72	X9E0309	U03-1400	60
5.72	X9E0309	U03-1316M	60
5.72	X9E0309	U02-1103	60
5.72	X9E0309	U03-2323	60
5.72	X9E0309	U03-2318M	60
5.72	X9E0309	U03-10335	60
5.72	X9E0309	U03-3321	60
5.72	X9E0309	B01-P3-2-044M	60
5.72	X9E0309	B01-P3-2-042M	60
5.72	X9E0309	B01-P3-2-048M	60
5.72	X9E0309	B01-P3-3-056	60
5.72	X9E0309	B01-P3-3-059	60
5.73	X9E0337	R59-005F	10
5.73	X9E0337	R80-016F	10
5.73	X9E0337	R80-017F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.73	X9E0337	R80-018F	10
5.73	X9E0337	R80-019F	10
5.73	X9E0337	R80-020F	10
5.73	X9E0337	R80-021F	10
5.73	X9E0337	R80-022F	10
5.73	X9E0337	R80-023F	10
5.73	X9E0337	R80-024F	10
5.73	X9E0337	R80-025F	10
5.73	X9E0337	R80-026F	10
5.74	X9E0342	R83-006F	10
5.74	X9E0342	R83-007F	10
5.74	X9E0342	R83-008F	10
5.74	X9E0342	R83-009F	10
5.74	X9E0342	R83-010F	10
5.74	X9E0342	R83-011F	10
5.74	X9E0342	R93-007F	10
5.74	X9E0342	R95-003F	10
5.74	X9E0342	R97-011F	10
5.74	X9E0342	R97-012F	10
5.74	X9E0342	R97-013F	10
5.74	X9E0342	R97-014F	10
5.74	X9E0342	R97-015F	10
5.74	X9E0342	R97-016F	10
5.74	X9E0342	R97-017F	10
5.74	X9E0342	R306-005F	10
5.75	X9E0351	R80-016F	60
5.75	X9E0351	R80-019F	60
5.75	X9E0351	R80-022F	60
5.75	X9E0351	R80-025F	60
5.75	X9E0351	R83-006F	60
5.75	X9E0351	R83-009F	60
5.75	X9E0351	R97-011F	60
5.75	X9E0351	R97-014F	60
5.75	X9E0351	R97-017F	60
5.76	X9E0523	R307-005F	10
5.76	X9E0523	R303-006F	10
5.76	X9E0523	R116-006F	10
5.76	X9E0523	R93A-001F	10
5.76	X9E0523	R47-007F	10
5.76	X9E0523	R50-006F	10
5.76	X9E0523	R51-006F	10
5.77	X9E0524	R01-014F	10
5.77	X9E0524	R01-015F	10
5.77	X9E0524	R01-016F	10
5.77	X9E0524	R01-017F	10
5.77	X9E0524	R301-005F	10
5.77	X9E0524	R302-006F	10
5.77	X9E0524	R118-010F	10

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Report Section	Data Package	Field Sample Identification	Mesh Size
5.77	X9E0524	R118-011F	10
5.77	X9E0524	R118-012F	10
5.77	X9E0524	R118-013F	10
5.77	X9E0524	R118-014F	10
5.78	X9E0526	R307-005F	60
5.78	X9E0526	R303-006F	60
5.78	X9E0526	R116-006F	60
5.78	X9E0526	R50-006F	60
5.79	X9E0527	R01-014F	60
5.79	X9E0527	R01-017F	60
5.79	X9E0527	R302-006F	60
5.79	X9E0527	R118-011F	60
5.79	X9E0527	R118-014F	60
5.80	X9E0700	R56-006F	10
5.80	X9E0700	R56-007F	10
5.80	X9E0700	R19-008F	10
5.80	X9E0700	R19-009F	10
5.80	X9E0700	R19-010F	10
5.80	X9E0700	R19-011F	10
5.80	X9E0700	R19-012F	10
5.80	X9E0700	R19-013F	10
5.80	X9E0700	R19-014F	10
5.80	X9E0700	R19-015F	10
5.81	X9E0703	R56-007F	60
5.81	X9E0703	R19-010F	60
5.81	X9E0703	R19-013F	60

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R19-001F	X8L0045-01	SW6020B	Arsenic	mg/kg	9.04 J	MS-L
R19-001F	X8L0045-01	SW6010D	Cadmium	mg/kg	1.85 J	SQL-I
R19-001F	X8L0045-01	SW6020B	Lead	mg/kg	414 J	LD-I
R19-001F	X8L0045-01	EPA 600/2-78-054	Organic Carbon	%	0.729 J	HT-I
R19-001F	X8L0045-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.8 J	HT-I
R19-001F	X8L0045-01	SW6010D	Zinc	mg/kg	217 J	MS-H
R19-002F	X8L0045-02	EPA 600/2-78-054	Organic Carbon	%	0.771 J	HT-I
R19-002F	X8L0045-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R19-003F	X8L0045-03	EPA 600/2-78-054	Organic Carbon	%	1.13 J	HT-I
R19-003F	X8L0045-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R19-004F	X8L0045-04	EPA 600/2-78-054	Organic Carbon	%	0.755 J	HT-I
R19-004F	X8L0045-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R19-006F	X8L0045-06	SW6020B	Lead	mg/kg	40.9 J	FD-I
R19-006F	X8L0045-06	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R19-006F	X8L0045-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R19-007F	X8L0045-07	SW6020B	Lead	mg/kg	90.9 J	FD-I
R19-007F	X8L0045-07	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R19-007F	X8L0045-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R20-001F	X8L0045-08	EPA 600/2-78-054	Organic Carbon	%	0.236 J	HT-I
R20-001F	X8L0045-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.7 J	HT-I
R20-002F	X8L0045-09	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R20-002F	X8L0045-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R20-003F	X8L0045-10	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R20-003F	X8L0045-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
R20-004F	X8L0045-11	SW6020B	Arsenic	mg/kg	3.33 J	MS-L
R20-004F	X8L0045-11	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R20-004F	X8L0045-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.6 J	HT-I
R20-006F	X8L0045-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R20-006F	X8L0045-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.2 J	HT-I
R21-001F	X8L0045-14	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R21-001F	X8L0045-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R21-002F	X8L0045-15	EPA 600/2-78-054	Organic Carbon	%	0.364 J	HT-I
R21-002F	X8L0045-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R21-003F	X8L0045-16	EPA 600/2-78-054	Organic Carbon	%	0.719 J	HT-I
R21-003F	X8L0045-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R21-004F	X8L0045-17	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R21-004F	X8L0045-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R22-001F	X8L0045-19	SW6010D	Cadmium	mg/kg	2.63 J	SQL-I
R22-001F	X8L0045-19	EPA 600/2-78-054	Organic Carbon	%	0.19 J	HT-I
R22-001F	X8L0045-19	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.6 J	HT-I
R22-002F	X8L0045-20	SW6010D	Cadmium	mg/kg	2.97 J	SQL-I
R22-002F	X8L0045-20	EPA 600/2-78-054	Organic Carbon	%	0.268 J	HT-I
R22-002F	X8L0045-20	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.8 J	HT-I
R22-003F	X8L0045-21	EPA 600/2-78-054	Organic Carbon	%	0.179 J	HT-I
R22-003F	X8L0045-21	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.5 J	HT-I
R22-004F	X8L0045-22	EPA 600/2-78-054	Organic Carbon	%	0.26 J	HT-I
R22-004F	X8L0045-22	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.6 J	HT-I
R23-001F	X8L0045-24	EPA 600/2-78-054	Organic Carbon	%	0.481 J	HT-I
R23-001F	X8L0045-24	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.6 J	HT-I
R23-002F	X8L0045-25	EPA 600/2-78-054	Organic Carbon	%	0.248 J	HT-I
R23-002F	X8L0045-25	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R23-006F	X8L0045-26	EPA 600/2-78-054	Organic Carbon	%	0.374 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R23-006F	X8L0045-26	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R19-003F	X8L0051-01	EPA 600/2-78-054	Organic Carbon	%	1.17 J	HT-I
R19-003F	X8L0051-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
R19-006F	X8L0051-02	EPA 600/2-78-054	Organic Carbon	%	0.318 J	HT-I
R19-006F	X8L0051-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R20-002F	X8L0051-03	EPA 600/2-78-054	Organic Carbon	%	0.375 J	HT-I
R20-002F	X8L0051-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R21-002F	X8L0051-05	EPA 600/2-78-054	Organic Carbon	%	0.631 J	HT-I
R21-002F	X8L0051-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R22-003F	X8L0051-07	EPA 600/2-78-054	Organic Carbon	%	0.299 J	HT-I
R22-003F	X8L0051-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.8 J	HT-I
R23-001F	X8L0051-08	EPA 600/2-78-054	Organic Carbon	%	0.771 J	HT-I
R23-001F	X8L0051-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.3 J	HT-I
R23-003F	X8L0101-01	SW6020B	Arsenic	mg/kg	2.65 J	MS-L
R23-003F	X8L0101-01	SW6010D	Cadmium	mg/kg	0.92 J	SQL-I
R23-003F	X8L0101-01	SW6010D	Iron	mg/kg	125000 J	SD-H
R23-003F	X8L0101-01	SW6020B	Lead	mg/kg	128 J	SD-L
R23-003F	X8L0101-01	EPA 600/2-78-054	Organic Carbon	%	0.162 J	HT-I
R23-003F	X8L0101-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.8 J	HT-I
R23-003F	X8L0101-01	SW6010D	Zinc	mg/kg	336 J	MS-I
R23-004F	X8L0101-02	EPA 600/2-78-054	Organic Carbon	%	0.263 J	HT-I
R23-004F	X8L0101-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	5 J	HT-I
R24-001F	X8L0101-04	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R24-001F	X8L0101-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.4 J	HT-I
R24-002F	X8L0101-05	SW6010D	Cadmium	mg/kg	1.07 J	SQL-I
R24-002F	X8L0101-05	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R24-002F	X8L0101-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R24-003F	X8L0101-06	EPA 600/2-78-054	Organic Carbon	%	0.342 J	HT-I
R24-003F	X8L0101-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	6 J	HT-I
R24-004F	X8L0101-07	SW6010D	Cadmium	mg/kg	0.79 J	SQL-I
R24-004F	X8L0101-07	EPA 600/2-78-054	Organic Carbon	%	0.19 J	HT-I
R24-004F	X8L0101-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R24-006F	X8L0101-09	SW6010D	Cadmium	mg/kg	0.89 J	SQL-I
R24-006F	X8L0101-09	EPA 600/2-78-054	Organic Carbon	%	0.16 J	HT-I
R24-006F	X8L0101-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R25-001F	X8L0101-10	EPA 600/2-78-054	Organic Carbon	%	0.246 J	HT-I
R25-001F	X8L0101-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
R25-002F	X8L0101-11	SW6010D	Cadmium	mg/kg	1.53 J	SQL-I
R25-002F	X8L0101-11	EPA 600/2-78-054	Organic Carbon	%	0.456 J	HT-I
R25-002F	X8L0101-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R25-003F	X8L0101-12	SW6010D	Cadmium	mg/kg	1.21 J	SQL-I
R25-003F	X8L0101-12	EPA 600/2-78-054	Organic Carbon	%	0.397 J	HT-I
R25-003F	X8L0101-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R25-004F	X8L0101-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R25-004F	X8L0101-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
R26-001F	X8L0101-16	EPA 600/2-78-054	Organic Carbon	%	0.214 J	HT-I
R26-001F	X8L0101-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.7 J	HT-I
R26-002F	X8L0101-17	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R26-002F	X8L0101-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.6 J	HT-I
R26-003F	X8L0101-18	SW6010D	Cadmium	mg/kg	1.58 J	SQL-I
R26-003F	X8L0101-18	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R26-003F	X8L0101-18	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.4 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R26-004F	X8L0101-19	EPA 600/2-78-054	Organic Carbon	%	0.162 J	HT-I
R26-004F	X8L0101-19	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.5 J	HT-I
R27-001F	X8L0102-02	EPA 600/2-78-054	Organic Carbon	%	0.168 J	HT-I
R27-001F	X8L0102-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.6 J	HT-I
R27-002F	X8L0102-03	SW6010D	Cadmium	mg/kg	1.66 J	SQL-I
R27-002F	X8L0102-03	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R27-002F	X8L0102-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R27-003F	X8L0102-04	SW6010D	Cadmium	mg/kg	1.75 J	SQL-I
R27-003F	X8L0102-04	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R27-003F	X8L0102-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R27-004F	X8L0102-05	SW6020B	Arsenic	mg/kg	3.6 J	IS-I
R27-004F	X8L0102-05	SW6010D	Cadmium	mg/kg	0.57 J	SQL-I
R27-004F	X8L0102-05	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R27-004F	X8L0102-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.5 J	HT-I
R28-001F	X8L0102-07	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R28-001F	X8L0102-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.3 J	HT-I
R28-002F	X8L0102-08	SW6010D	Cadmium	mg/kg	0.7 J	SQL-I
R28-002F	X8L0102-08	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R28-002F	X8L0102-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.4 J	HT-I
R28-003F	X8L0102-09	SW6010D	Cadmium	mg/kg	0.65 J	SQL-I
R28-003F	X8L0102-09	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R28-003F	X8L0102-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.5 J	HT-I
R28-004F	X8L0102-10	SW6010D	Cadmium	mg/kg	1.03 J	SQL-I
R28-004F	X8L0102-10	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R28-004F	X8L0102-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.9 J	HT-I
R29-001F	X8L0102-12	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R29-001F	X8L0102-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.2 J	HT-I
R29-002F	X8L0102-13	SW6010D	Cadmium	mg/kg	1.61 J	SQL-I
R29-002F	X8L0102-13	EPA 600/2-78-054	Organic Carbon	%	0.221 J	HT-I
R29-002F	X8L0102-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.1 J	HT-I
R29-003F	X8L0102-14	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R29-003F	X8L0102-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.1 J	HT-I
R29-004F	X8L0102-15	SW6010D	Cadmium	mg/kg	1.02 J	SQL-I
R29-004F	X8L0102-15	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R29-004F	X8L0102-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.5 J	HT-I
R29-006F	X8L0102-17	EPA 600/2-78-054	Organic Carbon	%	0.311 J	HT-I
R29-006F	X8L0102-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.1 J	HT-I
R30-001F	X8L0102-18	SW6010D	Cadmium	mg/kg	0.94 J	SQL-I
R30-001F	X8L0102-18	EPA 600/2-78-054	Organic Carbon	%	0.228 J	HT-I
R30-001F	X8L0102-18	EPA 600/2-78-054 MOD	Paste pH	pH Units	5 J	HT-I
R30-002F	X8L0102-19	SW6010D	Cadmium	mg/kg	0.9 J	SQL-I
R30-002F	X8L0102-19	EPA 600/2-78-054	Organic Carbon	%	0.199 J	HT-I
R30-002F	X8L0102-19	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.7 J	HT-I
R24-003F	X8L0103-02	SW6010D	Cadmium	mg/kg	2.54 J	SQL-I
R24-003F	X8L0103-02	EPA 600/2-78-054	Organic Carbon	%	0.313 J	HT-I
R24-003F	X8L0103-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
R24-006F	X8L0103-03	SW6010D	Cadmium	mg/kg	2.25 J	SQL-I
R24-006F	X8L0103-03	EPA 600/2-78-054	Organic Carbon	%	0.301 J	HT-I
R24-006F	X8L0103-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R25-003F	X8L0103-04	SW6010D	Cadmium	mg/kg	1.77 J	SQL-I
R25-003F	X8L0103-04	EPA 600/2-78-054	Organic Carbon	%	0.288 J	HT-I
R25-003F	X8L0103-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R26-003F	X8L0103-06	SW6010D	Cadmium	mg/kg	3.06 J	SQL-I
R26-003F	X8L0103-06	EPA 600/2-78-054	Organic Carbon	%	0.26 J	HT-I
R26-003F	X8L0103-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.6 J	HT-I
R27-003F	X8L0103-08	SW6010D	Cadmium	mg/kg	2.39 J	SQL-I
R27-003F	X8L0103-08	EPA 600/2-78-054	Organic Carbon	%	0.238 J	HT-I
R27-003F	X8L0103-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R28-001F	X8L0103-09	EPA 600/2-78-054	Organic Carbon	%	0.157 J	HT-I
R28-001F	X8L0103-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.6 J	HT-I
R28-004F	X8L0103-10	SW6010D	Cadmium	mg/kg	3.3 J	SQL-I
R28-004F	X8L0103-10	EPA 600/2-78-054	Organic Carbon	%	0.177 J	HT-I
R28-004F	X8L0103-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.3 J	HT-I
R29-002F	X8L0103-11	SW6010D	Cadmium	mg/kg	3.21 J	SQL-I
R29-002F	X8L0103-11	EPA 600/2-78-054	Organic Carbon	%	0.54 J	HT-I
R29-002F	X8L0103-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.2 J	HT-I
R30-002F	X8L0103-13	EPA 600/2-78-054	Organic Carbon	%	0.179 J	HT-I
R30-002F	X8L0103-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.8 J	HT-I
R30-003F	X8L0136-01	SW6010D	Cadmium	mg/kg	1.89 J	SQL-I
R30-003F	X8L0136-01	EPA 600/2-78-054	Organic Carbon	%	0.151 J	HT-I
R30-003F	X8L0136-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R30-004F	X8L0136-02	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R30-004F	X8L0136-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.3 J	HT-I
R30-006F	X8L0136-04	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R30-006F	X8L0136-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.2 J	HT-I
R31-001F	X8L0136-05	SW6010D	Cadmium	mg/kg	0.85 J	SQL-I
R31-001F	X8L0136-05	EPA 600/2-78-054	Organic Carbon	%	0.209 J	HT-I
R31-001F	X8L0136-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R31-002F	X8L0136-06	EPA 600/2-78-054	Organic Carbon	%	0.304 J	HT-I
R31-002F	X8L0136-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.5 J	HT-I
R31-003F	X8L0136-07	EPA 600/2-78-054	Organic Carbon	%	0.151 J	HT-I
R31-003F	X8L0136-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.5 J	HT-I
R31-004F	X8L0136-08	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R31-004F	X8L0136-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.3 J	HT-I
R32-001F	X8L0136-11	SW6010D	Cadmium	mg/kg	1.95 J	SQL-I
R32-001F	X8L0136-11	EPA 600/2-78-054	Organic Carbon	%	0.208 J	HT-I
R32-001F	X8L0136-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.3 J	HT-I
R32-002F	X8L0136-12	SW6010D	Cadmium	mg/kg	0.94 J	SQL-I
R32-002F	X8L0136-12	EPA 600/2-78-054	Organic Carbon	%	0.664 J	HT-I
R32-002F	X8L0136-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.7 J	HT-I
R32-003F	X8L0136-13	SW6010D	Cadmium	mg/kg	1.41 J	SQL-I
R32-003F	X8L0136-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R32-003F	X8L0136-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R32-004F	X8L0136-14	SW6010D	Cadmium	mg/kg	1.54 J	SQL-I
R32-004F	X8L0136-14	EPA 600/2-78-054	Organic Carbon	%	0.273 J	HT-I
R32-004F	X8L0136-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R33-001F	X8L0136-16	SW6010D	Cadmium	mg/kg	1.05 J	SQL-I
R33-001F	X8L0136-16	EPA 600/2-78-054	Organic Carbon	%	0.534 J	HT-I
R33-001F	X8L0136-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R33-002F	X8L0136-17	SW6010D	Cadmium	mg/kg	2.98 J	SQL-I
R33-002F	X8L0136-17	EPA 600/2-78-054	Organic Carbon	%	0.365 J	HT-I
R33-002F	X8L0136-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R33-003F	X8L0136-18	SW6010D	Cadmium	mg/kg	2.88 J	SQL-I
R33-003F	X8L0136-18	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R33-003F	X8L0136-18	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R33-004F	X8L0136-19	SW6010D	Cadmium	mg/kg	1.05 J	SQL-I
R33-004F	X8L0136-19	EPA 600/2-78-054	Organic Carbon	%	0.548 J	HT-I
R33-004F	X8L0136-19	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.6 J	HT-I
R33-005F	X8L0136-20	SW6010D	Cadmium	mg/kg	0.77 J	SQL-I
R33-005F	X8L0136-20	EPA 600/2-78-054	Organic Carbon	%	0.493 J	HT-I
R33-005F	X8L0136-20	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.5 J	HT-I
R34-001F	X8L0137-01	EPA 600/2-78-054	Organic Carbon	%	0.957 J	HT-I
R34-001F	X8L0137-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R34-002F	X8L0137-02	SW6010D	Cadmium	mg/kg	0.98 J	SQL-I
R34-002F	X8L0137-02	EPA 600/2-78-054	Organic Carbon	%	0.174 J	HT-I
R34-002F	X8L0137-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.6 J	HT-I
R34-003F	X8L0137-03	EPA 600/2-78-054	Organic Carbon	%	0.564 J	HT-I
R34-003F	X8L0137-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R34-004F	X8L0137-04	SW6010D	Cadmium	mg/kg	2.92 J	SQL-I
R34-004F	X8L0137-04	EPA 600/2-78-054	Organic Carbon	%	0.153 J	HT-I
R34-004F	X8L0137-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.3 J	HT-I
R35-003F	X8L0137-05	SW6010D	Cadmium	mg/kg	3.34 J	SQL-I
R35-003F	X8L0137-05	EPA 600/2-78-054	Organic Carbon	%	0.358 J	HT-I
R35-003F	X8L0137-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R35-007F	X8L0137-06	SW6010D	Cadmium	mg/kg	3.09 J	SQL-I
R35-007F	X8L0137-06	EPA 600/2-78-054	Organic Carbon	%	0.576 J	HT-I
R35-007F	X8L0137-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R35-008F	X8L0137-07	EPA 600/2-78-054	Organic Carbon	%	3.68 J	HT-I
R35-008F	X8L0137-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R35-010F	X8L0137-08	EPA 600/2-78-054	Organic Carbon	%	1.16 J	HT-I
R35-010F	X8L0137-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R35-011F	X8L0137-09	SW6010D	Cadmium	mg/kg	3.4 J	SQL-I
R35-011F	X8L0137-09	EPA 600/2-78-054	Organic Carbon	%	0.593 J	HT-I
R35-011F	X8L0137-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R36-001F	X8L0137-10	SW6010D	Cadmium	mg/kg	1.49 J	SQL-I
R36-001F	X8L0137-10	EPA 600/2-78-054	Organic Carbon	%	0.558 J	HT-I
R36-001F	X8L0137-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.9 J	HT-I
R36-002F	X8L0137-11	SW6010D	Cadmium	mg/kg	2.15 J	SQL-I
R36-002F	X8L0137-11	EPA 600/2-78-054	Organic Carbon	%	0.696 J	HT-I
R36-002F	X8L0137-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	6 J	HT-I
R36-003F	X8L0137-12	SW6010D	Cadmium	mg/kg	2.62 J	SQL-I
R36-003F	X8L0137-12	EPA 600/2-78-054	Organic Carbon	%	0.571 J	HT-I
R36-003F	X8L0137-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R36-004F	X8L0137-13	SW6010D	Cadmium	mg/kg	1.68 J	SQL-I
R36-004F	X8L0137-13	EPA 600/2-78-054	Organic Carbon	%	0.546 J	HT-I
R36-004F	X8L0137-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.1 J	HT-I
R37-001F	X8L0137-14	SW6010D	Cadmium	mg/kg	0.67 J	SQL-I
R37-001F	X8L0137-14	EPA 600/2-78-054	Organic Carbon	%	0.289 J	HT-I
R37-001F	X8L0137-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.3 J	HT-I
R37-002F	X8L0137-15	SW6010D	Cadmium	mg/kg	0.88 J	SQL-I
R37-002F	X8L0137-15	EPA 600/2-78-054	Organic Carbon	%	0.379 J	HT-I
R37-002F	X8L0137-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.4 J	HT-I
R37-004F	X8L0137-16	SW6010D	Cadmium	mg/kg	1.51 J	SQL-I
R37-004F	X8L0137-16	EPA 600/2-78-054	Organic Carbon	%	0.325 J	HT-I
R37-004F	X8L0137-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R37-005F	X8L0137-17	SW6010D	Cadmium	mg/kg	1.84 J	SQL-I

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Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R37-005F	X8L0137-17	EPA 600/2-78-054	Organic Carbon	%	0.344 J	HT-I
R37-005F	X8L0137-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.8 J	HT-I
R37-006F	X8L0137-18	SW6010D	Cadmium	mg/kg	2.06 J	SQL-I
R37-006F	X8L0137-18	EPA 600/2-78-054	Organic Carbon	%	0.729 J	HT-I
R37-006F	X8L0137-18	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R37-007F	X8L0137-19	SW6010D	Cadmium	mg/kg	1.66 J	SQL-I
R37-007F	X8L0137-19	EPA 600/2-78-054	Organic Carbon	%	0.199 J	HT-I
R37-007F	X8L0137-19	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
R31-002F	X8L0138-02	EPA 600/2-78-054	Organic Carbon	%	0.261 J	HT-I
R31-002F	X8L0138-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.5 J	HT-I
R32-002F	X8L0138-04	SW6010D	Cadmium	mg/kg	0.99 J	SQL-I
R32-002F	X8L0138-04	EPA 600/2-78-054	Organic Carbon	%	0.384 J	HT-I
R32-002F	X8L0138-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.6 J	HT-I
R33-003F	X8L0138-06	SW6010D	Cadmium	mg/kg	3.33 J	SQL-I
R33-003F	X8L0138-06	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R33-003F	X8L0138-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R34-001F	X8L0138-07	SW6010D	Cadmium	mg/kg	3.2 J	SQL-I
R34-001F	X8L0138-07	EPA 600/2-78-054	Organic Carbon	%	0.774 J	HT-I
R34-001F	X8L0138-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R34-004F	X8L0138-08	SW6010D	Cadmium	mg/kg	2.76 J	SQL-I
R34-004F	X8L0138-08	EPA 600/2-78-054	Organic Carbon	%	0.254 J	HT-I
R34-004F	X8L0138-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
R35-008F	X8L0138-09	EPA 600/2-78-054	Organic Carbon	%	2.83 J	HT-I
R35-008F	X8L0138-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R36-001F	X8L0138-10	SW6010D	Cadmium	mg/kg	1.15 J	SQL-I
R36-001F	X8L0138-10	EPA 600/2-78-054	Organic Carbon	%	0.469 J	HT-I
R36-001F	X8L0138-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.2 J	HT-I
R36-004F	X8L0138-11	SW6010D	Cadmium	mg/kg	1.73 J	SQL-I
R36-004F	X8L0138-11	EPA 600/2-78-054	Organic Carbon	%	0.514 J	HT-I
R36-004F	X8L0138-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.9 J	HT-I
R37-004F	X8L0138-12	SW6010D	Cadmium	mg/kg	1.57 J	SQL-I
R37-004F	X8L0138-12	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R37-004F	X8L0138-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R37-007F	X8L0138-13	SW6010D	Cadmium	mg/kg	1.77 J	SQL-I
R37-007F	X8L0138-13	EPA 600/2-78-054	Organic Carbon	%	0.417 J	HT-I
R37-007F	X8L0138-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.7 J	HT-I
R38-001F	X8L0192-01	EPA 600/2-78-054	Organic Carbon	%	0.84 J	HT-I
R38-001F	X8L0192-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R38-002F	X8L0192-02	SW6010D	Cadmium	mg/kg	2.89 J	SQL-I
R38-002F	X8L0192-02	EPA 600/2-78-054	Organic Carbon	%	0.245 J	HT-I
R38-002F	X8L0192-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R38-003F	X8L0192-03	SW6010D	Cadmium	mg/kg	3.73 J	SQL-I
R38-003F	X8L0192-03	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R38-003F	X8L0192-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R38-004F	X8L0192-04	SW6010D	Cadmium	mg/kg	3.65 J	SQL-I
R38-004F	X8L0192-04	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R38-004F	X8L0192-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R38-005F	X8L0192-05	EPA 600/2-78-054	Organic Carbon	%	0.618 J	HT-I
R38-005F	X8L0192-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R40-001F	X8L0192-06	EPA 600/2-78-054	Organic Carbon	%	0.656 J	HT-I
R40-001F	X8L0192-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R40-002F	X8L0192-07	SW6010D	Cadmium	mg/kg	3.89 J	SQL-I

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Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R40-002F	X8L0192-07	EPA 600/2-78-054	Organic Carbon	%	0.225 J	HT-I
R40-002F	X8L0192-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R40-003F	X8L0192-08	EPA 600/2-78-054	Organic Carbon	%	0.852 J	HT-I
R40-003F	X8L0192-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R40-004F	X8L0192-09	SW6010D	Cadmium	mg/kg	3.72 J	SQL-I
R40-004F	X8L0192-09	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R40-004F	X8L0192-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R41-001F	X8L0192-10	SW6010D	Cadmium	mg/kg	3.47 J	SQL-I
R41-001F	X8L0192-10	EPA 600/2-78-054	Organic Carbon	%	0.244 J	HT-I
R41-001F	X8L0192-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R41-002F	X8L0192-11	SW6010D	Cadmium	mg/kg	3.38 J	SQL-I
R41-002F	X8L0192-11	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R41-002F	X8L0192-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R41-003F	X8L0192-12	SW6010D	Cadmium	mg/kg	3.92 J	SQL-I
R41-003F	X8L0192-12	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R41-003F	X8L0192-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R41-004F	X8L0192-13	EPA 600/2-78-054	Organic Carbon	%	0.64 J	HT-I
R41-004F	X8L0192-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R41-005F	X8L0192-14	SW6010D	Cadmium	mg/kg	1.98 J	SQL-I
R41-005F	X8L0192-14	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R41-005F	X8L0192-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R41-006F	X8L0192-15	SW6010D	Cadmium	mg/kg	3.24 J	SQL-I
R41-006F	X8L0192-15	EPA 600/2-78-054	Organic Carbon	%	0.282 J	HT-I
R41-006F	X8L0192-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R42-001F	X8L0192-16	EPA 600/2-78-054	Organic Carbon	%	1.16 J	HT-I
R42-001F	X8L0192-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R42-002F	X8L0192-17	SW6010D	Cadmium	mg/kg	3.78 J	SQL-I
R42-002F	X8L0192-17	EPA 600/2-78-054	Organic Carbon	%	0.387 J	HT-I
R42-002F	X8L0192-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R42-003F	X8L0192-18	SW6010D	Cadmium	mg/kg	1.69 J	SQL-I
R42-003F	X8L0192-18	EPA 600/2-78-054	Organic Carbon	%	0.151 J	HT-I
R42-003F	X8L0192-18	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
R42-004F	X8L0193-01	EPA 600/2-78-054	Organic Carbon	%	0.244 J	HT-I
R42-004F	X8L0193-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R79-001F	X8L0193-02	SW6010D	Cadmium	mg/kg	1.66 J	SQL-I
R79-001F	X8L0193-02	EPA 600/2-78-054	Organic Carbon	%	1.2 J	HT-I
R79-001F	X8L0193-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R79-002F	X8L0193-03	SW6010D	Cadmium	mg/kg	1.77 J	SQL-I
R79-002F	X8L0193-03	SW6010D	Chromium	mg/kg	5.96 J	SQL-I
R79-002F	X8L0193-03	EPA 600/2-78-054	Organic Carbon	%	0.376 J	HT-I
R79-002F	X8L0193-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R79-003F	X8L0193-04	SW6010D	Cadmium	mg/kg	2.07 J	SQL-I
R79-003F	X8L0193-04	EPA 600/2-78-054	Organic Carbon	%	0.684 J	HT-I
R79-003F	X8L0193-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R79-004F	X8L0193-05	SW6010D	Cadmium	mg/kg	2.7 J	SQL-I
R79-004F	X8L0193-05	EPA 600/2-78-054	Organic Carbon	%	0.524 J	HT-I
R79-004F	X8L0193-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R14-001F	X8L0193-06	SW6010D	Cadmium	mg/kg	0.75 J	SQL-I
R14-001F	X8L0193-06	EPA 600/2-78-054	Organic Carbon	%	0.977 J	HT-I
R14-001F	X8L0193-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R14-002F	X8L0193-07	SW6010D	Cadmium	mg/kg	2.32 J	SQL-I
R14-002F	X8L0193-07	EPA 600/2-78-054	Organic Carbon	%	0.941 J	HT-I

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Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R14-002F	X8L0193-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R14-003F	X8L0193-08	SW6010D	Cadmium	mg/kg	2.03 J	SQL-I
R14-003F	X8L0193-08	EPA 600/2-78-054	Organic Carbon	%	0.984 J	HT-I
R14-003F	X8L0193-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R14-004F	X8L0193-09	SW6010D	Cadmium	mg/kg	1.59 J	SQL-I
R14-004F	X8L0193-09	EPA 600/2-78-054	Organic Carbon	%	0.419 J	HT-I
R14-004F	X8L0193-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R14-005F	X8L0193-10	SW6010D	Cadmium	mg/kg	1.73 J	SQL-I
R14-005F	X8L0193-10	EPA 600/2-78-054	Organic Carbon	%	0.778 J	HT-I
R14-005F	X8L0193-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R15-001F	X8L0193-11	SW6010D	Cadmium	mg/kg	1.47 J	SQL-I
R15-001F	X8L0193-11	EPA 600/2-78-054	Organic Carbon	%	0.485 J	HT-I
R15-001F	X8L0193-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.1 J	HT-I
R15-002F	X8L0193-12	SW6010D	Cadmium	mg/kg	3.96 J	SQL-I
R15-002F	X8L0193-12	EPA 600/2-78-054	Organic Carbon	%	0.577 J	HT-I
R15-002F	X8L0193-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R15-003F	X8L0193-13	SW6010D	Cadmium	mg/kg	3.46 J	SQL-I
R15-003F	X8L0193-13	EPA 600/2-78-054	Organic Carbon	%	0.274 J	HT-I
R15-003F	X8L0193-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R15-004F	X8L0193-14	SW6010D	Cadmium	mg/kg	3.86 J	SQL-I
R15-004F	X8L0193-14	EPA 600/2-78-054	Organic Carbon	%	0.421 J	HT-I
R15-004F	X8L0193-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R15-005F	X8L0193-15	SW6010D	Cadmium	mg/kg	1.82 J	SQL-I
R15-005F	X8L0193-15	SW6010D	Chromium	mg/kg	4.96 J	SQL-I
R15-005F	X8L0193-15	EPA 600/2-78-054	Organic Carbon	%	0.923 J	HT-I
R15-005F	X8L0193-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R15-006F	X8L0193-16	SW6010D	Cadmium	mg/kg	1.18 J	SQL-I
R15-006F	X8L0193-16	EPA 600/2-78-054	Organic Carbon	%	0.177 J	HT-I
R15-006F	X8L0193-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
R15-007F	X8L0193-17	SW6010D	Cadmium	mg/kg	3.48 J	SQL-I
R15-007F	X8L0193-17	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R15-007F	X8L0193-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R18-001F	X8L0193-18	SW6010D	Cadmium	mg/kg	4.00 U	MB-I
R18-001F	X8L0193-18	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R18-001F	X8L0193-18	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R18-002F	X8L0193-19	SW6010D	Cadmium	mg/kg	3.33 J	SQL-I
R18-002F	X8L0193-19	EPA 600/2-78-054	Organic Carbon	%	0.347 J	HT-I
R18-002F	X8L0193-19	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R38-003F	X8L0196-01	SW6010D	Cadmium	mg/kg	3.98 J	SQL-I
R38-003F	X8L0196-01	EPA 600/2-78-054	Organic Carbon	%	0.459 J	HT-I
R38-003F	X8L0196-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R40-001F	X8L0196-02	SW6010D	Cadmium	mg/kg	3.9 J	SQL-I
R40-001F	X8L0196-02	EPA 600/2-78-054	Organic Carbon	%	0.448 J	HT-I
R40-001F	X8L0196-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R40-004F	X8L0196-03	SW6010D	Cadmium	mg/kg	3.25 J	SQL-I
R40-004F	X8L0196-03	EPA 600/2-78-054	Organic Carbon	%	0.249 J	HT-I
R40-004F	X8L0196-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R41-003F	X8L0196-04	SW6010D	Cadmium	mg/kg	3.53 J	SQL-I
R41-003F	X8L0196-04	EPA 600/2-78-054	Organic Carbon	%	0.229 J	HT-I
R41-003F	X8L0196-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R41-006F	X8L0196-05	SW6010D	Cadmium	mg/kg	3.36 J	SQL-I
R41-006F	X8L0196-05	EPA 600/2-78-054	Organic Carbon	%	0.401 J	HT-I

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Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R41-006F	X8L0196-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R42-003F	X8L0196-06	SW6010D	Cadmium	mg/kg	1.27 J	SQL-I
R42-003F	X8L0196-06	EPA 600/2-78-054	Organic Carbon	%	0.154 J	HT-I
R42-003F	X8L0196-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.6 J	HT-I
R79-002F	X8L0196-07	SW6010D	Cadmium	mg/kg	1.05 J	SQL-I
R79-002F	X8L0196-07	EPA 600/2-78-054	Organic Carbon	%	0.373 J	HT-I
R79-002F	X8L0196-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R14-001F	X8L0196-08	SW6010D	Cadmium	mg/kg	0.76 J	SQL-I
R14-001F	X8L0196-08	EPA 600/2-78-054	Organic Carbon	%	0.451 J	HT-I
R14-001F	X8L0196-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R14-004F	X8L0196-09	SW6010D	Cadmium	mg/kg	2.14 J	SQL-I
R14-004F	X8L0196-09	EPA 600/2-78-054	Organic Carbon	%	0.69 J	HT-I
R14-004F	X8L0196-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R15-002F	X8L0196-10	SW6010D	Cadmium	mg/kg	3.44 J	SQL-I
R15-002F	X8L0196-10	EPA 600/2-78-054	Organic Carbon	%	0.333 J	HT-I
R15-002F	X8L0196-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R15-005F	X8L0196-11	SW6010D	Cadmium	mg/kg	1.66 J	SQL-I
R15-005F	X8L0196-11	EPA 600/2-78-054	Organic Carbon	%	0.926 J	HT-I
R15-005F	X8L0196-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R18-001F	X8L0196-12	SW6010D	Cadmium	mg/kg	3.05 J	SQL-I
R18-001F	X8L0196-12	EPA 600/2-78-054	Organic Carbon	%	0.152 J	HT-I
R18-001F	X8L0196-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R18-003F	X8L0282-01	SW6010D	Cadmium	mg/kg	3.76 J	SQL-I
R18-003F	X8L0282-01	EPA 600/2-78-054	Organic Carbon	%	1.2 J	HT-I
R18-003F	X8L0282-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R18-004F	X8L0282-02	SW6010D	Cadmium	mg/kg	2.48 J	SQL-I
R18-004F	X8L0282-02	EPA 600/2-78-054	Organic Carbon	%	4.2 J	HT-I
R18-004F	X8L0282-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R01-001F	X8L0282-03	SW6010D	Cadmium	mg/kg	1.41 J	SQL-I
R01-001F	X8L0282-03	EPA 600/2-78-054	Organic Carbon	%	0.896 J	HT-I
R01-001F	X8L0282-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R01-002F	X8L0282-04	SW6010D	Cadmium	mg/kg	2.91 J	SQL-I
R01-002F	X8L0282-04	EPA 600/2-78-054	Organic Carbon	%	1.19 J	HT-I
R01-002F	X8L0282-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R01-003F	X8L0282-05	SW6010D	Chromium	mg/kg	2.4 J	SQL-I
R01-003F	X8L0282-05	EPA 600/2-78-054	Organic Carbon	%	0.223 J	HT-I
R01-003F	X8L0282-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R01-004F	X8L0282-06	SW6010D	Chromium	mg/kg	3.87 J	SQL-I
R01-004F	X8L0282-06	EPA 600/2-78-054	Organic Carbon	%	0.425 J	HT-I
R01-004F	X8L0282-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R01-005F	X8L0282-07	SW6010D	Cadmium	mg/kg	0.77 J	SQL-I
R01-005F	X8L0282-07	SW6010D	Chromium	mg/kg	3.98 J	SQL-I
R01-005F	X8L0282-07	EPA 600/2-78-054	Organic Carbon	%	0.791 J	HT-I
R01-005F	X8L0282-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R46-001F	X8L0282-08	SW6010D	Cadmium	mg/kg	1.44 J	SQL-I
R46-001F	X8L0282-08	EPA 600/2-78-054	Organic Carbon	%	0.206 J	HT-I
R46-001F	X8L0282-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R46-002F	X8L0282-09	SW6010D	Cadmium	mg/kg	1.87 J	SQL-I
R46-002F	X8L0282-09	SW6010D	Chromium	mg/kg	2.34 J	SQL-I
R46-002F	X8L0282-09	EPA 600/2-78-054	Organic Carbon	%	0.332 J	HT-I
R46-002F	X8L0282-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	8 J	HT-I
R46-003F	X8L0282-10	SW6010D	Cadmium	mg/kg	1.88 J	SQL-I

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Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R46-003F	X8L0282-10	EPA 600/2-78-054	Organic Carbon	%	0.924 J	HT-I
R46-003F	X8L0282-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R46-004F	X8L0282-11	SW6010D	Cadmium	mg/kg	3.02 J	SQL-I
R46-004F	X8L0282-11	SW6010D	Copper	mg/kg	299 J	FD-I
R46-004F	X8L0282-11	EPA 600/2-78-054	Organic Carbon	%	0.213 J	HT-I
R46-004F	X8L0282-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R46-004F	X8L0282-11	SW6010D	Zinc	mg/kg	1260 J	FD-I
R46-005F	X8L0282-12	SW6010D	Cadmium	mg/kg	1.13 J	SQL-I
R46-005F	X8L0282-12	SW6010D	Chromium	mg/kg	5.68 J	SQL-I
R46-005F	X8L0282-12	SW6010D	Copper	mg/kg	147 J	FD-I
R46-005F	X8L0282-12	EPA 600/2-78-054	Organic Carbon	%	0.175 J	HT-I
R46-005F	X8L0282-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R46-005F	X8L0282-12	SW6010D	Zinc	mg/kg	307 J	FD-I
R44-001F	X8L0282-13	SW6010D	Chromium	mg/kg	3.59 J	SQL-I
R44-001F	X8L0282-13	EPA 600/2-78-054	Organic Carbon	%	1.03 J	HT-I
R44-001F	X8L0282-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R44-002F	X8L0282-14	SW6010D	Cadmium	mg/kg	1.24 J	SQL-I
R44-002F	X8L0282-14	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R44-002F	X8L0282-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
R44-003F	X8L0282-15	SW6010D	Cadmium	mg/kg	0.59 J	SQL-I
R44-003F	X8L0282-15	SW6010D	Manganese	mg/kg	555 J	FD-I
R44-003F	X8L0282-15	EPA 600/2-78-054	Organic Carbon	%	0.224 J	HT-I
R44-003F	X8L0282-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R44-004F	X8L0282-16	SW6010D	Cadmium	mg/kg	1.44 J	SQL-I
R44-004F	X8L0282-16	EPA 600/2-78-054	Organic Carbon	%	1.93 J	HT-I
R44-004F	X8L0282-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
R44-005F	X8L0282-17	SW6010D	Cadmium	mg/kg	0.81 J	SQL-I
R44-005F	X8L0282-17	SW6010D	Manganese	mg/kg	835 J	FD-I
R44-005F	X8L0282-17	EPA 600/2-78-054	Organic Carbon	%	0.733 J	HT-I
R44-005F	X8L0282-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	6 J	HT-I
R47-001F	X8L0283-02	EPA 600/2-78-054	Organic Carbon	%	1.19 J	HT-I
R47-001F	X8L0283-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R47-002F	X8L0283-03	SW6010D	Cadmium	mg/kg	3.47 J	SQL-I
R47-002F	X8L0283-03	EPA 600/2-78-054	Organic Carbon	%	0.662 J	HT,FD-I
R47-002F	X8L0283-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R47-003F	X8L0283-04	SW6010D	Cadmium	mg/kg	0.75 J	SQL-I
R47-003F	X8L0283-04	EPA 600/2-78-054	Organic Carbon	%	0.268 J	HT-I
R47-003F	X8L0283-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.6 J	HT-I
R47-004F	X8L0283-05	SW6010D	Cadmium	mg/kg	1.51 J	SQL-I
R47-004F	X8L0283-05	EPA 600/2-78-054	Organic Carbon	%	0.244 J	HT-I
R47-004F	X8L0283-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R47-005F	X8L0283-06	SW6010D	Cadmium	mg/kg	3.32 J	SQL-I
R47-005F	X8L0283-06	EPA 600/2-78-054	Organic Carbon	%	1.02 J	HT,FD-I
R47-005F	X8L0283-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R48-001F	X8L0283-07	SW6010D	Cadmium	mg/kg	2.96 J	SQL-I
R48-001F	X8L0283-07	EPA 600/2-78-054	Organic Carbon	%	0.558 J	HT-I
R48-001F	X8L0283-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R48-002F	X8L0283-08	SW6010D	Cadmium	mg/kg	1.37 J	SQL-I
R48-002F	X8L0283-08	EPA 600/2-78-054	Organic Carbon	%	0.855 J	HT-I
R48-002F	X8L0283-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R48-003F	X8L0283-09	SW6010D	Cadmium	mg/kg	2.19 J	SQL-I
R48-003F	X8L0283-09	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I

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Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R48-003F	X8L0283-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R48-004F	X8L0283-10	SW6010D	Cadmium	mg/kg	3.11 J	SQL-I
R48-004F	X8L0283-10	EPA 600/2-78-054	Organic Carbon	%	0.176 J	HT-I
R48-004F	X8L0283-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R50-001F	X8L0283-11	SW6010D	Cadmium	mg/kg	0.82 J	SQL-I
R50-001F	X8L0283-11	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R50-001F	X8L0283-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	5 J	HT-I
R50-002F	X8L0283-12	SW6010D	Cadmium	mg/kg	3.22 J	SQL-I
R50-002F	X8L0283-12	EPA 600/2-78-054	Organic Carbon	%	0.515 J	HT-I
R50-002F	X8L0283-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R50-003F	X8L0283-13	SW6010D	Cadmium	mg/kg	3.11 J	SQL-I
R50-003F	X8L0283-13	EPA 600/2-78-054	Organic Carbon	%	1.04 J	HT-I
R50-003F	X8L0283-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R50-004F	X8L0283-14	SW6010D	Cadmium	mg/kg	2.42 J	SQL-I
R50-004F	X8L0283-14	EPA 600/2-78-054	Organic Carbon	%	0.176 J	HT-I
R50-004F	X8L0283-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R51-001F	X8L0283-15	SW6010D	Cadmium	mg/kg	2.82 J	SQL-I
R51-001F	X8L0283-15	EPA 600/2-78-054	Organic Carbon	%	0.223 J	HT-I
R51-001F	X8L0283-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R51-002F	X8L0283-16	SW6010D	Cadmium	mg/kg	3.28 J	SQL-I
R51-002F	X8L0283-16	EPA 600/2-78-054	Organic Carbon	%	0.471 J	HT-I
R51-002F	X8L0283-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R51-003F	X8L0308-01	SW6010D	Cadmium	mg/kg	2.26 J	SQL-I
R51-003F	X8L0308-01	EPA 600/2-78-054	Organic Carbon	%	0.181 J	HT-I
R51-003F	X8L0308-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R51-004F	X8L0308-02	SW6010D	Cadmium	mg/kg	1.75 J	SQL-I
R51-004F	X8L0308-02	EPA 600/2-78-054	Organic Carbon	%	0.208 J	HT-I
R51-004F	X8L0308-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R51-005F	X8L0308-03	SW6010D	Cadmium	mg/kg	2.63 J	SQL-I
R51-005F	X8L0308-03	EPA 600/2-78-054	Organic Carbon	%	0.233 J	HT-I
R51-005F	X8L0308-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R52-001F	X8L0308-04	SW6010D	Cadmium	mg/kg	1.2 J	SQL-I
R52-001F	X8L0308-04	EPA 600/2-78-054	Organic Carbon	%	0.242 J	HT-I
R52-001F	X8L0308-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R52-002F	X8L0308-05	SW6010D	Cadmium	mg/kg	3.29 J	SQL-I
R52-002F	X8L0308-05	EPA 600/2-78-054	Organic Carbon	%	0.274 J	HT-I
R52-002F	X8L0308-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R52-003F	X8L0308-06	SW6010D	Cadmium	mg/kg	0.59 J	SQL-I
R52-003F	X8L0308-06	EPA 600/2-78-054	Organic Carbon	%	0.193 J	HT-I
R52-003F	X8L0308-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.3 J	HT-I
R52-005F	X8L0308-07	SW6010D	Cadmium	mg/kg	2.18 J	SQL-I
R52-005F	X8L0308-07	EPA 600/2-78-054	Organic Carbon	%	0.265 J	HT-I
R52-005F	X8L0308-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R55-001F	X8L0308-08	SW6010D	Cadmium	mg/kg	1.97 J	SQL-I
R55-001F	X8L0308-08	EPA 600/2-78-054	Organic Carbon	%	0.154 J	HT-I
R55-001F	X8L0308-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R55-002F	X8L0308-09	SW6010D	Cadmium	mg/kg	1.21 J	SQL-I
R55-002F	X8L0308-09	EPA 600/2-78-054	Organic Carbon	%	0.755 J	HT-I
R55-002F	X8L0308-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R55-003F	X8L0308-10	SW6010D	Cadmium	mg/kg	1.74 J	SQL-I
R55-003F	X8L0308-10	EPA 600/2-78-054	Organic Carbon	%	0.24 J	HT-I
R55-003F	X8L0308-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I

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Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R55-004F	X8L0308-11	SW6010D	Cadmium	mg/kg	1.98 J	SQL-I
R55-004F	X8L0308-11	EPA 600/2-78-054	Organic Carbon	%	0.257 J	HT-I
R55-004F	X8L0308-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R55-005F	X8L0308-12	SW6010D	Cadmium	mg/kg	2.2 J	SQL-I
R55-005F	X8L0308-12	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R55-005F	X8L0308-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R01-001F	X8L0311-01	SW6010D	Cadmium	mg/kg	3.53 J	SQL-I
R01-001F	X8L0311-01	EPA 600/2-78-054	Organic Carbon	%	0.419 J	HT-I
R01-001F	X8L0311-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R01-004F	X8L0311-02	SW6010D	Cadmium	mg/kg	0.96 J	SQL-I
R01-004F	X8L0311-02	EPA 600/2-78-054	Organic Carbon	%	0.401 J	HT-I
R01-004F	X8L0311-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R46-002F	X8L0311-03	EPA 600/2-78-054	Organic Carbon	%	0.332 J	HT-I
R46-002F	X8L0311-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R46-005F	X8L0311-04	SW6010D	Cadmium	mg/kg	3.36 J	SQL-I
R46-005F	X8L0311-04	EPA 600/2-78-054	Organic Carbon	%	0.235 J	HT-I
R46-005F	X8L0311-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R44-003F	X8L0311-05	SW6010D	Cadmium	mg/kg	1.43 J	SQL-I
R44-003F	X8L0311-05	EPA 600/2-78-054	Organic Carbon	%	0.774 J	HT-I
R44-003F	X8L0311-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R47-003F	X8L0311-07	SW6010D	Cadmium	mg/kg	0.95 J	SQL-I
R47-003F	X8L0311-07	EPA 600/2-78-054	Organic Carbon	%	0.619 J	HT-I
R47-003F	X8L0311-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.2 J	HT-I
R48-001F	X8L0311-08	SW6010D	Cadmium	mg/kg	3.63 J	SQL-I
R48-001F	X8L0311-08	EPA 600/2-78-054	Organic Carbon	%	0.444 J	HT-I
R48-001F	X8L0311-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R48-004F	X8L0311-09	SW6010D	Cadmium	mg/kg	2.59 J	SQL-I
R48-004F	X8L0311-09	EPA 600/2-78-054	Organic Carbon	%	0.235 J	HT-I
R48-004F	X8L0311-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R50-003F	X8L0311-10	SW6010D	Cadmium	mg/kg	3.34 J	SQL-I
R50-003F	X8L0311-10	EPA 600/2-78-054	Organic Carbon	%	0.42 J	HT-I
R50-003F	X8L0311-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R51-002F	X8L0311-11	SW6010D	Cadmium	mg/kg	3.59 J	SQL-I
R51-002F	X8L0311-11	EPA 600/2-78-054	Organic Carbon	%	0.552 J	HT-I
R51-002F	X8L0311-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R51-003F	X8L0311-12	SW6010D	Cadmium	mg/kg	3.29 J	SQL-I
R51-003F	X8L0311-12	EPA 600/2-78-054	Organic Carbon	%	0.181 J	HT-I
R51-003F	X8L0311-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R52-001F	X8L0311-13	SW6010D	Cadmium	mg/kg	1.45 J	SQL-I
R52-001F	X8L0311-13	EPA 600/2-78-054	Organic Carbon	%	0.168 J	HT-I
R52-001F	X8L0311-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R52-005F	X8L0311-14	SW6010D	Cadmium	mg/kg	2.94 J	SQL-I
R52-005F	X8L0311-14	EPA 600/2-78-054	Organic Carbon	%	0.389 J	HT-I
R52-005F	X8L0311-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R55-003F	X8L0311-15	SW6010D	Cadmium	mg/kg	1.86 J	SQL-I
R55-003F	X8L0311-15	EPA 600/2-78-054	Organic Carbon	%	0.27 J	HT-I
R55-003F	X8L0311-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R4-001F	X8L0362-01	SW6020B	Arsenic	mg/kg	2.47 J	MS-L
R4-001F	X8L0362-01	SW6010D	Cadmium	mg/kg	1.57 J	SQL-I
R4-001F	X8L0362-01	EPA 600/2-78-054	Organic Carbon	%	0.45 J	HT-I
R4-001F	X8L0362-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R4-002F	X8L0362-02	SW6010D	Cadmium	mg/kg	0.74 J	SQL-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R4-002F	X8L0362-02	EPA 600/2-78-054	Organic Carbon	%	0.504 J	HT-I
R4-002F	X8L0362-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R4-003F	X8L0362-03	EPA 600/2-78-054	Organic Carbon	%	0.597 J	HT-I
R4-003F	X8L0362-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	4 J	HT-I
R4-004F	X8L0362-04	SW6010D	Cadmium	mg/kg	1.25 J	SQL-I
R4-004F	X8L0362-04	EPA 600/2-78-054	Organic Carbon	%	0.334 J	HT-I
R4-004F	X8L0362-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R4-005F	X8L0362-05	SW6010D	Cadmium	mg/kg	0.58 J	SQL-I
R4-005F	X8L0362-05	EPA 600/2-78-054	Organic Carbon	%	0.41 J	HT-I
R4-005F	X8L0362-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.1 J	HT-I
R6-001F	X8L0362-06	SW6010D	Cadmium	mg/kg	2.11 J	SQL-I
R6-001F	X8L0362-06	EPA 600/2-78-054	Organic Carbon	%	0.452 J	HT-I
R6-001F	X8L0362-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R6-002F	X8L0362-07	SW6010D	Cadmium	mg/kg	2.69 J	SQL-I
R6-002F	X8L0362-07	EPA 600/2-78-054	Organic Carbon	%	0.669 J	HT-I
R6-002F	X8L0362-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R6-003F	X8L0362-08	SW6010D	Cadmium	mg/kg	1.5 J	SQL-I
R6-003F	X8L0362-08	EPA 600/2-78-054	Organic Carbon	%	1.05 J	HT-I
R6-003F	X8L0362-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R6-004F	X8L0362-09	SW6010D	Cadmium	mg/kg	2.67 J	SQL-I
R6-004F	X8L0362-09	EPA 600/2-78-054	Organic Carbon	%	0.648 J	HT-I
R6-004F	X8L0362-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R10-001F	X8L0362-10	SW6010D	Cadmium	mg/kg	0.66 J	SQL-I
R10-001F	X8L0362-10	EPA 600/2-78-054	Organic Carbon	%	1.17 J	HT-I
R10-001F	X8L0362-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	8.1 J	HT-I
R10-002F	X8L0362-11	SW6010D	Cadmium	mg/kg	1.18 J	SQL-I
R10-002F	X8L0362-11	SW6010D	Copper	mg/kg	318 J	FD-I
R10-002F	X8L0362-11	SW6010D	Iron	mg/kg	28700 J	FD-I
R10-002F	X8L0362-11	SW6020B	Lead	mg/kg	157 J	FD-I
R10-002F	X8L0362-11	EPA 600/2-78-054	Organic Carbon	%	0.908 J	HT-I
R10-002F	X8L0362-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R10-003F	X8L0362-12	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R10-003F	X8L0362-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	8.2 J	HT-I
R10-004F	X8L0362-13	SW6010D	Cadmium	mg/kg	1.52 J	SQL-I
R10-004F	X8L0362-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R10-004F	X8L0362-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
R11-001F	X8L0362-14	SW6010D	Cadmium	mg/kg	2.75 J	SQL-I
R11-001F	X8L0362-14	EPA 600/2-78-054	Organic Carbon	%	1.92 J	HT-I
R11-001F	X8L0362-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R11-002F	X8L0362-15	SW6010D	Cadmium	mg/kg	1.7 J	SQL-I
R11-002F	X8L0362-15	EPA 600/2-78-054	Organic Carbon	%	1.2 J	HT-I
R11-002F	X8L0362-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
R11-003F	X8L0362-16	SW6010D	Cadmium	mg/kg	3.43 J	SQL-I
R11-003F	X8L0362-16	EPA 600/2-78-054	Organic Carbon	%	1.21 J	HT-I
R11-003F	X8L0362-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R11-004F	X8L0367-01	SW6020B	Arsenic	mg/kg	2.55 J	MS-L
R11-004F	X8L0367-01	SW6010D	Cadmium	mg/kg	1.32 J	SQL-I
R11-004F	X8L0367-01	EPA 600/2-78-054	Organic Carbon	%	0.555 J	HT-I
R11-004F	X8L0367-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R11-004F	X8L0367-01	SW6010D	Zinc	mg/kg	381 J	MS-H
R11-005F	X8L0367-02	SW6010D	Cadmium	mg/kg	0.79 J	SQL-I
R11-005F	X8L0367-02	SW6010D	Copper	mg/kg	600 J	FD-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R11-005F	X8L0367-02	SW6010D	Iron	mg/kg	116000 J	FD-I
R11-005F	X8L0367-02	SW6020B	Lead	mg/kg	85.5 J	FD-I
R11-005F	X8L0367-02	EPA 600/2-78-054	Organic Carbon	%	0.996 J	HT-I
R11-005F	X8L0367-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.3 J	HT-I
R85-001F	X8L0367-06	SW6010D	Cadmium	mg/kg	1.42 J	SQL-I
R85-001F	X8L0367-06	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R85-001F	X8L0367-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R85-002F	X8L0367-07	SW6010D	Cadmium	mg/kg	1.85 J	SQL-I
R85-002F	X8L0367-07	EPA 600/2-78-054	Organic Carbon	%	0.282 J	HT-I
R85-002F	X8L0367-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R85-003F	X8L0367-08	SW6010D	Cadmium	mg/kg	1.67 J	SQL-I
R85-003F	X8L0367-08	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R85-003F	X8L0367-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R85-004F	X8L0367-09	SW6010D	Cadmium	mg/kg	0.88 J	SQL-I
R85-004F	X8L0367-09	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R85-004F	X8L0367-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	6 J	HT-I
R86-001F	X8L0367-10	SW6010D	Cadmium	mg/kg	1.4 J	SQL-I
R86-001F	X8L0367-10	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R86-001F	X8L0367-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R86-002F	X8L0367-11	SW6010D	Cadmium	mg/kg	1.36 J	SQL-I
R86-002F	X8L0367-11	EPA 600/2-78-054	Organic Carbon	%	1.21 J	HT-I
R86-002F	X8L0367-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	4 J	HT-I
R86-003F	X8L0367-12	SW6010D	Cadmium	mg/kg	0.79 J	SQL-I
R86-003F	X8L0367-12	EPA 600/2-78-054	Organic Carbon	%	1.2 J	HT-I
R86-003F	X8L0367-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.2 J	HT-I
R86-004F	X8L0367-13	SW6010D	Cadmium	mg/kg	1.69 J	SQL-I
R86-004F	X8L0367-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R86-004F	X8L0367-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R4-003F	X8L0411-01	SW6010D	Manganese	mg/kg	322 J	MS-H
R4-003F	X8L0411-01	EPA 600/2-78-054	Organic Carbon	%	0.338 J	HT-I
R4-003F	X8L0411-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.1 J	HT-I
R6-001F	X8L0411-02	SW6010D	Cadmium	mg/kg	1.81 J	SQL-I
R6-001F	X8L0411-02	EPA 600/2-78-054	Organic Carbon	%	0.599 J	HT-I
R6-001F	X8L0411-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R6-004F	X8L0411-03	SW6010D	Cadmium	mg/kg	3.58 J	SQL-I
R6-004F	X8L0411-03	EPA 600/2-78-054	Organic Carbon	%	0.679 J	HT-I
R6-004F	X8L0411-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R10-003F	X8L0411-04	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R10-003F	X8L0411-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	8 J	HT-I
R11-002F	X8L0411-05	SW6010D	Cadmium	mg/kg	0.89 J	SQL-I
R11-002F	X8L0411-05	EPA 600/2-78-054	Organic Carbon	%	0.928 J	HT-I
R11-002F	X8L0411-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
R11-005F	X8L0411-06	SW6010D	Cadmium	mg/kg	1.27 J	SQL-I
R11-005F	X8L0411-06	EPA 600/2-78-054	Organic Carbon	%	1.12 J	HT-I
R11-005F	X8L0411-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.1 J	HT-I
R85-003F	X8L0411-08	SW6010D	Cadmium	mg/kg	1.67 J	SQL-I
R85-003F	X8L0411-08	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R85-003F	X8L0411-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R86-002F	X8L0411-09	SW6010D	Cadmium	mg/kg	1.4 J	SQL-I
R86-002F	X8L0411-09	EPA 600/2-78-054	Organic Carbon	%	0.464 J	HT-I
R86-002F	X8L0411-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.3 J	HT-I
R56-001F	X8L0423-05	SW6010D	Cadmium	mg/kg	1.44 J	SQL-I

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Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R56-001F	X8L0423-05	EPA 600/2-78-054	Organic Carbon	%	0.321 J	HT-I
R56-001F	X8L0423-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R56-002F	X8L0423-06	SW6010D	Cadmium	mg/kg	2.07 J	SQL-I
R56-002F	X8L0423-06	EPA 600/2-78-054	Organic Carbon	%	0.999 J	HT-I
R56-002F	X8L0423-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R56-003F	X8L0423-07	SW6010D	Cadmium	mg/kg	1.48 J	SQL-I
R56-003F	X8L0423-07	EPA 600/2-78-054	Organic Carbon	%	0.702 J	HT-I
R56-003F	X8L0423-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R56-004F	X8L0423-08	SW6010D	Cadmium	mg/kg	3.17 J	SQL-I
R56-004F	X8L0423-08	EPA 600/2-78-054	Organic Carbon	%	0.65 J	HT-I
R56-004F	X8L0423-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R56-005F	X8L0423-09	SW6010D	Cadmium	mg/kg	3.02 J	SQL-I
R56-005F	X8L0423-09	EPA 600/2-78-054	Organic Carbon	%	0.685 J	HT-I
R56-005F	X8L0423-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R57-001F	X8L0423-10	SW6010D	Cadmium	mg/kg	2.5 J	SQL-I
R57-001F	X8L0423-10	EPA 600/2-78-054	Organic Carbon	%	0.17 J	HT-I
R57-001F	X8L0423-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R57-002F	X8L0423-11	SW6010D	Cadmium	mg/kg	3.51 J	SQL-I
R57-002F	X8L0423-11	EPA 600/2-78-054	Organic Carbon	%	0.454 J	HT-I
R57-002F	X8L0423-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R57-003F	X8L0423-12	SW6010D	Cadmium	mg/kg	2.43 J	SQL-I
R57-003F	X8L0423-12	EPA 600/2-78-054	Organic Carbon	%	0.189 J	HT-I
R57-003F	X8L0423-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R57-004F	X8L0423-13	SW6010D	Cadmium	mg/kg	3.43 J	SQL-I
R57-004F	X8L0423-13	EPA 600/2-78-054	Organic Carbon	%	0.151 J	HT-I
R57-004F	X8L0423-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R58-001F	X8L0423-14	SW6010D	Cadmium	mg/kg	2.39 J	SQL-I
R58-001F	X8L0423-14	EPA 600/2-78-054	Organic Carbon	%	0.943 J	HT-I
R58-001F	X8L0423-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R58-002F	X8L0423-15	SW6010D	Cadmium	mg/kg	1.61 J	SQL-I
R58-002F	X8L0423-15	EPA 600/2-78-054	Organic Carbon	%	0.151 J	HT-I
R58-002F	X8L0423-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R58-003F	X8L0423-16	SW6010D	Cadmium	mg/kg	1.82 J	SQL-I
R58-003F	X8L0423-16	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R58-003F	X8L0423-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R58-004F	X8L0423-17	EPA 600/2-78-054	Organic Carbon	%	0.192 J	HT-I
R58-004F	X8L0423-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R60-001F	X8L0431-01	SW6010D	Cadmium	mg/kg	2.75 J	SQL-I
R60-001F	X8L0431-01	SW6010D	Copper	mg/kg	349 J	MS-H
R60-001F	X8L0431-01	EPA 600/2-78-054	Organic Carbon	%	0.435 J	HT-I
R60-001F	X8L0431-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R60-002F	X8L0431-02	SW6010D	Cadmium	mg/kg	3.08 J	SQL-I
R60-002F	X8L0431-02	EPA 600/2-78-054	Organic Carbon	%	0.345 J	HT-I
R60-002F	X8L0431-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R62-001F	X8L0431-03	SW6010D	Cadmium	mg/kg	2.31 J	SQL-I
R62-001F	X8L0431-03	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R62-001F	X8L0431-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R62-002F	X8L0431-04	SW6010D	Cadmium	mg/kg	3.17 J	SQL-I
R62-002F	X8L0431-04	EPA 600/2-78-054	Organic Carbon	%	0.252 J	HT-I
R62-002F	X8L0431-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R62-003F	X8L0431-05	SW6010D	Cadmium	mg/kg	1.19 J	SQL-I
R62-003F	X8L0431-05	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R62-003F	X8L0431-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
R62-004F	X8L0431-06	SW6010D	Cadmium	mg/kg	0.75 J	SQL-I
R62-004F	X8L0431-06	EPA 600/2-78-054	Organic Carbon	%	0.279 J	HT-I
R62-004F	X8L0431-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.9 J	HT-I
R63-001F	X8L0431-07	SW6010D	Cadmium	mg/kg	3.54 J	SQL-I
R63-001F	X8L0431-07	EPA 600/2-78-054	Organic Carbon	%	0.177 J	HT-I
R63-001F	X8L0431-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R63-002F	X8L0431-08	SW6010D	Cadmium	mg/kg	3.38 J	SQL-I
R63-002F	X8L0431-08	EPA 600/2-78-054	Organic Carbon	%	0.947 J	HT-I
R63-002F	X8L0431-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R63-003F	X8L0431-09	SW6010D	Cadmium	mg/kg	2.26 J	SQL-I
R63-003F	X8L0431-09	EPA 600/2-78-054	Organic Carbon	%	0.233 J	HT-I
R63-003F	X8L0431-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R63-004F	X8L0431-10	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R63-004F	X8L0431-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R78-001F	X8L0431-11	SW6010D	Cadmium	mg/kg	1.33 J	SQL-I
R78-001F	X8L0431-11	EPA 600/2-78-054	Organic Carbon	%	0.206 J	HT-I
R78-001F	X8L0431-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R78-002F	X8L0431-12	SW6010D	Cadmium	mg/kg	1.06 J	SQL-I
R78-002F	X8L0431-12	EPA 600/2-78-054	Organic Carbon	%	0.216 J	HT-I
R78-002F	X8L0431-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R78-003F	X8L0431-13	SW6010D	Cadmium	mg/kg	0.89 J	SQL-I
R78-003F	X8L0431-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R78-003F	X8L0431-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.5 J	HT-I
R78-004F	X8L0431-14	SW6010D	Cadmium	mg/kg	0.99 J	SQL-I
R78-004F	X8L0431-14	EPA 600/2-78-054	Organic Carbon	%	0.204 J	HT-I
R78-004F	X8L0431-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R78-005F	X8L0431-15	SW6010D	Cadmium	mg/kg	0.75 J	SQL-I
R78-005F	X8L0431-15	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R78-005F	X8L0431-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.2 J	HT-I
R80-001F	X8L0435-01	SW6010D	Cadmium	mg/kg	2.16 J	SQL-I
R80-001F	X8L0435-01	EPA 600/2-78-054	Organic Carbon	%	0.313 J	HT-I
R80-001F	X8L0435-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R80-002F	X8L0435-02	SW6010D	Cadmium	mg/kg	1.28 J	SQL-I
R80-002F	X8L0435-02	EPA 600/2-78-054	Organic Carbon	%	0.242 J	HT-I
R80-002F	X8L0435-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.6 J	HT-I
R80-003F	X8L0435-03	SW6010D	Cadmium	mg/kg	1.04 J	SQL-I
R80-003F	X8L0435-03	EPA 600/2-78-054	Organic Carbon	%	0.277 J	HT-I
R80-003F	X8L0435-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R80-004F	X8L0435-04	SW6010D	Cadmium	mg/kg	1.57 J	SQL-I
R80-004F	X8L0435-04	EPA 600/2-78-054	Organic Carbon	%	0.157 J	HT-I
R80-004F	X8L0435-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R80-005F	X8L0435-05	SW6010D	Cadmium	mg/kg	2.11 J	SQL-I
R80-005F	X8L0435-05	EPA 600/2-78-054	Organic Carbon	%	0.232 J	HT-I
R80-005F	X8L0435-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R80-006F	X8L0435-06	SW6010D	Cadmium	mg/kg	3.33 J	SQL-I
R80-006F	X8L0435-06	EPA 600/2-78-054	Organic Carbon	%	0.286 J	HT-I
R80-006F	X8L0435-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R83-001F	X8L0435-07	SW6010D	Cadmium	mg/kg	1.69 J	SQL-I
R83-001F	X8L0435-07	EPA 600/2-78-054	Organic Carbon	%	0.276 J	HT-I
R83-001F	X8L0435-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R83-002F	X8L0435-08	SW6010D	Cadmium	mg/kg	1.58 J	SQL-I

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Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R83-002F	X8L0435-08	EPA 600/2-78-054	Organic Carbon	%	0.204 J	HT-I
R83-002F	X8L0435-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R83-003F	X8L0435-09	EPA 600/2-78-054	Organic Carbon	%	0.389 J	HT-I
R83-003F	X8L0435-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R83-004F	X8L0435-10	SW6010D	Cadmium	mg/kg	1.05 J	SQL-I
R83-004F	X8L0435-10	EPA 600/2-78-054	Organic Carbon	%	0.156 J	HT-I
R83-004F	X8L0435-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.8 J	HT-I
R84-001F	X8L0435-11	SW6010D	Cadmium	mg/kg	0.91 J	SQL-I
R84-001F	X8L0435-11	EPA 600/2-78-054	Organic Carbon	%	0.155 J	HT-I
R84-001F	X8L0435-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.7 J	HT-I
R84-002F	X8L0435-12	SW6010D	Cadmium	mg/kg	1.86 J	SQL-I
R84-002F	X8L0435-12	EPA 600/2-78-054	Organic Carbon	%	1.85 J	HT-I
R84-002F	X8L0435-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.4 J	HT-I
R84-003F	X8L0435-13	SW6010D	Cadmium	mg/kg	1.21 J	SQL-I
R84-003F	X8L0435-13	EPA 600/2-78-054	Organic Carbon	%	0.293 J	HT-I
R84-003F	X8L0435-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	6 J	HT-I
R84-004F	X8L0435-14	SW6010D	Cadmium	mg/kg	3.45 J	SQL-I
R84-004F	X8L0435-14	D2216	Moisture	%	0.8 J	FD-I
R84-004F	X8L0435-14	EPA 600/2-78-054	Organic Carbon	%	0.737 J	HT-I,FD-I
R84-004F	X8L0435-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R84-004F	X8L0435-14	SW6010D	Zinc	mg/kg	1450 J	FD-I
R84-005F	X8L0435-15	EPA 600/2-78-054	Organic Carbon	%	1.91 J	HT-I
R84-005F	X8L0435-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R84-006F	X8L0435-16	SW6010D	Cadmium	mg/kg	1.31 J	SQL-I
R84-006F	X8L0435-16	D2216	Moisture	%	2.7 J	FD-I
R84-006F	X8L0435-16	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I,FD-I
R84-006F	X8L0435-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.5 J	HT-I
R84-006F	X8L0435-16	SW6010D	Zinc	mg/kg	667 J	FD-I
R56-002F	X8L0439-02	SW6010D	Cadmium	mg/kg	2.62 J	SQL-I
R56-002F	X8L0439-02	EPA 600/2-78-054	Organic Carbon	%	1.22 J	HT-I
R56-002F	X8L0439-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R56-005F	X8L0439-03	SW6010D	Cadmium	mg/kg	3.8 J	SQL-I
R56-005F	X8L0439-03	EPA 600/2-78-054	Organic Carbon	%	0.743 J	HT-I
R56-005F	X8L0439-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R57-003F	X8L0439-04	SW6010D	Cadmium	mg/kg	2.63 J	SQL-I
R57-003F	X8L0439-04	EPA 600/2-78-054	Organic Carbon	%	0.24 J	HT-I
R57-003F	X8L0439-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R58-002F	X8L0439-05	SW6010D	Cadmium	mg/kg	2.5 J	SQL-I
R58-002F	X8L0439-05	EPA 600/2-78-054	Organic Carbon	%	0.286 J	HT-I
R58-002F	X8L0439-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R60-001F	X8L0439-06	SW6010D	Cadmium	mg/kg	2.64 J	SQL-I
R60-001F	X8L0439-06	EPA 600/2-78-054	Organic Carbon	%	0.951 J	HT-I
R60-001F	X8L0439-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R62-002F	X8L0439-07	SW6010D	Cadmium	mg/kg	2.35 J	SQL-I
R62-002F	X8L0439-07	EPA 600/2-78-054	Organic Carbon	%	0.314 J	HT-I
R62-002F	X8L0439-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R63-001F	X8L0439-08	SW6010D	Cadmium	mg/kg	3.52 J	SQL-I
R63-001F	X8L0439-08	EPA 600/2-78-054	Organic Carbon	%	0.882 J	HT-I
R63-001F	X8L0439-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R63-004F	X8L0439-09	SW6010D	Cadmium	mg/kg	1.26 J	SQL-I
R63-004F	X8L0439-09	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R63-004F	X8L0439-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I

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Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R78-003F	X8L0439-10	SW6010D	Cadmium	mg/kg	0.67 J	SQL-I
R78-003F	X8L0439-10	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R78-003F	X8L0439-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.2 J	HT-I
R80-003F	X8L0439-12	SW6010D	Cadmium	mg/kg	2.12 J	SQL-I
R80-003F	X8L0439-12	EPA 600/2-78-054	Organic Carbon	%	0.334 J	HT-I
R80-003F	X8L0439-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R80-006F	X8L0439-13	EPA 600/2-78-054	Organic Carbon	%	0.22 J	HT-I
R80-006F	X8L0439-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R83-003F	X8L0439-14	EPA 600/2-78-054	Organic Carbon	%	0.284 J	HT-I
R83-003F	X8L0439-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R84-002F	X8L0439-15	SW6010D	Cadmium	mg/kg	2.33 J	SQL-I
R84-002F	X8L0439-15	EPA 600/2-78-054	Organic Carbon	%	0.314 J	HT-I
R84-002F	X8L0439-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R84-005F	X8L0439-16	EPA 600/2-78-054	Organic Carbon	%	0.381 J	HT-I
R84-005F	X8L0439-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R87-001F	X8L0492-02	SW6010D	Cadmium	mg/kg	1.74 J	SQL-I
R87-001F	X8L0492-02	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R87-001F	X8L0492-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R87-002F	X8L0492-03	SW6010D	Cadmium	mg/kg	0.83 J	SQL-I
R87-002F	X8L0492-03	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R87-002F	X8L0492-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	6 J	HT-I
R87-003F	X8L0492-04	SW6010D	Cadmium	mg/kg	0.85 J	SQL-I
R87-003F	X8L0492-04	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R87-003F	X8L0492-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.8 J	HT-I
R87-004F	X8L0492-05	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R87-004F	X8L0492-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.4 J	HT-I
R89-001F	X8L0492-06	EPA 600/2-78-054	Organic Carbon	%	0.954 J	HT-I
R89-001F	X8L0492-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	8 J	HT-I
R89-002F	X8L0492-07	SW6010D	Cadmium	mg/kg	0.74 J	SQL-I
R89-002F	X8L0492-07	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R89-002F	X8L0492-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.3 J	HT-I
R89-003F	X8L0492-08	SW6010D	Cadmium	mg/kg	1.78 J	SQL-I
R89-003F	X8L0492-08	EPA 600/2-78-054	Organic Carbon	%	4.73 J	HT-I
R89-003F	X8L0492-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R89-004F	X8L0492-09	SW6010D	Cadmium	mg/kg	0.79 J	SQL-I
R89-004F	X8L0492-09	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R89-004F	X8L0492-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R90-001F	X8L0492-10	SW6010D	Cadmium	mg/kg	2.37 J	SQL-I
R90-001F	X8L0492-10	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R90-001F	X8L0492-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R90-002F	X8L0492-11	SW6010D	Cadmium	mg/kg	0.79 J	SQL-I
R90-002F	X8L0492-11	EPA 600/2-78-054	Organic Carbon	%	0.178 J	HT-I
R90-002F	X8L0492-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R90-003F	X8L0492-12	SW6010D	Cadmium	mg/kg	1.48 J	SQL-I
R90-003F	X8L0492-12	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R90-003F	X8L0492-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.2 J	HT-I
R90-004F	X8L0492-13	SW6010D	Cadmium	mg/kg	2.35 J	SQL-I
R90-004F	X8L0492-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R90-004F	X8L0492-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R93-001F	X8L0492-14	SW6010D	Cadmium	mg/kg	0.92 J	SQL-I
R93-001F	X8L0492-14	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R93-001F	X8L0492-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I

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Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R93-002F	X8L0492-15	SW6010D	Cadmium	mg/kg	1 J	SQL-I
R93-002F	X8L0492-15	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R93-002F	X8L0492-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.2 J	HT-I
R93-003F	X8L0492-16	SW6010D	Cadmium	mg/kg	2 J	SQL-I
R93-003F	X8L0492-16	D2216	Moisture	%	3.9 J	FD-I
R93-003F	X8L0492-16	EPA 600/2-78-054	Organic Carbon	%	0.322 J	HT-I
R93-003F	X8L0492-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R93-004F	X8L0506-01	SW6010D	Cadmium	mg/kg	1.96 J	SQL-I
R93-004F	X8L0506-01	EPA 600/2-78-054	Organic Carbon	%	0.958 J	HT-I
R93-004F	X8L0506-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.1 J	HT-I
R93-005F	X8L0506-02	SW6010D	Cadmium	mg/kg	1.35 J	SQL-I
R93-005F	X8L0506-02	D2216	Moisture	%	1.6 J	FD-I
R93-005F	X8L0506-02	EPA 600/2-78-054	Organic Carbon	%	0.37 J	HT-I
R93-005F	X8L0506-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R94-001F	X8L0506-03	EPA 600/2-78-054	Organic Carbon	%	0.297 J	HT-I
R94-001F	X8L0506-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.7 J	HT-I
R94-002F	X8L0506-04	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R94-002F	X8L0506-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.3 J	HT-I
R94-003F	X8L0506-05	EPA 600/2-78-054	Organic Carbon	%	0.497 J	HT-I
R94-003F	X8L0506-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R94-004F	X8L0506-06	SW6010D	Cadmium	mg/kg	2.61 J	SQL-I
R94-004F	X8L0506-06	EPA 600/2-78-054	Organic Carbon	%	1.16 J	HT-I
R94-004F	X8L0506-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R95-001F	X8L0506-07	SW6010D	Cadmium	mg/kg	3.98 J	SQL-I
R95-001F	X8L0506-07	EPA 600/2-78-054	Organic Carbon	%	0.561 J	HT-I
R95-001F	X8L0506-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R95-002F	X8L0506-08	SW6010D	Cadmium	mg/kg	1.34 J	SQL-I
R95-002F	X8L0506-08	EPA 600/2-78-054	Organic Carbon	%	0.425 J	HT-I
R95-002F	X8L0506-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R116-001F	X8L0506-09	SW6010D	Cadmium	mg/kg	0.97 J	SQL-I
R116-001F	X8L0506-09	EPA 600/2-78-054	Organic Carbon	%	0.846 J	HT-I
R116-001F	X8L0506-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R116-002F	X8L0506-10	SW6010D	Cadmium	mg/kg	1.06 J	SQL-I
R116-002F	X8L0506-10	EPA 600/2-78-054	Organic Carbon	%	0.295 J	HT-I
R116-002F	X8L0506-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R116-003F	X8L0506-11	SW6010D	Cadmium	mg/kg	0.69 J	SQL-I
R116-003F	X8L0506-11	EPA 600/2-78-054	Organic Carbon	%	0.479 J	HT-I
R116-003F	X8L0506-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.6 J	HT-I
R116-004F	X8L0506-12	SW6010D	Cadmium	mg/kg	1.86 J	SQL-I
R116-004F	X8L0506-12	EPA 600/2-78-054	Organic Carbon	%	0.233 J	HT-I
R116-004F	X8L0506-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R118-001F	X8L0506-13	SW6010D	Copper	mg/kg	393 J	MS-H
R118-001F	X8L0506-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R118-001F	X8L0506-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R118-002F	X8L0506-14	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R118-002F	X8L0506-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
R118-003F	X8L0506-15	SW6010D	Cadmium	mg/kg	1.53 J	SQL-I
R118-003F	X8L0506-15	EPA 600/2-78-054	Organic Carbon	%	0.234 J	HT-I
R118-003F	X8L0506-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.1 J	HT-I
R118-005F	X8L0506-16	SW6010D	Cadmium	mg/kg	1.82 J	SQL-I
R118-005F	X8L0506-16	EPA 600/2-78-054	Organic Carbon	%	0.473 J	HT-I
R118-005F	X8L0506-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.4 J	HT-I

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Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R118-006F	X8L0506-17	SW6010D	Cadmium	mg/kg	0.65 J	SQL-I
R118-006F	X8L0506-17	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R118-006F	X8L0506-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
R118-008F	X8L0506-18	SW6010D	Cadmium	mg/kg	1.24 J	SQL-I
R118-008F	X8L0506-18	EPA 600/2-78-054	Organic Carbon	%	0.245 J	HT-I
R118-008F	X8L0506-18	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.7 J	HT-I
R120-001F	X8L0506-19	SW6010D	Cadmium	mg/kg	0.89 J	SQL-I
R120-001F	X8L0506-19	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R120-001F	X8L0506-19	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.5 J	HT-I
R120-002F	X8L0506-20	SW6010D	Cadmium	mg/kg	2.62 J	SQL-I
R120-002F	X8L0506-20	EPA 600/2-78-054	Organic Carbon	%	0.552 J	HT-I
R120-002F	X8L0506-20	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R120-003F	X8L0506-21	SW6010D	Cadmium	mg/kg	1.99 J	SQL-I
R120-003F	X8L0506-21	EPA 600/2-78-054	Organic Carbon	%	0.306 J	HT-I
R120-003F	X8L0506-21	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R120-004F	X8L0506-22	SW6010D	Cadmium	mg/kg	1.23 J	SQL-I
R120-004F	X8L0506-22	EPA 600/2-78-054	Organic Carbon	%	0.204 J	HT-I
R120-004F	X8L0506-22	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R120-005F	X8L0506-23	SW6010D	Cadmium	mg/kg	1.68 J	SQL-I
R120-005F	X8L0506-23	EPA 600/2-78-054	Organic Carbon	%	0.193 J	HT-I
R120-005F	X8L0506-23	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R87-002F	X8L0508-01	SW6010D	Cadmium	mg/kg	1.31 J	SQL-I
R87-002F	X8L0508-01	EPA 600/2-78-054	Organic Carbon	%	0.152 J	HT-I
R87-002F	X8L0508-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.2 J	HT-I
R89-001F	X8L0508-02	EPA 600/2-78-054	Organic Carbon	%	0.164 J	HT-I
R89-001F	X8L0508-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	8 J	HT-I
R89-004F	X8L0508-03	SW6010D	Cadmium	mg/kg	1.19 J	SQL-I
R89-004F	X8L0508-03	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R89-004F	X8L0508-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R90-003F	X8L0508-04	SW6010D	Cadmium	mg/kg	1.48 J	SQL-I
R90-003F	X8L0508-04	EPA 600/2-78-054	Organic Carbon	%	0.191 J	HT-I
R90-003F	X8L0508-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
R93-002F	X8L0508-05	SW6010D	Cadmium	mg/kg	0.58 J	SQL-I
R93-002F	X8L0508-05	EPA 600/2-78-054	Organic Carbon	%	0.246 J	HT-I
R93-002F	X8L0508-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	5 J	HT-I
R93-005F	X8L0508-06	SW6010D	Cadmium	mg/kg	1.37 J	SQL-I
R93-005F	X8L0508-06	D2216	Moisture	%	1.8 J	FD-I
R93-005F	X8L0508-06	EPA 600/2-78-054	Organic Carbon	%	0.298 J	HT-I
R93-005F	X8L0508-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R94-003F	X8L0508-07	EPA 600/2-78-054	Organic Carbon	%	0.481 J	HT-I
R94-003F	X8L0508-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.3 J	HT-I
R95-002F	X8L0508-08	SW6010D	Cadmium	mg/kg	2.02 J	SQL-I
R95-002F	X8L0508-08	EPA 600/2-78-054	Organic Carbon	%	0.527 J	HT-I
R95-002F	X8L0508-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R116-003F	X8L0508-09	SW6010D	Cadmium	mg/kg	0.81 J	SQL-I
R116-003F	X8L0508-09	EPA 600/2-78-054	Organic Carbon	%	0.455 J	HT-I
R116-003F	X8L0508-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.3 J	HT-I
R118-002F	X8L0508-10	SW6010D	Cadmium	mg/kg	0.73 J	SQL-I
R118-002F	X8L0508-10	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R118-002F	X8L0508-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.4 J	HT-I
R118-006F	X8L0508-11	SW6010D	Cadmium	mg/kg	0.6 J	SQL-I
R118-006F	X8L0508-11	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I

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Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R118-006F	X8L0508-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	6 J	HT-I
R120-002F	X8L0508-12	SW6010D	Cadmium	mg/kg	2.9 J	SQL-I
R120-002F	X8L0508-12	EPA 600/2-78-054	Organic Carbon	%	0.527 J	HT-I
R120-002F	X8L0508-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R120-005F	X8L0508-13	SW6010D	Cadmium	mg/kg	1.66 J	SQL-I
R120-005F	X8L0508-13	EPA 600/2-78-054	Organic Carbon	%	0.275 J	HT-I
R120-005F	X8L0508-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R09-001F	X8L0534-01	SW6010D	Cadmium	mg/kg	3.13 J	SQL-I
R09-001F	X8L0534-01	EPA 600/2-78-054	Organic Carbon	%	0.41 J	HT-I
R09-001F	X8L0534-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R09-002F	X8L0534-02	SW6010D	Cadmium	mg/kg	1.11 J	SQL-I
R09-002F	X8L0534-02	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R09-002F	X8L0534-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
R09-003F	X8L0534-03	SW6010D	Cadmium	mg/kg	1.62 J	SQL-I
R09-003F	X8L0534-03	EPA 600/2-78-054	Organic Carbon	%	0.196 UJ	HT,MB-I
R09-003F	X8L0534-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R09-004F	X8L0534-04	SW6010D	Cadmium	mg/kg	1.34 J	SQL-I
R09-004F	X8L0534-04	EPA 600/2-78-054	Organic Carbon	%	0.168 UJ	HT,MB-I
R09-004F	X8L0534-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.4 J	HT-I
R09-005F	X8L0534-05	SW6010D	Cadmium	mg/kg	1.17 J	SQL-I
R09-005F	X8L0534-05	EPA 600/2-78-054	Organic Carbon	%	0.299 UJ	HT,MB-I
R09-005F	X8L0534-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R09-006F	X8L0534-06	SW6010D	Cadmium	mg/kg	0.81 J	SQL-I
R09-006F	X8L0534-06	EPA 600/2-78-054	Organic Carbon	%	1.22 J	HT-I
R09-006F	X8L0534-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.2 J	HT-I
R09-007F	X8L0534-07	SW6010D	Cadmium	mg/kg	1.27 J	SQL-I
R09-007F	X8L0534-07	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R09-007F	X8L0534-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
R75-001F	X8L0534-09	SW6010D	Cadmium	mg/kg	1.44 J	SQL-I
R75-001F	X8L0534-09	EPA 600/2-78-054	Organic Carbon	%	0.416 J	HT-I
R75-001F	X8L0534-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R75-002F	X8L0534-10	SW6010D	Cadmium	mg/kg	3.77 J	SQL-I
R75-002F	X8L0534-10	EPA 600/2-78-054	Organic Carbon	%	0.931 J	HT-I
R75-002F	X8L0534-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R75-003F	X8L0534-11	SW6010D	Cadmium	mg/kg	1.18 J	SQL-I
R75-003F	X8L0534-11	EPA 600/2-78-054	Organic Carbon	%	0.326 UJ	HT,MB-I
R75-003F	X8L0534-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.6 J	HT-I
R75-004F	X8L0534-12	SW6010D	Cadmium	mg/kg	1.27 J	SQL-I
R75-004F	X8L0534-12	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R75-004F	X8L0534-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.4 J	HT-I
R75-005F	X8L0534-13	SW6010D	Cadmium	mg/kg	1.43 J	SQL-I
R75-005F	X8L0534-13	EPA 600/2-78-054	Organic Carbon	%	0.391 J	HT-I
R75-005F	X8L0534-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R91-001F	X8L0534-14	SW6010D	Cadmium	mg/kg	1.04 J	SQL-I
R91-001F	X8L0534-14	EPA 600/2-78-054	Organic Carbon	%	0.186 UJ	HT,MB-I
R91-001F	X8L0534-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.8 J	HT-I
R91-002F	X8L0537-01	SW6020B	Arsenic	mg/kg	3.88 J	MS-L
R91-002F	X8L0537-01	SW6010D	Cadmium	mg/kg	1.42 J	SQL-I
R91-002F	X8L0537-01	EPA 600/2-78-054	Organic Carbon	%	0.778 J	HT-I
R91-002F	X8L0537-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R91-003F	X8L0537-02	SW6010D	Cadmium	mg/kg	0.97 J	SQL-I
R91-003F	X8L0537-02	EPA 600/2-78-054	Organic Carbon	%	0.289 J	HT-I

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Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R91-003F	X8L0537-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
R91-004F	X8L0537-03	SW6010D	Cadmium	mg/kg	1.66 J	SQL-I
R91-004F	X8L0537-03	EPA 600/2-78-054	Organic Carbon	%	0.355 J	HT-I
R91-004F	X8L0537-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R91-005F	X8L0537-04	SW6010D	Cadmium	mg/kg	1.22 J	SQL-I
R91-005F	X8L0537-04	EPA 600/2-78-054	Organic Carbon	%	0.525 J	HT-I
R91-005F	X8L0537-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R92-001F	X8L0537-05	SW6010D	Cadmium	mg/kg	1.04 J	SQL-I
R92-001F	X8L0537-05	EPA 600/2-78-054	Organic Carbon	%	0.347 J	HT-I
R92-001F	X8L0537-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.7 J	HT-I
R92-002F	X8L0537-06	SW6010D	Cadmium	mg/kg	1.26 J	SQL-I
R92-002F	X8L0537-06	EPA 600/2-78-054	Organic Carbon	%	0.485 J	HT-I
R92-002F	X8L0537-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	5 J	HT-I
R92-003F	X8L0537-07	SW6010D	Cadmium	mg/kg	0.71 J	SQL-I
R92-003F	X8L0537-07	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R92-003F	X8L0537-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.9 J	HT-I
R92-004F	X8L0537-08	SW6010D	Cadmium	mg/kg	1.21 J	SQL-I
R92-004F	X8L0537-08	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R92-004F	X8L0537-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.4 J	HT-I
R122-001F	X8L0537-09	SW6010D	Cadmium	mg/kg	0.75 J	SQL-I
R122-001F	X8L0537-09	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R122-001F	X8L0537-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.1 J	HT-I
R122-002F	X8L0537-10	SW6010D	Cadmium	mg/kg	2.37 J	SQL-I
R122-002F	X8L0537-10	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R122-002F	X8L0537-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.2 J	HT-I
R122-003F	X8L0537-11	SW6010D	Cadmium	mg/kg	0.64 J	SQL-I
R122-003F	X8L0537-11	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R122-003F	X8L0537-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.1 J	HT-I
R122-004F	X8L0537-12	SW6010D	Cadmium	mg/kg	1.21 J	SQL-I
R122-004F	X8L0537-12	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R122-004F	X8L0537-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	6 J	HT-I
R122-005F	X8L0537-13	SW6010D	Cadmium	mg/kg	0.72 J	SQL-I
R122-005F	X8L0537-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R122-005F	X8L0537-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.2 J	HT-I
R09-003F	X8L0540-01	SW6010D	Cadmium	mg/kg	1.74 J	SQL-I
R09-003F	X8L0540-01	EPA 600/2-78-054	Organic Carbon	%	0.263 J	HT-I
R09-003F	X8L0540-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	6 J	HT-I
R09-006F	X8L0540-02	SW6010D	Cadmium	mg/kg	1 J	SQL-I
R09-006F	X8L0540-02	EPA 600/2-78-054	Organic Carbon	%	0.58 J	HT-I
R09-006F	X8L0540-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
R75-003F	X8L0540-04	SW6010D	Cadmium	mg/kg	1.76 J	SQL-I
R75-003F	X8L0540-04	EPA 600/2-78-054	Organic Carbon	%	0.293 J	HT-I
R75-003F	X8L0540-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.8 J	HT-I
R91-001F	X8L0540-05	SW6010D	Cadmium	mg/kg	1.44 J	SQL-I
R91-001F	X8L0540-05	EPA 600/2-78-054	Organic Carbon	%	0.346 J	HT-I
R91-001F	X8L0540-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
R91-003F	X8L0540-06	SW6010D	Cadmium	mg/kg	0.82 J	SQL-I
R91-003F	X8L0540-06	EPA 600/2-78-054	Organic Carbon	%	0.16 J	HT-I
R91-003F	X8L0540-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.6 J	HT-I
R92-001F	X8L0540-07	SW6010D	Cadmium	mg/kg	0.87 J	SQL-I
R92-001F	X8L0540-07	EPA 600/2-78-054	Organic Carbon	%	0.253 J	HT-I
R92-001F	X8L0540-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.6 J	HT-I

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Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R122-002F	X8L0540-08	SW6010D	Cadmium	mg/kg	2.71 J	SQL-I
R122-002F	X8L0540-08	EPA 600/2-78-054	Organic Carbon	%	0.215 J	HT-I
R122-002F	X8L0540-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.1 J	HT-I
R122-005F	X8L0540-09	SW6010D	Cadmium	mg/kg	1.4 J	SQL-I
R122-005F	X8L0540-09	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R122-005F	X8L0540-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.2 J	HT-I
R02-001F	X8L0566-01	SW6010D	Cadmium	mg/kg	1.72 J	SQL-I
R02-001F	X8L0566-01	EPA 600/2-78-054	Organic Carbon	%	0.185 J	HT-I
R02-001F	X8L0566-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.8 J	HT-I
R02-002F	X8L0566-02	SW6010D	Cadmium	mg/kg	3.02 J	SQL-I
R02-002F	X8L0566-02	EPA 600/2-78-054	Organic Carbon	%	0.312 J	HT-I
R02-002F	X8L0566-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R02-003F	X8L0566-03	SW6010D	Cadmium	mg/kg	2.12 J	SQL-I
R02-003F	X8L0566-03	EPA 600/2-78-054	Organic Carbon	%	0.478 J	HT-I
R02-003F	X8L0566-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R02-004F	X8L0566-04	SW6010D	Cadmium	mg/kg	3.22 J	SQL-I
R02-004F	X8L0566-04	EPA 600/2-78-054	Organic Carbon	%	0.333 J	HT-I
R02-004F	X8L0566-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R02-005F	X8L0566-05	SW6010D	Cadmium	mg/kg	3 J	SQL-I
R02-005F	X8L0566-05	EPA 600/2-78-054	Organic Carbon	%	0.315 J	HT-I
R02-005F	X8L0566-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R03A-001F	X8L0566-06	EPA 600/2-78-054	Organic Carbon	%	1.25 J	HT-I
R03A-001F	X8L0566-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R03A-002F	X8L0566-07	SW6010D	Cadmium	mg/kg	0.98 J	SQL-I
R03A-002F	X8L0566-07	EPA 600/2-78-054	Organic Carbon	%	1.15 J	HT-I
R03A-002F	X8L0566-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R03A-003F	X8L0566-08	SW6010D	Cadmium	mg/kg	2.72 J	SQL-I
R03A-003F	X8L0566-08	EPA 600/2-78-054	Organic Carbon	%	0.337 J	HT-I
R03A-003F	X8L0566-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.1 J	HT-I
R03A-004F	X8L0566-09	SW6010D	Cadmium	mg/kg	2.85 J	SQL-I
R03A-004F	X8L0566-09	EPA 600/2-78-054	Organic Carbon	%	0.347 J	HT-I
R03A-004F	X8L0566-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.3 J	HT-I
R03A-005F	X8L0566-10	SW6010D	Cadmium	mg/kg	2.74 J	SQL-I
R03A-005F	X8L0566-10	EPA 600/2-78-054	Organic Carbon	%	0.611 J	HT-I
R03A-005F	X8L0566-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.2 J	HT-I
R03B-001F	X8L0566-11	SW6010D	Cadmium	mg/kg	0.7 J	SQL-I
R03B-001F	X8L0566-11	EPA 600/2-78-054	Organic Carbon	%	0.783 J	HT-I
R03B-001F	X8L0566-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R03B-002F	X8L0566-12	SW6010D	Cadmium	mg/kg	1.15 J	SQL-I
R03B-002F	X8L0566-12	EPA 600/2-78-054	Organic Carbon	%	0.527 J	HT-I
R03B-002F	X8L0566-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	8 J	HT-I
R03B-003F	X8L0566-13	SW6010D	Cadmium	mg/kg	1.05 J	SQL-I
R03B-003F	X8L0566-13	EPA 600/2-78-054	Organic Carbon	%	1.12 J	HT-I
R03B-003F	X8L0566-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R03B-004F	X8L0566-14	SW6010D	Cadmium	mg/kg	1.96 J	SQL-I
R03B-004F	X8L0566-14	EPA 600/2-78-054	Organic Carbon	%	0.669 J	HT-I
R03B-004F	X8L0566-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	8.1 J	HT-I
R03B-005F	X8L0569-01	SW6020B	Arsenic	mg/kg	5.02 J	MS-L
R03B-005F	X8L0569-01	SW6010D	Cadmium	mg/kg	2.26 J	SQL-I
R03B-005F	X8L0569-01	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R03B-005F	X8L0569-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R03B-006F	X8L0569-02	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I

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Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R03B-006F	X8L0569-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.7 J	HT-I
R03B-007F	X8L0569-03	SW6010D	Cadmium	mg/kg	1.12 J	SQL-I
R03B-007F	X8L0569-03	EPA 600/2-78-054	Organic Carbon	%	0.504 J	HT-I
R03B-007F	X8L0569-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R52-004F	X8L0569-04	SW6010D	Cadmium	mg/kg	1.06 J	SQL-I
R52-004F	X8L0569-04	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R52-004F	X8L0569-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R97-001F	X8L0569-05	SW6010D	Cadmium	mg/kg	1.5 J	SQL-I
R97-001F	X8L0569-05	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R97-001F	X8L0569-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R97-002F	X8L0569-06	SW6010D	Cadmium	mg/kg	0.96 J	SQL-I
R97-002F	X8L0569-06	EPA 600/2-78-054	Organic Carbon	%	0.421 J	HT-I
R97-002F	X8L0569-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	8 J	HT-I
R97-003F	X8L0569-07	SW6010D	Cadmium	mg/kg	1.17 J	SQL-I
R97-003F	X8L0569-07	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R97-003F	X8L0569-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R97-004F	X8L0569-08	SW6010D	Cadmium	mg/kg	1.4 J	SQL-I
R97-004F	X8L0569-08	EPA 600/2-78-054	Organic Carbon	%	0.516 J	HT-I
R97-004F	X8L0569-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R97-005F	X8L0569-09	SW6010D	Cadmium	mg/kg	0.71 J	SQL-I
R97-005F	X8L0569-09	EPA 600/2-78-054	Organic Carbon	%	0.164 J	HT-I
R97-005F	X8L0569-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.8 J	HT-I
R97-006F	X8L0569-10	SW6010D	Cadmium	mg/kg	2.07 J	SQL-I
R97-006F	X8L0569-10	EPA 600/2-78-054	Organic Carbon	%	0.863 J	HT-I
R97-006F	X8L0569-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R97-007F	X8L0569-11	SW6010D	Cadmium	mg/kg	0.84 J	SQL-I
R97-007F	X8L0569-11	EPA 600/2-78-054	Organic Carbon	%	0.24 J	HT-I
R97-007F	X8L0569-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R98-001F	X8L0569-12	SW6010D	Cadmium	mg/kg	1.81 J	SQL-I
R98-001F	X8L0569-12	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R98-001F	X8L0569-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R98-002F	X8L0569-13	SW6010D	Cadmium	mg/kg	0.88 J	SQL-I
R98-002F	X8L0569-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R98-002F	X8L0569-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.4 J	HT-I
R98-003F	X8L0569-14	SW6010D	Cadmium	mg/kg	0.96 J	SQL-I
R98-003F	X8L0569-14	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R98-003F	X8L0569-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R98-004F	X8L0569-15	SW6010D	Cadmium	mg/kg	0.94 J	SQL-I
R98-004F	X8L0569-15	EPA 600/2-78-054	Organic Carbon	%	0.192 J	HT-I
R98-004F	X8L0569-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R02-003F	X8L0570-01	SW6010D	Cadmium	mg/kg	2.24 J	SQL-I
R02-003F	X8L0570-01	SW6020B	Lead	mg/kg	149 J	SD-L
R02-003F	X8L0570-01	EPA 600/2-78-054	Organic Carbon	%	0.414 J	HT-I
R02-003F	X8L0570-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R03A-001F	X8L0570-02	SW6010D	Cadmium	mg/kg	0.59 J	SQL-I
R03A-001F	X8L0570-02	EPA 600/2-78-054	Organic Carbon	%	1.33 J	HT-I
R03A-001F	X8L0570-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R03A-004F	X8L0570-03	SW6010D	Cadmium	mg/kg	2.66 J	SQL-I
R03A-004F	X8L0570-03	EPA 600/2-78-054	Organic Carbon	%	0.425 J	HT-I
R03A-004F	X8L0570-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R03B-002F	X8L0570-04	SW6010D	Cadmium	mg/kg	1.4 J	SQL-I
R03B-002F	X8L0570-04	EPA 600/2-78-054	Organic Carbon	%	0.462 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R03B-002F	X8L0570-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R03B-005F	X8L0570-05	SW6010D	Cadmium	mg/kg	3.37 J	SQL-I
R03B-005F	X8L0570-05	EPA 600/2-78-054	Organic Carbon	%	0.467 J	HT-I
R03B-005F	X8L0570-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R52-004F	X8L0570-06	SW6010D	Cadmium	mg/kg	1.28 J	SQL-I
R52-004F	X8L0570-06	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R52-004F	X8L0570-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R97-003F	X8L0570-07	SW6010D	Cadmium	mg/kg	1.79 J	SQL-I
R97-003F	X8L0570-07	EPA 600/2-78-054	Organic Carbon	%	0.533 J	HT-I
R97-003F	X8L0570-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	5 J	HT-I
R97-005F	X8L0570-08	SW6010D	Cadmium	mg/kg	0.72 J	SQL-I
R97-005F	X8L0570-08	EPA 600/2-78-054	Organic Carbon	%	0.232 J	HT-I
R97-005F	X8L0570-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	5 J	HT-I
R98-001F	X8L0570-09	SW6010D	Cadmium	mg/kg	2.61 J	SQL-I
R98-001F	X8L0570-09	EPA 600/2-78-054	Organic Carbon	%	0.154 J	HT-I
R98-001F	X8L0570-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R98-004F	X8L0570-10	SW6010D	Cadmium	mg/kg	1.54 J	SQL-I
R98-004F	X8L0570-10	EPA 600/2-78-054	Organic Carbon	%	0.23 J	HT-I
R98-004F	X8L0570-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R103-001F	X9A0057-02	SW6010D	Cadmium	mg/kg	1.03 J	SQL-I
R103-001F	X9A0057-02	EPA 600/2-78-054	Organic Carbon	%	0.182 J	HT-I
R103-001F	X9A0057-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R103-002F	X9A0057-03	SW6010D	Cadmium	mg/kg	1.38 J	SQL-I
R103-002F	X9A0057-03	EPA 600/2-78-054	Organic Carbon	%	0.596 J	HT-I
R103-002F	X9A0057-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R103-003F	X9A0057-04	SW6010D	Cadmium	mg/kg	0.81 J	SQL-I
R103-003F	X9A0057-04	EPA 600/2-78-054	Organic Carbon	%	0.256 J	HT-I
R103-003F	X9A0057-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R103-004F	X9A0057-05	SW6010D	Cadmium	mg/kg	1.05 J	SQL-I
R103-004F	X9A0057-05	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R103-004F	X9A0057-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R104-001F	X9A0057-06	SW6010D	Chromium	mg/kg	3.9 J	SQL-I
R104-001F	X9A0057-06	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R104-001F	X9A0057-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R104-002F	X9A0057-07	SW6010D	Cadmium	mg/kg	0.83 J	SQL-I
R104-002F	X9A0057-07	EPA 600/2-78-054	Organic Carbon	%	0.692 J	HT-I
R104-002F	X9A0057-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R104-003F	X9A0057-08	SW6010D	Cadmium	mg/kg	2.41 J	SQL-I
R104-003F	X9A0057-08	EPA 600/2-78-054	Organic Carbon	%	1.62 J	HT-I
R104-003F	X9A0057-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R104-004F	X9A0057-09	SW6010D	Cadmium	mg/kg	0.57 J	SQL-I
R104-004F	X9A0057-09	EPA 600/2-78-054	Organic Carbon	%	1.67 J	HT-I
R104-004F	X9A0057-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R104-005F	X9A0057-10	SW6010D	Chromium	mg/kg	5.31 J	SQL-I
R104-005F	X9A0057-10	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R104-005F	X9A0057-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R105-001F	X9A0057-11	SW6010D	Cadmium	mg/kg	0.93 J	SQL-I
R105-001F	X9A0057-11	EPA 600/2-78-054	Organic Carbon	%	2.33 J	HT-I
R105-001F	X9A0057-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.3 J	HT-I
R105-002F	X9A0057-12	EPA 600/2-78-054	Organic Carbon	%	2.36 J	HT-I
R105-002F	X9A0057-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R105-003F	X9A0057-13	EPA 600/2-78-054	Organic Carbon	%	0.238 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R105-003F	X9A0057-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R105-004F	X9A0057-14	SW6010D	Cadmium	mg/kg	2.87 J	SQL-I
R105-004F	X9A0057-14	EPA 600/2-78-054	Organic Carbon	%	0.774 J	HT-I
R105-004F	X9A0057-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R117-001F	X9A0057-15	SW6010D	Cadmium	mg/kg	2.45 J	SQL-I
R117-001F	X9A0057-15	EPA 600/2-78-054	Organic Carbon	%	2.18 J	HT-I
R117-001F	X9A0057-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R117-002F	X9A0057-16	SW6010D	Cadmium	mg/kg	0.94 J	SQL-I
R117-002F	X9A0057-16	EPA 600/2-78-054	Organic Carbon	%	0.478 J	HT-I
R117-002F	X9A0057-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R117-003F	X9A0057-17	SW6010D	Cadmium	mg/kg	1.58 J	SQL-I
R117-003F	X9A0057-17	EPA 600/2-78-054	Organic Carbon	%	1.07 J	HT-I
R117-003F	X9A0057-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R117-004F	X9A0057-18	SW6010D	Cadmium	mg/kg	2.04 J	SQL-I
R117-004F	X9A0057-18	EPA 600/2-78-054	Organic Carbon	%	0.887 J	HT-I
R117-004F	X9A0057-18	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R117-005F	X9A0057-19	SW6010D	Cadmium	mg/kg	1.11 J	SQL-I
R117-005F	X9A0057-19	EPA 600/2-78-054	Organic Carbon	%	0.214 J	HT-I
R117-005F	X9A0057-19	EPA 600/2-78-054 MOD	Paste pH	pH Units	8 J	HT-I
R103-002F	X9A0058-01	SW6010D	Cadmium	mg/kg	1.9 J	SQL-I
R103-002F	X9A0058-01	EPA 600/2-78-054	Organic Carbon	%	0.476 J	HT-I
R103-002F	X9A0058-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R104-001F	X9A0058-02	SW6010D	Chromium	mg/kg	4.08 J	SQL-I
R104-001F	X9A0058-02	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R104-001F	X9A0058-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R104-004F	X9A0058-03	SW6010D	Cadmium	mg/kg	1.11 J	SQL-I
R104-004F	X9A0058-03	EPA 600/2-78-054	Organic Carbon	%	0.564 J	HT-I
R104-004F	X9A0058-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R105-002F	X9A0058-04	EPA 600/2-78-054	Organic Carbon	%	7.01 J	HT-I
R105-002F	X9A0058-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R117-001F	X9A0058-05	SW6010D	Cadmium	mg/kg	1.9 J	SQL-I
R117-001F	X9A0058-05	EPA 600/2-78-054	Organic Carbon	%	1.62 J	HT-I
R117-001F	X9A0058-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R117-004F	X9A0058-06	SW6010D	Cadmium	mg/kg	1.79 J	SQL-I
R117-004F	X9A0058-06	EPA 600/2-78-054	Organic Carbon	%	0.627 J	HT-I
R117-004F	X9A0058-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R121-001F	X9A0392-07	SW6010D	Cadmium	mg/kg	1.73 J	SQL-I
R121-001F	X9A0392-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R36-005	X9A0393-02	SW6010D	Cadmium	mg/kg	0.61 J	SQL-I
R36-005	X9A0393-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.6 J	HT-I
R121-001F	X9A0393-03	SW6010D	Cadmium	mg/kg	1.52 J	SQL-I
R121-001F	X9A0393-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
B01-P1-2-025	X9A0414-01	EPA 600/2-78-054	Organic Carbon	%	4.24 J	HT-I
B01-P1-2-025	X9A0414-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.0 J	HT-I
B01-P1-3-014	X9A0414-02	EPA 600/2-78-054	Organic Carbon	%	1.75 J	HT-I
B01-P1-3-014	X9A0414-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
B01-P1-3-016	X9A0414-03	SW6010D	Cadmium	mg/kg	1.54 J	SQL-I
B01-P1-3-016	X9A0414-03	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
B01-P1-3-016	X9A0414-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.0 J	HT-I
B01-P2-2-012	X9A0414-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
ERA-29	X9A0414-05	EPA 600/2-78-054	Organic Carbon	%	1.70 J	HT-I
ERA-29	X9A0414-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
RAN-01	X9A0414-06	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
RAN-01	X9A0414-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	8.0 J	HT-I
RAN-02	X9A0414-07	EPA 600/2-78-054	Organic Carbon	%	0.171 J	HT-I
RAN-02	X9A0414-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	8.0 J	HT-I
U02-3200	X9A0414-08	SW6010D	Cadmium	mg/kg	2.94 J	SQL-I
U02-3200	X9A0414-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
U02-3102	X9A0414-09	SW6010D	Cadmium	mg/kg	3.59 J	SQL-I
U02-3102	X9A0414-09	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
U02-3102	X9A0414-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
U02-3104	X9A0414-10	EPA 600/2-78-054	Organic Carbon	%	0.645 J	HT-I
U02-3104	X9A0414-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
B01-P1-2-021	X9A0414-11	SW6010D	Cadmium	mg/kg	1.63 J	SQL-I
B01-P1-2-021	X9A0414-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
B01-P1-3-013	X9A0414-12	EPA 600/2-78-054	Organic Carbon	%	9.18 J	HT-I
B01-P1-3-013	X9A0414-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
B01-P1-3-024	X9A0414-13	SW6010D	Cadmium	mg/kg	2.91 J	SQL-I
B01-P1-3-024	X9A0414-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
B01-P1-3-025	X9A0414-14	SW6010D	Cadmium	mg/kg	2.66 J	SQL-I
B01-P1-3-025	X9A0414-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
B01-P2-2-004	X9A0414-15	SW6010D	Cadmium	mg/kg	2.42 J	SQL-I
B01-P2-2-004	X9A0414-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
U03-2200	X9A0414-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
U02-2102	X9A0414-17	SW6010D	Cadmium	mg/kg	3.49 J	SQL-I
U02-2102	X9A0414-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
U02-2100	X9A0414-18	EPA 600/2-78-054	Organic Carbon	%	0.256 J	HT-I
U02-2100	X9A0414-18	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U02-10154	X9A0414-19	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
U03-3200M	X9A0414-20	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.3 J	HT-I
U02-3100	X9A0414-21	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
U03-10202	X9A0414-22	SW6010D	Cadmium	mg/kg	2.23 J	SQL-I
U03-10202	X9A0414-22	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
B01-P1-2-025	X9A0418-01	EPA 600/2-78-054	Organic Carbon	%	1.24 J	HT-I
B01-P1-2-025	X9A0418-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.0 J	HT-I
B01-P2-2-012	X9A0418-02	EPA 600/2-78-054	Organic Carbon	%	0.806 J	HT-I
B01-P2-2-012	X9A0418-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
RAN-02	X9A0418-03	EPA 600/2-78-054	Organic Carbon	%	0.246 J	HT-I
RAN-02	X9A0418-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
U02-3104	X9A0418-04	EPA 600/2-78-054	Organic Carbon	%	0.447 J	HT-I
U02-3104	X9A0418-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
B01-P1-3-024	X9A0418-05	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
B01-P1-3-024	X9A0418-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
U03-2200	X9A0418-06	EPA 600/2-78-054	Organic Carbon	%	0.625 J	HT-I
U03-2200	X9A0418-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
U02-10154	X9A0418-07	EPA 600/2-78-054	Organic Carbon	%	1.06 J	HT-I
U02-10154	X9A0418-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
U03-10202	X9A0418-08	SW6010D	Cadmium	mg/kg	1.95 J	SQL-I
U03-10202	X9A0418-08	EPA 600/2-78-054	Organic Carbon	%	2.89 J	HT-I
U03-10202	X9A0418-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R09M-008F	X9B0034-01	SW6010D	Cadmium	mg/kg	0.62 J	SQL-I
R09M-008F	X9B0034-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.0 J	HT-I
R09M-009F	X9B0034-02	SW6010D	Cadmium	mg/kg	1.05 J	SQL-I
R09M-009F	X9B0034-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.0 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R09M-010F	X9B0034-03	SW6010D	Cadmium	mg/kg	1.03 J	SQL-I
R09M-010F	X9B0034-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.2 J	HT-I
R09M-011F	X9B0034-04	SW6010D	Cadmium	mg/kg	1.44 J	SQL-I
R09M-011F	X9B0034-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.8 J	HT-I
R09M-012F	X9B0034-05	SW6010D	Cadmium	mg/kg	1.16 J	SQL-I
R09M-012F	X9B0034-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
R09M-013F	X9B0034-06	SW6010D	Cadmium	mg/kg	1.42 J	SQL-I
R09M-013F	X9B0034-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
R09M-014F	X9B0034-07	SW6010D	Cadmium	mg/kg	1.04 J	SQL-I
R09M-014F	X9B0034-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
R75M-006F	X9B0034-08	SW6010D	Cadmium	mg/kg	0.65 J	SQL-I
R75M-006F	X9B0034-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.4 J	HT-I
R77M-001F	X9B0034-09	SW6010D	Cadmium	mg/kg	0.78 J	SQL-I
R77M-001F	X9B0034-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.5 J	HT-I
R77M-002F	X9B0034-10	SW6010D	Cadmium	mg/kg	1.83 J	SQL-I
R77M-002F	X9B0034-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.5 J	HT-I
R77M-003F	X9B0034-11	SW6010D	Cadmium	mg/kg	1.56 J	SQL-I
R77M-003F	X9B0034-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R77M-004F	X9B0034-12	SW6010D	Cadmium	mg/kg	1.53 J	SQL-I
R77M-004F	X9B0034-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R09M-008F	X9B0036-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.4 J	HT-I
R09M-011F	X9B0036-02	SW6010D	Cadmium	mg/kg	0.99 J	SQL-I
R09M-011F	X9B0036-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.2 J	HT-I
R09M-014F	X9B0036-03	SW6010D	Cadmium	mg/kg	1.20 J	SQL-I
R09M-014F	X9B0036-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
R77M-002F	X9B0036-04	SW6010D	Cadmium	mg/kg	1.86 J	SQL-I
R77M-002F	X9B0036-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.4 J	HT-I
U03-1202M	X9B0037-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
U03-1200M	X9B0037-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
U03-7302M	X9B0037-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
B01-P3-3-012	X9B0037-04	SW6010D	Cadmium	mg/kg	1.16 J	SQL-I
B01-P3-3-012	X9B0037-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
B01-P3-3-010	X9B0037-05	SW6010D	Cadmium	mg/kg	1.41 J	SQL-I
B01-P3-3-010	X9B0037-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
B01-P3-3-075	X9B0037-06	SW6010D	Cadmium	mg/kg	1.7 J	SQL-I
B01-P3-3-075	X9B0037-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
RAN-03	X9B0037-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	8 J	HT-I
RAN-04	X9B0037-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
RAN-05	X9B0037-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
RAN-06	X9B0037-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.6 J	HT-I
RAN-07	X9B0037-11	SW6010D	Cadmium	mg/kg	3.87 J	SQL-I
RAN-07	X9B0037-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	8 J	HT-I
RAN-08	X9B0037-12	SW6010D	Cadmium	mg/kg	3.09 J	SQL-I
RAN-08	X9B0037-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	6 J	HT-I
U03-1202M	X9B0038-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.8 J	HT-I
B01-P3-3-012	X9B0038-02	SW6010D	Cadmium	mg/kg	1.33 J	SQL-I
B01-P3-3-012	X9B0038-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
RAN-03	X9B0038-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	8 J	HT-I
RAN-06	X9B0038-04	SW6010D	Cadmium	mg/kg	3.75 J	SQL-I
RAN-06	X9B0038-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.7 J	HT-I
RAN-09	X9B0206-01	SW6010D	Cadmium	mg/kg	3.16 J	SQL-I
RAN-09	X9B0206-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
RAN-10	X9B0206-02	SW6010D	Cadmium	mg/kg	3.98 J	SQL-I
RAN-10	X9B0206-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
RAN-11	X9B0206-03	SW6010D	Cadmium	mg/kg	3.82 J	SQL-I
RAN-11	X9B0206-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
RAN-12	X9B0206-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
RAN-13	X9B0206-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
RAN-09	X9B0207-01	SW6010D	Cadmium	mg/kg	3.87 J	SQL-I
RAN-09	X9B0207-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
RAN-12	X9B0207-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R101-001F	X9B0345-09	SW6010D	Cadmium	mg/kg	1.38 J	SQL-I
R101-001F	X9B0345-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R101-002F	X9B0345-10	SW6010D	Cadmium	mg/kg	1.19 J	SQL-I
R101-002F	X9B0345-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R102-001F	X9B0345-13	SW6010D	Cadmium	mg/kg	2.47 J	SQL-I
R102-001F	X9B0345-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R101-001F	X9B0346-04	SW6010D	Cadmium	mg/kg	1.43 J	SQL-I
R101-001F	X9B0346-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
TC East 001F	X9C0434-01	SW6010D	Copper	mg/kg	700 J	SD-H
TC East 001F	X9C0434-01	SW6010D	Iron	mg/kg	25600 J	SD-H
TC East 001F	X9C0434-01	SW6010D	Manganese	mg/kg	278 J	MS,SD-H
TC East 001F	X9C0434-01	EPA 600/2-78-054	Organic Carbon	%	0.544 J	HT-I
TC East 001F	X9C0434-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.3 J	HT-I
TC East 001F	X9C0434-01	SW6010D	Zinc	mg/kg	222 J	MS-H
TC East 002F	X9C0434-02	EPA 600/2-78-054	Organic Carbon	%	0.656 J	HT-I
TC East 002F	X9C0434-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.3 J	HT-I
TC East 003F	X9C0434-03	EPA 600/2-78-054	Organic Carbon	%	1.12 J	HT-I
TC East 003F	X9C0434-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
TC East 004F	X9C0434-04	EPA 600/2-78-054	Organic Carbon	%	1.04 J	HT-I
TC East 004F	X9C0434-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
TC East 005F	X9C0434-05	EPA 600/2-78-054	Organic Carbon	%	1.01 J	HT-I
TC East 005F	X9C0434-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
TC West 001F	X9C0434-07	EPA 600/2-78-054	Organic Carbon	%	0.247 J	HT-I
TC West 001F	X9C0434-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.4 J	HT-I
TC West 002F	X9C0434-08	EPA 600/2-78-054	Organic Carbon	%	0.989 J	HT-I
TC West 002F	X9C0434-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.5 J	HT-I
TC West 003F	X9C0434-09	EPA 600/2-78-054	Organic Carbon	%	0.160 J	HT-I
TC West 003F	X9C0434-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.0 J	HT-I
TC West 004F	X9C0434-10	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
TC West 004F	X9C0434-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.7 J	HT-I
R301-001F	X9C0434-12	SW6020B	Lead	mg/kg	0.048 J	SQL-I
R301-001F	X9C0434-12	EPA 600/2-78-054	Organic Carbon	%	0.263 J	HT-I
R301-001F	X9C0434-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R301-002F	X9C0434-13	EPA 600/2-78-054	Organic Carbon	%	0.317 J	HT-I
R301-002F	X9C0434-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R301-003F	X9C0434-14	EPA 600/2-78-054	Organic Carbon	%	0.179 J	HT-I
R301-003F	X9C0434-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R301-004F	X9C0434-15	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R301-004F	X9C0434-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R302-001F	X9C0439-01	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R302-001F	X9C0439-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R302-002F	X9C0439-02	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R302-002F	X9C0439-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R302-003F	X9C0439-03	EPA 600/2-78-054	Organic Carbon	%	0.583 J	HT-I
R302-003F	X9C0439-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R302-004F	X9C0439-04	EPA 600/2-78-054	Organic Carbon	%	0.625 J	HT-I
R302-004F	X9C0439-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.0 J	HT-I
R302-005F	X9C0439-05	EPA 600/2-78-054	Organic Carbon	%	0.543 J	HT-I
R302-005F	X9C0439-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R303-001F	X9C0439-10	EPA 600/2-78-054	Organic Carbon	%	0.676 J	HT-I
R303-001F	X9C0439-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R303-002F	X9C0439-11	EPA 600/2-78-054	Organic Carbon	%	0.150 J	HT-I
R303-002F	X9C0439-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R303-003F	X9C0439-12	EPA 600/2-78-054	Organic Carbon	%	0.300 J	HT-I
R303-003F	X9C0439-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R303-004F	X9C0439-13	EPA 600/2-78-054	Organic Carbon	%	0.531 J	HT-I
R303-004F	X9C0439-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.9 J	HT-I
R303-005F	X9C0439-14	EPA 600/2-78-054	Organic Carbon	%	0.695 J	HT-I
R303-005F	X9C0439-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.9 J	HT-I
R304-001F	X9C0439-15	EPA 600/2-78-054	Organic Carbon	%	0.539 J	HT-I
R304-001F	X9C0439-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.3 J	HT-I
R304-002F	X9C0439-16	EPA 600/2-78-054	Organic Carbon	%	0.829 J	HT-I
R304-002F	X9C0439-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R304-003F	X9C0439-17	EPA 600/2-78-054	Organic Carbon	%	0.462 J	HT-I
R304-003F	X9C0439-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.9 J	HT-I
R304-004F	X9C0439-18	EPA 600/2-78-054	Organic Carbon	%	0.403 J	HT-I
R304-004F	X9C0439-18	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.2 J	HT-I
R304-005F	X9C0439-19	EPA 600/2-78-054	Organic Carbon	%	0.584 J	HT-I
R304-005F	X9C0439-19	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.8 J	HT-I
R61-001F	X9C0439-20	EPA 600/2-78-054	Organic Carbon	%	1.32 J	HT-I
R61-001F	X9C0439-20	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R61-002F	X9C0439-21	EPA 600/2-78-054	Organic Carbon	%	1.56 J	HT-I
R61-002F	X9C0439-21	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
TC East 001F	X9C0444-01	SW6010D	Copper	mg/kg	836 J	SD-H
TC East 001F	X9C0444-01	SW6010D	Manganese	mg/kg	294 J	MS-H
TC East 001F	X9C0444-01	EPA 600/2-78-054	Organic Carbon	%	0.518 J	HT-I
TC East 001F	X9C0444-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.3 J	HT-I
TC East 001F	X9C0444-01	SW6010D	Zinc	mg/kg	241 J	MS-H
TC East 004F	X9C0444-02	EPA 600/2-78-054	Organic Carbon	%	1.01 J	HT-I
TC East 004F	X9C0444-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
TC West 001F	X9C0444-03	EPA 600/2-78-054	Organic Carbon	%	0.214 J	HT-I
TC West 001F	X9C0444-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.3 J	HT-I
TC West 004F	X9C0444-04	EPA 600/2-78-054	Organic Carbon	%	0.154 J	HT-I
TC West 004F	X9C0444-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.7 J	HT-I
R301-002F	X9C0444-05	EPA 600/2-78-054	Organic Carbon	%	0.320 J	HT-I
R301-002F	X9C0444-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R302-001F	X9C0444-06	EPA 600/2-78-054	Organic Carbon	%	0.289 J	HT-I
R302-001F	X9C0444-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R302-004F	X9C0444-07	EPA 600/2-78-054	Organic Carbon	%	0.409 J	HT-I
R302-004F	X9C0444-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R303-001F	X9C0444-09	EPA 600/2-78-054	Organic Carbon	%	0.704 J	HT-I
R303-001F	X9C0444-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R303-004F	X9C0444-10	EPA 600/2-78-054	Organic Carbon	%	0.595 J	HT-I
R303-004F	X9C0444-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.8 J	HT-I
R304-002F	X9C0444-11	EPA 600/2-78-054	Organic Carbon	%	0.861 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R304-002F	X9C0444-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R304-005F	X9C0444-12	EPA 600/2-78-054	Organic Carbon	%	0.399 J	HT-I
R304-005F	X9C0444-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.0 J	HT-I
R12-001F	X9C0514-11	EPA 600/2-78-054	Organic Carbon	%	0.303 J	HT-I
R12-001F	X9C0514-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.4 J	HT-I
R12-002F	X9C0514-12	EPA 600/2-78-054	Organic Carbon	%	0.381 J	HT-I
R12-002F	X9C0514-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.4 J	HT-I
R12-003F	X9C0514-13	EPA 600/2-78-054	Organic Carbon	%	0.467 J	HT-I
R12-003F	X9C0514-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.4 J	HT-I
R84-007F	X9C0519-01	SW6020B	Arsenic	mg/kg	4.06 J	MS-L
R84-007F	X9C0519-01	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R84-007F	X9C0519-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R84-008F	X9C0519-02	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R84-008F	X9C0519-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.2 J	HT-I
R84-009F	X9C0519-03	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R84-009F	X9C0519-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.9 J	HT-I
R84-010F	X9C0519-04	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R84-010F	X9C0519-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.9 J	HT-I
R87-005F	X9C0519-09	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R87-005F	X9C0519-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R87-006F	X9C0519-10	EPA 600/2-78-054	Organic Carbon	%	0.202 J	HT-I
R87-006F	X9C0519-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R89A-001F	X9C0519-13	EPA 600/2-78-054	Organic Carbon	%	0.691 J	HT-I
R89A-001F	X9C0519-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R89A-002F	X9C0519-14	EPA 600/2-78-054	Organic Carbon	%	0.944 J	HT-I
R89A-002F	X9C0519-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.1 J	HT-I
R89A-003F	X9C0519-15	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R89A-003F	X9C0519-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	6 J	HT-I
R89A-004F	X9C0519-16	EPA 600/2-78-054	Organic Carbon	%	0.783 J	HT-I
R89A-004F	X9C0519-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R89A-005F	X9C0519-17	EPA 600/2-78-054	Organic Carbon	%	0.788 J	HT-I
R89A-005F	X9C0519-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R12-003F	X9C0522-05	EPA 600/2-78-054	Organic Carbon	%	0.434 J	HT-I
R12-003F	X9C0522-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R84-009F	X9C0522-09	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R84-009F	X9C0522-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.9 J	HT-I
R87-005F	X9C0522-11	EPA 600/2-78-054	Organic Carbon	%	0.175 J	HT-I
R87-005F	X9C0522-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R89A-003F	X9C0522-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R89A-003F	X9C0522-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.3 J	HT-I
U03-1301	X9C0533-01	EPA 600/2-78-054	Organic Carbon	%	0.232 J	HT-I
U03-1301	X9C0533-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U03-2305M	X9C0533-02	EPA 600/2-78-054	Organic Carbon	%	0.394 J	HT-I
U03-2305M	X9C0533-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
U03-2302	X9C0533-03	EPA 600/2-78-054	Organic Carbon	%	0.285 J	HT-I
U03-2302	X9C0533-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U03-3302	X9C0533-04	EPA 600/2-78-054	Organic Carbon	%	0.465 J	HT-I
U03-3302	X9C0533-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
U03-3300M	X9C0533-05	EPA 600/2-78-054	Organic Carbon	%	6.49 J	HT-I
U03-3300M	X9C0533-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
U03-7303M	X9C0533-06	EPA 600/2-78-054	Organic Carbon	%	1.25 J	HT-I
U03-7303M	X9C0533-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
U03-7304M	X9C0533-07	SW6020B	Lead	mg/kg	2700 J	FD-I
U03-7304M	X9C0533-07	EPA 600/2-78-054	Organic Carbon	%	1.29 J	HT-I
U03-7304M	X9C0533-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
U04-7304M	X9C0533-08	SW6020B	Lead	mg/kg	184 J	FD-I
U04-7304M	X9C0533-08	EPA 600/2-78-054	Organic Carbon	%	1.27 J	HT-I
U04-7304M	X9C0533-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
U03-7305M	X9C0533-09	EPA 600/2-78-054	Organic Carbon	%	1.41 J	HT-I
U03-7305M	X9C0533-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
B01-P3-2-001	X9C0533-10	EPA 600/2-78-054	Organic Carbon	%	0.279 J	HT-I
B01-P3-2-001	X9C0533-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
B01-P3-2-010	X9C0533-11	EPA 600/2-78-054	Organic Carbon	%	0.244 J	HT-I
B01-P3-2-010	X9C0533-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
B02-P3-2-010	X9C0533-12	EPA 600/2-78-054	Organic Carbon	%	0.179 J	HT-I
B02-P3-2-010	X9C0533-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
B01-P3-2-012	X9C0533-13	EPA 600/2-78-054	Organic Carbon	%	2.93 J	HT-I
B01-P3-2-012	X9C0533-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
B01-P3-2-052	X9C0533-14	EPA 600/2-78-054	Organic Carbon	%	1.64 J	HT-I
B01-P3-2-052	X9C0533-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
B01-P3-3-001	X9C0536-01	SW6010D	Copper	mg/kg	159 J	MS-H
B01-P3-3-001	X9C0536-01	EPA 600/2-78-054	Organic Carbon	%	0.432 J	HT-I
B01-P3-3-001	X9C0536-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
B01-P3-3-005M	X9C0536-02	SW6010D	Cadmium	mg/kg	0.2 J	SQL-I
B01-P3-3-005M	X9C0536-02	EPA 600/2-78-054	Organic Carbon	%	0.877 J	HT-I
B01-P3-3-005M	X9C0536-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
B01-P3-3-021	X9C0536-03	EPA 600/2-78-054	Organic Carbon	%	1.13 J	HT-I
B01-P3-3-021	X9C0536-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	8.1 J	HT-I
B01-P3-3-077	X9C0536-04	EPA 600/2-78-054	Organic Carbon	%	0.6 J	HT-I
B01-P3-3-077	X9C0536-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
B01-P3-2-007	X9C0536-05	EPA 600/2-78-054	Organic Carbon	%	0.908 J	HT-I
B01-P3-2-007	X9C0536-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
B02-P3-2-007	X9C0536-06	EPA 600/2-78-054	Organic Carbon	%	0.89 J	HT-I
B02-P3-2-007	X9C0536-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
B01-P3-2-008	X9C0536-07	EPA 600/2-78-054	Organic Carbon	%	1.08 J	HT-I
B01-P3-2-008	X9C0536-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
B02-P3-2-008	X9C0536-08	EPA 600/2-78-054	Organic Carbon	%	1.16 J	HT-I
B02-P3-2-008	X9C0536-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
B01-P3-2-055	X9C0536-09	EPA 600/2-78-054	Organic Carbon	%	0.344 J	HT-I
B01-P3-2-055	X9C0536-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
B02-P3-2-055	X9C0536-10	EPA 600/2-78-054	Organic Carbon	%	0.219 J	HT-I
B02-P3-2-055	X9C0536-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
B01-P3-3-004	X9C0536-11	EPA 600/2-78-054	Organic Carbon	%	1.22 J	HT-I
B01-P3-3-004	X9C0536-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
B02-P3-3-004	X9C0536-12	EPA 600/2-78-054	Organic Carbon	%	0.883 J	HT-I
B02-P3-3-004	X9C0536-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
B01-P3-3-017M	X9C0536-13	EPA 600/2-78-054	Organic Carbon	%	0.969 J	HT-I
B01-P3-3-017M	X9C0536-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
B01-P3-3-020	X9C0536-14	EPA 600/2-78-054	Organic Carbon	%	0.397 J	HT-I
B01-P3-3-020	X9C0536-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
B01-P3-2-004	X9C0536-15	EPA 600/2-78-054	Organic Carbon	%	1.05 J	HT-I
B01-P3-2-004	X9C0536-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
U03-1301	X9C0538-01	SW6020B	Arsenic	mg/kg	4.2 J	MS-L
U03-1301	X9C0538-01	SW6010D	Copper	mg/kg	326 J	MS-H

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
U03-1301	X9C0538-01	EPA 600/2-78-054	Organic Carbon	%	0.425 J	HT-I
U03-1301	X9C0538-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
U03-3302	X9C0538-02	EPA 600/2-78-054	Organic Carbon	%	0.475 J	HT-I
U03-3302	X9C0538-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
U03-7304M	X9C0538-03	EPA 600/2-78-054	Organic Carbon	%	1.93 J	HT-I
U03-7304M	X9C0538-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
B01-P3-2-001	X9C0538-04	EPA 600/2-78-054	Organic Carbon	%	0.346 J	HT-I
B01-P3-2-001	X9C0538-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
B01-P3-2-012	X9C0538-05	EPA 600/2-78-054	Organic Carbon	%	3.11 J	HT-I
B01-P3-2-012	X9C0538-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
B01-P3-3-005M	X9C0538-06	SW6010D	Cadmium	mg/kg	0.18 J	SQL-I
B01-P3-3-005M	X9C0538-06	EPA 600/2-78-054	Organic Carbon	%	1.26 J	HT-I
B01-P3-3-005M	X9C0538-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
B01-P3-2-007	X9C0538-07	EPA 600/2-78-054	Organic Carbon	%	0.522 J	HT-I
B01-P3-2-007	X9C0538-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
B02-P3-2-008	X9C0538-08	EPA 600/2-78-054	Organic Carbon	%	1.18 J	HT-I
B02-P3-2-008	X9C0538-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
B01-P3-3-004	X9C0538-09	EPA 600/2-78-054	Organic Carbon	%	0.795 J	HT-I
B01-P3-3-004	X9C0538-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
B01-P3-3-020	X9C0538-10	EPA 600/2-78-054	Organic Carbon	%	0.852 J	HT-I
B01-P3-3-020	X9C0538-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R59-001F	X9D0024-01	SW6020B	Arsenic	mg/kg	3.63 J	MS-H
R59-001F	X9D0024-01	EPA 600/2-78-054	Organic Carbon	%	0.302 J	HT-I
R59-001F	X9D0024-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R59-002F	X9D0024-02	EPA 600/2-78-054	Organic Carbon	%	0.584 J	HT-I
R59-002F	X9D0024-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R59-003F	X9D0024-03	EPA 600/2-78-054	Organic Carbon	%	0.731 J	HT-I
R59-003F	X9D0024-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R59-004F	X9D0024-04	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R59-004F	X9D0024-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R64-001F	X9D0024-07	EPA 600/2-78-054	Organic Carbon	%	0.318 J	HT-I
R64-001F	X9D0024-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R65-001F	X9D0024-09	EPA 600/2-78-054	Organic Carbon	%	0.202 J	HT-I
R65-001F	X9D0024-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R65-002F	X9D0024-10	EPA 600/2-78-054	Organic Carbon	%	0.785 J	HT-I
R65-002F	X9D0024-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R65-003F	X9D0024-11	EPA 600/2-78-054	Organic Carbon	%	0.312 J	HT-I
R65-003F	X9D0024-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R67-001F	X9D0024-12	EPA 600/2-78-054	Organic Carbon	%	0.46 J	HT-I
R67-001F	X9D0024-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R68-001F	X9D0024-14	EPA 600/2-78-054	Organic Carbon	%	0.463 J	HT-I
R68-001F	X9D0024-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.5 J	HT-I
R68-002F	X9D0024-15	EPA 600/2-78-054	Organic Carbon	%	0.651 J	HT-I
R68-002F	X9D0024-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R68-003F	X9D0029-01	SW6020B	Arsenic	mg/kg	5.21 J	MS-L
R68-003F	X9D0029-01	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R68-003F	X9D0029-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.2 J	HT-I
R69-001F	X9D0029-03	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R69-001F	X9D0029-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.3 J	HT-I
R69-002F	X9D0029-04	EPA 600/2-78-054	Organic Carbon	%	0.357 J	HT-I
R69-002F	X9D0029-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R69-003F	X9D0029-05	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R69-003F	X9D0029-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R6/71-008F	X9D0029-08	EPA 600/2-78-054	Organic Carbon	%	0.585 J	HT-I
R6/71-008F	X9D0029-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R6/71-009F	X9D0029-09	EPA 600/2-78-054	Organic Carbon	%	0.166 J	HT-I
R6/71-009F	X9D0029-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R81-001F	X9D0029-10	EPA 600/2-78-054	Organic Carbon	%	0.989 J	HT-I
R81-001F	X9D0029-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R81-002F	X9D0029-11	EPA 600/2-78-054	Organic Carbon	%	1.21 J	HT-I
R81-002F	X9D0029-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R81-003F	X9D0029-12	EPA 600/2-78-054	Organic Carbon	%	0.394 J	HT-I
R81-003F	X9D0029-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.3 J	HT-I
R81-004F	X9D0029-13	EPA 600/2-78-054	Organic Carbon	%	0.511 J	HT-I
R81-004F	X9D0029-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R81-005F	X9D0029-14	EPA 600/2-78-054	Organic Carbon	%	0.585 J	HT-I
R81-005F	X9D0029-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R82-001F	X9D0029-15	EPA 600/2-78-054	Organic Carbon	%	1.12 J	HT-I
R82-001F	X9D0029-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R82-002F	X9D0029-16	EPA 600/2-78-054	Organic Carbon	%	0.88 J	HT-I
R82-002F	X9D0029-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R82-003F	X9D0029-17	EPA 600/2-78-054	Organic Carbon	%	0.761 J	HT-I
R82-003F	X9D0029-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R59-001F	X9D0033-01	SW6020B	Arsenic	mg/kg	4.8 J	MS-L
R59-001F	X9D0033-01	EPA 600/2-78-054	Organic Carbon	%	0.661 J	HT-I
R59-001F	X9D0033-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R59-004F	X9D0033-02	EPA 600/2-78-054	Organic Carbon	%	0.513 J	HT-I
R59-004F	X9D0033-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R64-001F	X9D0033-03	EPA 600/2-78-054	Organic Carbon	%	0.246 J	HT-I
R64-001F	X9D0033-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R65-002F	X9D0033-04	EPA 600/2-78-054	Organic Carbon	%	0.789 J	HT-I
R65-002F	X9D0033-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R68-003F	X9D0033-06	EPA 600/2-78-054	Organic Carbon	%	0.321 J	HT-I
R68-003F	X9D0033-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.3 J	HT-I
R69-002F	X9D0033-07	EPA 600/2-78-054	Organic Carbon	%	0.614 J	HT-I
R69-002F	X9D0033-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R81-001F	X9D0033-09	EPA 600/2-78-054	Organic Carbon	%	0.724 J	HT-I
R81-001F	X9D0033-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R81-004F	X9D0033-10	EPA 600/2-78-054	Organic Carbon	%	0.72 J	HT-I
R81-004F	X9D0033-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R82-002F	X9D0033-11	EPA 600/2-78-054	Organic Carbon	%	1.18 J	HT-I
R82-002F	X9D0033-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R01-006F	X9D0226-08	EPA 600/2-78-054	Organic Carbon	%	0.406 J	HT-I
R01-006F	X9D0226-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R01-007F	X9D0226-09	EPA 600/2-78-054	Organic Carbon	%	1.28 J	HT-I
R01-007F	X9D0226-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R01-008F	X9D0226-10	EPA 600/2-78-054	Organic Carbon	%	0.62 J	HT-I
R01-008F	X9D0226-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R01-009F	X9D0226-11	EPA 600/2-78-054	Organic Carbon	%	0.696 J	HT-I
R01-009F	X9D0226-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R01-010F	X9D0226-12	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R01-010F	X9D0226-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R01-011F	X9D0226-13	EPA 600/2-78-054	Organic Carbon	%	0.522 J	HT-I
R01-011F	X9D0226-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R01-012F	X9D0226-14	EPA 600/2-78-054	Organic Carbon	%	0.338 J	HT-I
R01-012F	X9D0226-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R01-013F	X9D0226-15	EPA 600/2-78-054	Organic Carbon	%	1.45 J	HT-I
R01-013F	X9D0226-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.3 J	HT-I
R18-005F	X9D0229-01	EPA 600/2-78-054	Organic Carbon	%	0.844 J	HT-I
R18-005F	X9D0229-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R18-008F	X9D0229-02	EPA 600/2-78-054	Organic Carbon	%	0.378 J	HT-I
R18-008F	X9D0229-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R18-009F	X9D0229-03	EPA 600/2-78-054	Organic Carbon	%	0.467 J	HT-I
R18-009F	X9D0229-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R18-010F	X9D0229-04	EPA 600/2-78-054	Organic Carbon	%	0.32 J	HT-I
R18-010F	X9D0229-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R50-005F	X9D0229-05	EPA 600/2-78-054	Organic Carbon	%	0.329 J	HT-I
R50-005F	X9D0229-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R52A-001F	X9D0229-06	SW6010D	Cadmium	mg/kg	1.37 J	FD-I
R52A-001F	X9D0229-06	EPA 600/2-78-054	Organic Carbon	%	0.296 J	HT-I
R52A-001F	X9D0229-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R52A-001F	X9D0229-06	SW6010D	Zinc	mg/kg	673 J	FD-I
R52A-002F	X9D0229-07	EPA 600/2-78-054	Organic Carbon	%	0.434 J	HT-I
R52A-002F	X9D0229-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R52A-003F	X9D0229-08	EPA 600/2-78-054	Organic Carbon	%	0.456 J	HT-I
R52A-003F	X9D0229-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R52A-004F	X9D0229-09	EPA 600/2-78-054	Organic Carbon	%	0.262 J	HT-I
R52A-004F	X9D0229-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.1 J	HT-I
R52A-005F	X9D0229-10	SW6010D	Cadmium	mg/kg	3.25 J	FD-I
R52A-005F	X9D0229-10	EPA 600/2-78-054	Organic Carbon	%	0.488 J	HT-I
R52A-005F	X9D0229-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R52A-005F	X9D0229-10	SW6010D	Zinc	mg/kg	1240 J	FD-I
R55M-001F	X9D0229-11	EPA 600/2-78-054	Organic Carbon	%	0.815 J	HT-I
R55M-001F	X9D0229-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R55M-002F	X9D0229-12	SW6020B	Arsenic	mg/kg	8.19 J	FD-I
R55M-002F	X9D0229-12	SW6010D	Cadmium	mg/kg	0.5 J	FD-I
R55M-002F	X9D0229-12	SW6020B	Lead	mg/kg	287 J	FD-I
R55M-002F	X9D0229-12	EPA 600/2-78-054	Organic Carbon	%	0.599 J	HT-I
R55M-002F	X9D0229-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R55M-003F	X9D0229-13	EPA 600/2-78-054	Organic Carbon	%	0.696 J	HT-I
R55M-003F	X9D0229-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
R55M-004F	X9D0229-14	EPA 600/2-78-054	Organic Carbon	%	1.04 J	HT-I
R55M-004F	X9D0229-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R55M-005F	X9D0229-15	SW6020B	Arsenic	mg/kg	4 J	FD-I
R55M-005F	X9D0229-15	SW6010D	Cadmium	mg/kg	1.86 J	FD-I
R55M-005F	X9D0229-15	SW6020B	Lead	mg/kg	115 J	FD-I
R55M-005F	X9D0229-15	EPA 600/2-78-054	Organic Carbon	%	0.706 J	HT-I
R55M-005F	X9D0229-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R01-008F	X9D0232-04	EPA 600/2-78-054	Organic Carbon	%	0.57 J	HT-I
R01-008F	X9D0232-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R01-011F	X9D0232-05	EPA 600/2-78-054	Organic Carbon	%	0.333 J	HT-I
R01-011F	X9D0232-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R18-005F	X9D0232-06	EPA 600/2-78-054	Organic Carbon	%	1.15 J	HT-I
R18-005F	X9D0232-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R18-010F	X9D0232-07	EPA 600/2-78-054	Organic Carbon	%	0.595 J	HT-I
R18-010F	X9D0232-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R52A-002F	X9D0232-08	EPA 600/2-78-054	Organic Carbon	%	0.372 J	HT-I
R52A-002F	X9D0232-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R52A-005F	X9D0232-09	EPA 600/2-78-054	Organic Carbon	%	0.374 J	HT-I
R52A-005F	X9D0232-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R55M-003F	X9D0232-10	EPA 600/2-78-054	Organic Carbon	%	1.22 J	HT-I
R55M-003F	X9D0232-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R80-007F	X9D0341-01	EPA 600/2-78-054	Organic Carbon	%	1.08 J	HT-I
R80-007F	X9D0341-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R80-008F	X9D0341-02	EPA 600/2-78-054	Organic Carbon	%	0.173 J	HT-I
R80-008F	X9D0341-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R80-009F	X9D0341-03	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R80-009F	X9D0341-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R80-010F	X9D0341-04	EPA 600/2-78-054	Organic Carbon	%	0.267 J	HT-I
R80-010F	X9D0341-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R80-011F	X9D0341-05	EPA 600/2-78-054	Organic Carbon	%	0.224 J	HT-I
R80-011F	X9D0341-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R80-012F	X9D0341-06	EPA 600/2-78-054	Organic Carbon	%	0.421 J	HT-I
R80-012F	X9D0341-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R80-013F	X9D0341-07	EPA 600/2-78-054	Organic Carbon	%	0.155 J	HT-I
R80-013F	X9D0341-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R80-014F	X9D0341-08	EPA 600/2-78-054	Organic Carbon	%	0.25 J	HT-I
R80-014F	X9D0341-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R80-015F	X9D0341-09	EPA 600/2-78-054	Organic Carbon	%	0.285 J	HT-I
R80-015F	X9D0341-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R305-001F	X9D0345-03	EPA 600/2-78-054	Organic Carbon	%	0.6 J	HT-I
R305-001F	X9D0345-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R305-002F	X9D0345-04	EPA 600/2-78-054	Organic Carbon	%	0.191 J	HT-I
R305-002F	X9D0345-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R305-003F	X9D0345-05	EPA 600/2-78-054	Organic Carbon	%	0.717 J	HT-I
R305-003F	X9D0345-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.7 J	HT-I
R305-004F	X9D0345-06	EPA 600/2-78-054	Organic Carbon	%	0.472 J	HT-I
R305-004F	X9D0345-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.6 J	HT-I
R306-001F	X9D0345-08	EPA 600/2-78-054	Organic Carbon	%	0.419 J	HT-I
R306-001F	X9D0345-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.5 J	HT-I
R306-002F	X9D0345-09	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R306-002F	X9D0345-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
R306-003F	X9D0345-10	EPA 600/2-78-054	Organic Carbon	%	0.693 J	HT-I
R306-003F	X9D0345-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
R306-004F	X9D0345-11	EPA 600/2-78-054	Organic Carbon	%	0.753 J	HT-I
R306-004F	X9D0345-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R307-001F	X9D0345-12	EPA 600/2-78-054	Organic Carbon	%	0.264 J	HT-I
R307-001F	X9D0345-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R307-002F	X9D0345-13	EPA 600/2-78-054	Organic Carbon	%	0.276 J	HT-I
R307-002F	X9D0345-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.4 J	HT-I
R307-003F	X9D0345-14	EPA 600/2-78-054	Organic Carbon	%	0.188 J	HT-I
R307-003F	X9D0345-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
R307-004F	X9D0345-15	EPA 600/2-78-054	Organic Carbon	%	0.231 J	HT-I
R307-004F	X9D0345-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R310-001F	X9D0345-16	EPA 600/2-78-054	Organic Carbon	%	0.477 J	HT-I
R310-001F	X9D0345-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R310-002F	X9D0345-17	EPA 600/2-78-054	Organic Carbon	%	4.26 J	HT-I
R310-002F	X9D0345-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R310-003F	X9D0345-18	EPA 600/2-78-054	Organic Carbon	%	0.252 J	HT-I
R310-003F	X9D0345-18	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.3 J	HT-I
R310-004	X9D0345-19	EPA 600/2-78-054	Organic Carbon	%	0.22 J	HT-I
R310-004	X9D0345-19	EPA 600/2-78-054 MOD	Paste pH	pH Units	7 J	HT-I
R80-007F	X9D0346-01	EPA 600/2-78-054	Organic Carbon	%	0.971 J	HT-I
R80-007F	X9D0346-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R80-010F	X9D0346-02	EPA 600/2-78-054	Organic Carbon	%	0.515 J	HT-I
R80-010F	X9D0346-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R80-013F	X9D0346-03	EPA 600/2-78-054	Organic Carbon	%	0.414 J	HT-I
R80-013F	X9D0346-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R305-002F	X9D0346-07	EPA 600/2-78-054	Organic Carbon	%	0.328 J	HT-I
R305-002F	X9D0346-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
R306-003F	X9D0346-09	EPA 600/2-78-054	Organic Carbon	%	0.508 J	HT-I
R306-003F	X9D0346-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
R307-002F	X9D0346-10	EPA 600/2-78-054	Organic Carbon	%	0.309 J	HT-I
R307-002F	X9D0346-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.4 J	HT-I
R310-001F	X9D0346-11	EPA 600/2-78-054	Organic Carbon	%	0.485 J	HT-I
R310-001F	X9D0346-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R310-004F	X9D0346-12	EPA 600/2-78-054	Organic Carbon	%	0.422 J	HT-I
R310-004F	X9D0346-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
U03-1302M	X9E0093-01	EPA 600/2-78-054	Organic Carbon	%	1.12 J	HT-I
U03-1302M	X9E0093-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
U03-1302M	X9E0093-01	SW6010D	Zinc	mg/kg	244 J	MS-H
U03-3305M	X9E0093-02	EPA 600/2-78-054	Organic Carbon	%	0.549 J	HT-I
U03-3305M	X9E0093-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
U04-3305M	X9E0093-03	EPA 600/2-78-054	Organic Carbon	%	0.421 J	HT-I
U04-3305M	X9E0093-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
U03-3303M	X9E0093-04	EPA 600/2-78-054	Organic Carbon	%	0.714 J	HT-I
U03-3303M	X9E0093-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
U03-7300M	X9E0093-05	EPA 600/2-78-054	Organic Carbon	%	1.56 J	HT-I
U03-7300M	X9E0093-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U03-7301M	X9E0093-06	EPA 600/2-78-054	Organic Carbon	%	0.431 J	HT-I
U03-7301M	X9E0093-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
B01-P3-3-022	X9E0093-07	EPA 600/2-78-054	Organic Carbon	%	0.573 J	HT-I
B01-P3-3-022	X9E0093-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
B01-P3-3-025M	X9E0093-08	EPA 600/2-78-054	Organic Carbon	%	0.568 J	HT-I
B01-P3-3-025M	X9E0093-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
U03-9302M	X9E0093-09	EPA 600/2-78-054	Organic Carbon	%	0.625 J	HT-I
U03-9302M	X9E0093-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
B01-P3-2-015M	X9E0093-10	EPA 600/2-78-054	Organic Carbon	%	0.57 J	HT-I
B01-P3-2-015M	X9E0093-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
B01-P3-2-017M	X9E0093-11	EPA 600/2-78-054	Organic Carbon	%	0.613 J	HT-I
B01-P3-2-017M	X9E0093-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
U03-1306	X9E0093-12	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
U03-1306	X9E0093-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U03-1304	X9E0093-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
U03-1304	X9E0093-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U03-3311	X9E0093-14	EPA 600/2-78-054	Organic Carbon	%	0.968 J	HT-I
U03-3311	X9E0093-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
U03-3309	X9E0093-15	SW6010D	Cadmium	mg/kg	0.35 J	SQL-I
U03-3309	X9E0093-15	EPA 600/2-78-054	Organic Carbon	%	0.517 J	HT-I
U03-3309	X9E0093-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
U03-3308	X9E0093-16	EPA 600/2-78-054	Organic Carbon	%	0.945 J	HT-I
U03-3308	X9E0093-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
U03-3306	X9E0097-01	EPA 600/2-78-054	Organic Carbon	%	1.08 J	HT-I
U03-3306	X9E0097-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
U03-10357	X9E0097-02	EPA 600/2-78-054	Organic Carbon	%	0.408 J	HT-I
U03-10357	X9E0097-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
U03-3324	X9E0097-03	EPA 600/2-78-054	Organic Carbon	%	0.896 J	HT-I
U03-3324	X9E0097-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
B01-P3-2-022	X9E0097-04	EPA 600/2-78-054	Organic Carbon	%	0.387 J	HT-I
B01-P3-2-022	X9E0097-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
B01-P3-2-023	X9E0097-05	EPA 600/2-78-054	Organic Carbon	%	0.306 J	HT-I
B01-P3-2-023	X9E0097-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
B01-P3-3-032	X9E0097-06	EPA 600/2-78-054	Organic Carbon	%	0.516 J	HT-I
B01-P3-3-032	X9E0097-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
B01-P3-3-034M	X9E0097-07	EPA 600/2-78-054	Organic Carbon	%	0.659 J	HT-I
B01-P3-3-034M	X9E0097-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
ERA-28M	X9E0097-08	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
ERA-28M	X9E0097-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
U03-1307M	X9E0097-09	EPA 600/2-78-054	Organic Carbon	%	0.628 J	HT-I
U03-1307M	X9E0097-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
U03-10319	X9E0097-10	EPA 600/2-78-054	Organic Carbon	%	0.548 J	HT-I
U03-10319	X9E0097-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	8 J	HT-I
U03-10308	X9E0097-11	EPA 600/2-78-054	Organic Carbon	%	0.492 J	HT-I
U03-10308	X9E0097-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	8 J	HT-I
U03-10340	X9E0097-12	EPA 600/2-78-054	Organic Carbon	%	1.03 J	HT-I
U03-10340	X9E0097-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U03-3314	X9E0097-13	EPA 600/2-78-054	Organic Carbon	%	0.414 J	HT-I
U03-3314	X9E0097-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
U03-3312	X9E0097-14	EPA 600/2-78-054	Organic Carbon	%	0.507 J	HT-I
U03-3312	X9E0097-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U04-3312	X9E0097-15	EPA 600/2-78-054	Organic Carbon	%	0.435 J	HT-I
U04-3312	X9E0097-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
U03-10345	X9E0097-16	EPA 600/2-78-054	Organic Carbon	%	0.447 J	HT-I
U03-10345	X9E0097-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
U03-1302M	X9E0099-01	SW6010D	Copper	mg/kg	276 J	MS-H
U03-1302M	X9E0099-01	EPA 600/2-78-054	Organic Carbon	%	1.19 J	HT-I
U03-1302M	X9E0099-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
U03-1302M	X9E0099-01	SW6010D	Zinc	mg/kg	247 J	MS-H
U03-3303M	X9E0099-02	EPA 600/2-78-054	Organic Carbon	%	0.776 J	HT-I
U03-3303M	X9E0099-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
B01-P3-3-022	X9E0099-03	EPA 600/2-78-054	Organic Carbon	%	0.48 J	HT-I
B01-P3-3-022	X9E0099-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
B01-P3-2-015M	X9E0099-04	EPA 600/2-78-054	Organic Carbon	%	0.445 J	HT-I
B01-P3-2-015M	X9E0099-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U03-1304	X9E0099-05	EPA 600/2-78-054	Organic Carbon	%	0.258 J	HT-I
U03-1304	X9E0099-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
U03-3308	X9E0099-06	EPA 600/2-78-054	Organic Carbon	%	0.992 J	HT-I
U03-3308	X9E0099-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U03-3324	X9E0099-07	EPA 600/2-78-054	Organic Carbon	%	1.06 J	HT-I
U03-3324	X9E0099-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
B01-P3-3-032	X9E0099-08	EPA 600/2-78-054	Organic Carbon	%	0.695 J	HT-I
B01-P3-3-032	X9E0099-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
U03-1307M	X9E0099-09	EPA 600/2-78-054	Organic Carbon	%	0.431 J	HT-I
U03-1307M	X9E0099-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
U03-10340	X9E0099-10	EPA 600/2-78-054	Organic Carbon	%	1.37 J	HT-I
U03-10340	X9E0099-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U04-3312	X9E0099-11	EPA 600/2-78-054	Organic Carbon	%	0.624 J	HT-I
U04-3312	X9E0099-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
U03-1309M	X9E0133-01	EPA 600/2-78-054	Organic Carbon	%	0.858 J	HT-I
U03-1309M	X9E0133-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
U03-3317M	X9E0133-02	EPA 600/2-78-054	Organic Carbon	%	0.895 J	HT-I
U03-3317M	X9E0133-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
U03-3316	X9E0133-03	EPA 600/2-78-054	Organic Carbon	%	0.690 J	HT-I
U03-3316	X9E0133-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U04-10345	X9E0133-04	EPA 600/2-78-054	Organic Carbon	%	0.505 J	HT-I
U04-10345	X9E0133-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U03-3325	X9E0133-05	EPA 600/2-78-054	Organic Carbon	%	0.190 J	HT-I
U03-3325	X9E0133-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
B01-P3-2-027	X9E0133-06	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
B01-P3-2-027	X9E0133-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
B01-P3-2-029	X9E0133-07	EPA 600/2-78-054	Organic Carbon	%	0.348 J	HT-I
B01-P3-2-029	X9E0133-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
B01-P3-2-035M	X9E0133-08	EPA 600/2-78-054	Organic Carbon	%	0.283 J	HT-I
B01-P3-2-035M	X9E0133-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.7 J	HT-I
B01-P3-2-037M	X9E0133-09	EPA 600/2-78-054	Organic Carbon	%	0.226 J	HT-I
B01-P3-2-037M	X9E0133-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.8 J	HT-I
B01-P3-3-038M	X9E0133-10	EPA 600/2-78-054	Organic Carbon	%	0.906 J	HT-I
B01-P3-3-038M	X9E0133-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
B01-P3-3-041	X9E0133-11	EPA 600/2-78-054	Organic Carbon	%	1.03 J	HT-I
B01-P3-3-041	X9E0133-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
B01-P3-2-028M	X9E0133-12	EPA 600/2-78-054	Organic Carbon	%	0.471 J	HT-I
B01-P3-2-028M	X9E0133-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
B01-P3-2-032M	X9E0133-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
B01-P3-2-032M	X9E0133-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
B01-P3-2-034	X9E0133-14	EPA 600/2-78-054	Organic Carbon	%	0.901 J	HT-I
B01-P3-2-034	X9E0133-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
B01-P3-3-043	X9E0133-15	EPA 600/2-78-054	Organic Carbon	%	0.492 J	HT-I
B01-P3-3-043	X9E0133-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
B01-P3-3-045	X9E0133-16	EPA 600/2-78-054	Organic Carbon	%	1.21 J	HT-I
B01-P3-3-045	X9E0133-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.0 J	HT-I
B01-P3-3-046	X9E0137-01	EPA 600/2-78-054	Organic Carbon	%	1.20 J	HT-I
B01-P3-3-046	X9E0137-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
B01-P3-3-050	X9E0137-02	EPA 600/2-78-054	Organic Carbon	%	0.493 J	HT-I
B01-P3-3-050	X9E0137-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
B02-P3-3-050	X9E0137-03	EPA 600/2-78-054	Organic Carbon	%	0.461 J	HT-I
B02-P3-3-050	X9E0137-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U03-2316	X9E0137-04	EPA 600/2-78-054	Organic Carbon	%	0.205 J	HT-I
U03-2316	X9E0137-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.1 J	HT-I
U03-2315	X9E0137-05	EPA 600/2-78-054	Organic Carbon	%	0.201 J	HT-I
U03-2315	X9E0137-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.5 J	HT-I
U04-2315	X9E0137-06	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
U04-2315	X9E0137-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.5 J	HT-I
U03-2312	X9E0137-07	EPA 600/2-78-054	Organic Carbon	%	0.266 J	HT-I
U03-2312	X9E0137-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
U03-10346M	X9E0137-08	EPA 600/2-78-054	Organic Carbon	%	0.515 J	HT-I
U03-10346M	X9E0137-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
U03-3326M	X9E0137-09	EPA 600/2-78-054	Organic Carbon	%	1.36 J	HT-I
U03-3326M	X9E0137-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
B01-P3-3-078	X9E0137-10	EPA 600/2-78-054	Organic Carbon	%	0.443 J	HT-I
B01-P3-3-078	X9E0137-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
B01-P3-3-049	X9E0137-11	EPA 600/2-78-054	Organic Carbon	%	0.191 J	HT-I
B01-P3-3-049	X9E0137-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
B01-P3-3-080	X9E0137-12	EPA 600/2-78-054	Organic Carbon	%	0.423 J	HT-I
B01-P3-3-080	X9E0137-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	3.6 J	HT-I
U03-1311M	X9E0137-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
U03-1311M	X9E0137-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
ERA-22M	X9E0137-14	EPA 600/2-78-054	Organic Carbon	%	0.869 J	HT-I
ERA-22M	X9E0137-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
ERA2-22M	X9E0137-15	EPA 600/2-78-054	Organic Carbon	%	0.933 J	HT-I
ERA2-22M	X9E0137-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
U03-1309M	X9E0140-01	EPA 600/2-78-054	Organic Carbon	%	1.02 J	HT-I
U03-1309M	X9E0140-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
U03-1309M	X9E0140-01	SW6010D	Zinc	mg/kg	367 J	MS-H
U04-10345	X9E0140-02	EPA 600/2-78-054	Organic Carbon	%	0.621 J	HT-I
U04-10345	X9E0140-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
B01-P3-2-029	X9E0140-03	EPA 600/2-78-054	Organic Carbon	%	0.399 J	HT-I
B01-P3-2-029	X9E0140-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
B01-P3-3-038M	X9E0140-04	EPA 600/2-78-054	Organic Carbon	%	0.928 J	HT-I
B01-P3-3-038M	X9E0140-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
B01-P3-2-032M	X9E0140-05	EPA 600/2-78-054	Organic Carbon	%	0.282 J	HT-I
B01-P3-2-032M	X9E0140-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
B01-P3-3-045	X9E0140-06	EPA 600/2-78-054	Organic Carbon	%	1.29 J	HT-I
B01-P3-3-045	X9E0140-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
B02-P3-3-050	X9E0140-07	SW6020B	Arsenic	mg/kg	5.29 J	IS-I
B02-P3-3-050	X9E0140-07	EPA 600/2-78-054	Organic Carbon	%	0.661 J	HT-I
B02-P3-3-050	X9E0140-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
U04-2315	X9E0140-08	SW6020B	Arsenic	mg/kg	4.72 J	IS-I
U04-2315	X9E0140-08	EPA 600/2-78-054	Organic Carbon	%	0.298 J	HT-I
U04-2315	X9E0140-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.2 J	HT-I
U03-3326M	X9E0140-09	EPA 600/2-78-054	Organic Carbon	%	1.41 J	HT-I
U03-3326M	X9E0140-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
B01-P3-3-080	X9E0140-10	SW6020B	Arsenic	mg/kg	5.57 J	IS-I
B01-P3-3-080	X9E0140-10	EPA 600/2-78-054	Organic Carbon	%	0.306 J	HT-I
B01-P3-3-080	X9E0140-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	3.6 J	HT-I
U03-1400	X9E0289-01	EPA 600/2-78-054	Organic Carbon	%	1.44 J	HT-I
U03-1400	X9E0289-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
U04-1400	X9E0289-02	EPA 600/2-78-054	Organic Carbon	%	1.57 J	HT-I
U04-1400	X9E0289-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
U03-1317M	X9E0289-03	EPA 600/2-78-054	Organic Carbon	%	0.467 J	HT-I
U03-1317M	X9E0289-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
U03-1316M	X9E0289-04	EPA 600/2-78-054	Organic Carbon	%	1.00 J	HT-I
U03-1316M	X9E0289-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
U03-1313	X9E0289-05	EPA 600/2-78-054	Organic Carbon	%	0.446 J	HT-I
U03-1313	X9E0289-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	8.0 J	HT-I
U02-1105M	X9E0289-06	EPA 600/2-78-054	Organic Carbon	%	0.411 J	HT-I
U02-1105M	X9E0289-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
U02-1103	X9E0289-07	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
U02-1103	X9E0289-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U02-1102M	X9E0289-08	EPA 600/2-78-054	Organic Carbon	%	0.607 J	HT-I
U02-1102M	X9E0289-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
U02-1100M	X9E0289-09	EPA 600/2-78-054	Organic Carbon	%	0.404 J	HT-I
U02-1100M	X9E0289-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
U03-2323	X9E0289-10	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
U03-2323	X9E0289-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
U04-2323	X9E0289-11	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
U04-2323	X9E0289-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
U03-2320	X9E0289-12	EPA 600/2-78-054	Organic Carbon	%	0.160 J	HT-I
U03-2320	X9E0289-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
U03-2318M	X9E0289-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
U03-2318M	X9E0289-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
U04-2318M	X9E0289-14	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
U04-2318M	X9E0289-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
U03-10324	X9E0289-15	EPA 600/2-78-054	Organic Carbon	%	0.759 J	HT-I
U03-10324	X9E0289-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	8.1 J	HT-I
U03-10335	X9E0289-16	EPA 600/2-78-054	Organic Carbon	%	0.707 J	HT-I
U03-10335	X9E0289-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	8.1 J	HT-I
U03-3400	X9E0299-01	EPA 600/2-78-054	Organic Carbon	%	1.53 J	HT-I
U03-3400	X9E0299-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
U03-3322	X9E0299-02	EPA 600/2-78-054	Organic Carbon	%	0.585 J	HT-I
U03-3322	X9E0299-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
U03-3321	X9E0299-03	EPA 600/2-78-054	Organic Carbon	%	1.13 J	HT-I
U03-3321	X9E0299-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	8.0 J	HT-I
U03-3320	X9E0299-04	EPA 600/2-78-054	Organic Carbon	%	0.504 J	HT-I
U03-3320	X9E0299-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U03-3318	X9E0299-05	EPA 600/2-78-054	Organic Carbon	%	0.483 J	HT-I
U03-3318	X9E0299-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
B01-P3-2-044M	X9E0299-06	EPA 600/2-78-054	Organic Carbon	%	0.219 J	HT-I
B01-P3-2-044M	X9E0299-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	8.0 J	HT-I
B01-P3-2-047	X9E0299-07	EPA 600/2-78-054	Organic Carbon	%	0.190 J	HT-I
B01-P3-2-047	X9E0299-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
B01-P3-2-061	X9E0299-08	EPA 600/2-78-054	Organic Carbon	%	0.498 J	HT-I
B01-P3-2-061	X9E0299-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	8.1 J	HT-I
B01-P3-2-042M	X9E0299-09	EPA 600/2-78-054	Organic Carbon	%	0.789 J	HT-I
B01-P3-2-042M	X9E0299-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
B01-P3-2-043M	X9E0299-10	EPA 600/2-78-054	Organic Carbon	%	0.925 J	HT-I
B01-P3-2-043M	X9E0299-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	8.1 J	HT-I
B01-P3-2-045M	X9E0299-11	EPA 600/2-78-054	Organic Carbon	%	0.582 J	HT-I
B01-P3-2-045M	X9E0299-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	8.0 J	HT-I
B01-P3-2-048M	X9E0299-12	EPA 600/2-78-054	Organic Carbon	%	0.184 J	HT-I
B01-P3-2-048M	X9E0299-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
B01-P3-3-053	X9E0299-13	EPA 600/2-78-054	Organic Carbon	%	0.635 J	HT-I
B01-P3-3-053	X9E0299-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.3 J	HT-I
B02-P3-3-053	X9E0299-14	EPA 600/2-78-054	Organic Carbon	%	0.464 J	HT-I
B02-P3-3-053	X9E0299-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
B01-P3-3-056	X9E0299-15	EPA 600/2-78-054	Organic Carbon	%	0.566 J	HT-I
B01-P3-3-056	X9E0299-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
B01-P3-3-057	X9E0299-16	EPA 600/2-78-054	Organic Carbon	%	0.576 J	HT-I
B01-P3-3-057	X9E0299-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
B02-P3-3-057	X9E0299-17	EPA 600/2-78-054	Organic Carbon	%	0.317 J	HT-I
B02-P3-3-057	X9E0299-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
B01-P3-3-059	X9E0299-18	EPA 600/2-78-054	Organic Carbon	%	0.689 J	HT-I
B01-P3-3-059	X9E0299-18	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.9 J	HT-I
B02-P3-3-059	X9E0299-19	EPA 600/2-78-054	Organic Carbon	%	0.646 J	HT-I
B02-P3-3-059	X9E0299-19	EPA 600/2-78-054 MOD	Paste pH	pH Units	8.2 J	HT-I
U03-1400	X9E0309-01	EPA 600/2-78-054	Organic Carbon	%	0.714 J	HT-I
U03-1400	X9E0309-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U03-1316M	X9E0309-02	EPA 600/2-78-054	Organic Carbon	%	0.597 J	HT-I
U03-1316M	X9E0309-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.6 J	HT-I
U02-1103	X9E0309-03	EPA 600/2-78-054	Organic Carbon	%	0.209 J	HT-I
U02-1103	X9E0309-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
U03-2323	X9E0309-04	EPA 600/2-78-054	Organic Carbon	%	0.213 J	HT-I
U03-2323	X9E0309-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
U03-2318M	X9E0309-05	EPA 600/2-78-054	Organic Carbon	%	0.155 J	HT-I
U03-2318M	X9E0309-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
U03-10335	X9E0309-06	EPA 600/2-78-054	Organic Carbon	%	0.664 J	HT-I
U03-10335	X9E0309-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	8.1 J	HT-I
U03-3321	X9E0309-07	EPA 600/2-78-054	Organic Carbon	%	1.10 J	HT-I
U03-3321	X9E0309-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.7 J	HT-I
B01-P3-2-044M	X9E0309-08	SW6010D	Cadmium	mg/kg	0.66 U	MB-I
B01-P3-2-044M	X9E0309-08	EPA 600/2-78-054	Organic Carbon	%	0.460 J	HT-I
B01-P3-2-044M	X9E0309-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
B01-P3-2-042M	X9E0309-09	EPA 600/2-78-054	Organic Carbon	%	0.809 J	HT-I
B01-P3-2-042M	X9E0309-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
B01-P3-2-048M	X9E0309-10	EPA 600/2-78-054	Organic Carbon	%	0.204 J	HT-I
B01-P3-2-048M	X9E0309-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
B01-P3-3-056	X9E0309-11	EPA 600/2-78-054	Organic Carbon	%	0.558 J	HT-I
B01-P3-3-056	X9E0309-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
B01-P3-3-059	X9E0309-12	EPA 600/2-78-054	Organic Carbon	%	0.844 J	HT-I
B01-P3-3-059	X9E0309-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.8 J	HT-I
R59-005F	X9E0337-02	SW6010D	Cadmium	mg/kg	0.15 J	SQL-I
R59-005F	X9E0337-02	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R59-005F	X9E0337-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.7 J	HT-I
R80-016F	X9E0337-04	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R80-016F	X9E0337-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.9 J	HT-I
R80-017F	X9E0337-05	SW6010D	Cadmium	mg/kg	0.26 J	SQL-I
R80-017F	X9E0337-05	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R80-017F	X9E0337-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.6 J	HT-I
R80-018F	X9E0337-06	SW6010D	Cadmium	mg/kg	0.27 J	SQL-I
R80-018F	X9E0337-06	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R80-018F	X9E0337-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.8 J	HT-I
R80-019F	X9E0337-07	SW6010D	Cadmium	mg/kg	0.16 J	SQL-I
R80-019F	X9E0337-07	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R80-019F	X9E0337-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.2 J	HT-I
R80-020F	X9E0337-08	SW6010D	Cadmium	mg/kg	0.13 J	SQL-I
R80-020F	X9E0337-08	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R80-020F	X9E0337-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.2 J	HT-I
R80-021F	X9E0337-09	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R80-021F	X9E0337-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.9 J	HT-I
R80-022F	X9E0337-10	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R80-022F	X9E0337-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R80-023F	X9E0337-11	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R80-023F	X9E0337-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.8 J	HT-I
R80-024F	X9E0337-12	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R80-024F	X9E0337-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.3 J	HT-I
R80-025F	X9E0337-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R80-025F	X9E0337-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R80-026F	X9E0337-14	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R80-026F	X9E0337-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.4 J	HT-I
R83-006F	X9E0342-02	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R83-006F	X9E0342-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R83-007F	X9E0342-03	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R83-007F	X9E0342-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R83-008F	X9E0342-04	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R83-008F	X9E0342-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.0 J	HT-I
R83-009F	X9E0342-05	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R83-009F	X9E0342-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.7 J	HT-I
R83-010F	X9E0342-06	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R83-010F	X9E0342-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.5 J	HT-I
R83-011F	X9E0342-07	SW6010D	Cadmium	mg/kg	0.25 J	SQL-I
R83-011F	X9E0342-07	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R83-011F	X9E0342-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.8 J	HT-I
R93-007F	X9E0342-09	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R93-007F	X9E0342-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.0 J	HT-I
R95-003F	X9E0342-10	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R95-003F	X9E0342-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.8 J	HT-I
R97-011F	X9E0342-14	SW6010D	Cadmium	mg/kg	0.38 J	SQL-I
R97-011F	X9E0342-14	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R97-011F	X9E0342-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.1 J	HT-I
R97-012F	X9E0342-15	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R97-012F	X9E0342-15	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.4 J	HT-I
R97-013F	X9E0342-16	SW6010D	Cadmium	mg/kg	0.37 J	SQL-I
R97-013F	X9E0342-16	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R97-013F	X9E0342-16	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.9 J	HT-I
R97-014F	X9E0342-17	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R97-014F	X9E0342-17	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.7 J	HT-I
R97-015F	X9E0342-18	SW6010D	Cadmium	mg/kg	0.37 J	SQL-I
R97-015F	X9E0342-18	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R97-015F	X9E0342-18	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.5 J	HT-I
R97-016F	X9E0342-19	SW6010D	Cadmium	mg/kg	0.29 J	SQL-I
R97-016F	X9E0342-19	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R97-016F	X9E0342-19	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.4 J	HT-I
R97-017F	X9E0342-20	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R97-017F	X9E0342-20	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.7 J	HT-I
R306-005F	X9E0342-22	EPA 600/2-78-054	Organic Carbon	%	0.328 J	HT-I
R306-005F	X9E0342-22	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.6 J	HT-I
R80-016F	X9E0351-02	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R80-016F	X9E0351-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.0 J	HT-I
R80-019F	X9E0351-03	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R80-019F	X9E0351-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.1 J	HT-I
R80-022F	X9E0351-04	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R80-022F	X9E0351-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.0 J	HT-I
R80-025F	X9E0351-05	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R80-025F	X9E0351-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R83-006F	X9E0351-06	EPA 600/2-78-054	Organic Carbon	%	0.231 J	HT-I
R83-006F	X9E0351-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.5 J	HT-I
R83-009F	X9E0351-07	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R83-009F	X9E0351-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.6 J	HT-I
R97-011F	X9E0351-10	SW6010D	Cadmium	mg/kg	0.37 J	SQL-I
R97-011F	X9E0351-10	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R97-011F	X9E0351-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.7 J	HT-I
R97-014F	X9E0351-11	SW6010D	Cadmium	mg/kg	0.38 J	SQL-I
R97-014F	X9E0351-11	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R97-014F	X9E0351-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.5 J	HT-I
R97-017F	X9E0351-12	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R97-017F	X9E0351-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.5 J	HT-I
R307-005F	X9E0523-01	SW6020B	Arsenic	mg/kg	5.52 J	MS-L
R307-005F	X9E0523-01	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R307-005F	X9E0523-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.7 J	HT-I
R303-006F	X9E0523-04	SW6010D	Cadmium	mg/kg	0.34 J	SQL-I
R303-006F	X9E0523-04	EPA 600/2-78-054	Organic Carbon	%	0.390 J	HT-I
R303-006F	X9E0523-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.4 J	HT-I
R116-006F	X9E0523-07	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R116-006F	X9E0523-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R93A-001F	X9E0523-08	EPA 600/2-78-054	Organic Carbon	%	0.269 J	HT-I
R93A-001F	X9E0523-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.3 J	HT-I
R47-007F	X9E0523-10	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R47-007F	X9E0523-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.3 J	HT-I
R50-006F	X9E0523-12	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R50-006F	X9E0523-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.2 J	HT-I
R51-006F	X9E0523-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R51-006F	X9E0523-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.3 J	HT-I
R01-014F	X9E0524-01	SW6010D	Cadmium	mg/kg	0.31 J	SQL-I
R01-014F	X9E0524-01	SW6010D	Iron	mg/kg	48200 J	SD-L
R01-014F	X9E0524-01	SW6010D	Manganese	mg/kg	375 J	MS-H
R01-014F	X9E0524-01	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R01-014F	X9E0524-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.5 J	HT-I
R01-014F	X9E0524-01	SW6010D	Zinc	mg/kg	292 J	MS-H
R01-015F	X9E0524-02	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R01-015F	X9E0524-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.1 J	HT-I
R01-016F	X9E0524-03	SW6010D	Cadmium	mg/kg	0.34 J	SQL-I
R01-016F	X9E0524-03	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R01-016F	X9E0524-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.8 J	HT-I
R01-017F	X9E0524-04	EPA 600/2-78-054	Organic Carbon	%	0.420 J	HT-I
R01-017F	X9E0524-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.0 J	HT-I
R301-005F	X9E0524-07	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R301-005F	X9E0524-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R302-006F	X9E0524-08	SW6010D	Cadmium	mg/kg	0.25 J	SQL-I
R302-006F	X9E0524-08	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R302-006F	X9E0524-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.2 J	HT-I
R118-010F	X9E0524-10	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R118-010F	X9E0524-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.1 J	HT-I
R118-011F	X9E0524-11	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R118-011F	X9E0524-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.4 J	HT-I
R118-012F	X9E0524-12	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I

Attachment B
Summary of Qualified Data

Field Sample Identification	Laboratory Sample Identification	Analytical Method	Analyte	Units	Final Result	Reason Code
R118-012F	X9E0524-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.0 J	HT-I
R118-013F	X9E0524-13	SW6010D	Cadmium	mg/kg	0.28 J	SQL-I
R118-013F	X9E0524-13	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R118-013F	X9E0524-13	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.6 J	HT-I
R118-014F	X9E0524-14	SW6010D	Cadmium	mg/kg	0.36 J	SQL-I
R118-014F	X9E0524-14	EPA 600/2-78-054	Organic Carbon	%	0.178 J	HT-I
R118-014F	X9E0524-14	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.5 J	HT-I
R307-005F	X9E0526-01	SW6010D	Iron	mg/kg	99500 J	SD-L
R307-005F	X9E0526-01	SW6010D	Manganese	mg/kg	1410 J	SD-L
R307-005F	X9E0526-01	EPA 600/2-78-054	Organic Carbon	%	0.208 J	HT-I
R307-005F	X9E0526-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.8 J	HT-I
R303-006F	X9E0526-02	SW6010D	Cadmium	mg/kg	0.32 J	SQL-I
R303-006F	X9E0526-02	EPA 600/2-78-054	Organic Carbon	%	0.434 J	HT-I
R303-006F	X9E0526-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.4 J	HT-I
R116-006F	X9E0526-03	EPA 600/2-78-054	Organic Carbon	%	0.327 J	HT-I
R116-006F	X9E0526-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R50-006F	X9E0526-05	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R50-006F	X9E0526-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.2 J	HT-I
R01-014F	X9E0527-01	SW6010D	Manganese	mg/kg	360 J	MS-H
R01-014F	X9E0527-01	EPA 600/2-78-054	Organic Carbon	%	0.195 J	HT-I
R01-014F	X9E0527-01	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.4 J	HT-I
R01-017F	X9E0527-02	EPA 600/2-78-054	Organic Carbon	%	0.611 J	HT-I
R01-017F	X9E0527-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.2 J	HT-I
R302-006F	X9E0527-03	EPA 600/2-78-054	Organic Carbon	%	0.159 J	HT-I
R302-006F	X9E0527-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.9 J	HT-I
R118-011F	X9E0527-04	EPA 600/2-78-054	Organic Carbon	%	0.359 J	HT-I
R118-011F	X9E0527-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.4 J	HT-I
R118-014F	X9E0527-05	EPA 600/2-78-054	Organic Carbon	%	0.150 UJ	HT-I
R118-014F	X9E0527-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.6 J	HT-I
R56-006F	X9E0700-03	SW6010D	Manganese	mg/kg	1080 J	FD-I
R56-006F	X9E0700-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.1 J	HT-I
R56-007F	X9E0700-04	SW6010D	Manganese	mg/kg	1950 J	FD-I
R56-007F	X9E0700-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.9 J	HT-I
R19-008F	X9E0700-05	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.2 J	HT-I
R19-009F	X9E0700-06	EPA 600/2-78-054 MOD	Paste pH	pH Units	7.3 J	HT-I
R19-010F	X9E0700-07	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I
R19-011F	X9E0700-08	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.7 J	HT-I
R19-012F	X9E0700-09	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.3 J	HT-I
R19-013F	X9E0700-10	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.3 J	HT-I
R19-014F	X9E0700-11	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.7 J	HT-I
R19-015F	X9E0700-12	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.5 J	HT-I
R56-007F	X9E0703-02	EPA 600/2-78-054 MOD	Paste pH	pH Units	4.7 J	HT-I
R19-010F	X9E0703-03	EPA 600/2-78-054	Organic Carbon	%	1.22 J	HT-I
R19-010F	X9E0703-03	EPA 600/2-78-054 MOD	Paste pH	pH Units	5.2 J	HT-I
R19-013F	X9E0703-04	EPA 600/2-78-054	Organic Carbon	%	3.85 J	HT-I
R19-013F	X9E0703-04	EPA 600/2-78-054 MOD	Paste pH	pH Units	6.1 J	HT-I

Attachment C
Summary of Field Duplicate Samples

Parent Sample Identification	Field Duplicate Identification
10 Mesh	
R19-006F	R20-006F
R29-003F	R29-006F
R14-003F	R14-005F
R30-004F	R30-006F
R33-004F	R33-005F
R35-007F	R35-011F
R37-005F	R37-007F
R38-001F	R38-005F
R41-002F	R41-006F
R44-003F	R44-005F
R47-004F	R47-005F
R51-004F	R51-005F
R52-002F	R52-005F
R118-002F	R118-006F
R120-004F1	R120-005F
R56-004F	R56-005F
R78-003F	R78-005F
R80-001F	R80-005F
R93-003F	R93-005F
R02-004F	R02-005F
R03A-003F	R03A-005F
R03B-002F	R03B-007F
R122-001F	R122-005F
R91-002F	R91-005F
R97-001F	R97-007F
R302-003F	R302-005F
R303-004F	R303-005F
RAN-01	RAN-02
TC EAST 003F	TC East 004F
B01-P3-2-007	B02-P3-2-007
B01-P3-2-008	B02-P3-2-008
B01-P3-2-010	B02-P3-2-010
B01-P3-2-055	B02-P3-2-055
B01-P3-3-004	B02-P3-3-004
RAN-09	RAN-10
RAN-12	RAN-13
U03-3305M	U04-3305M
U03-7304M	U04-7304M
R01-008F	R01-009F
R55M-002F	R55M-005F
R81-001F	R81-005F
R84-009F	R84-010F
R89A-004F	R89A-005F
B01-P3-3-050	B02-P3-3-050
B01-P3-3-053	B02-P3-3-053

Attachment C
Summary of Field Duplicate Samples

Parent Sample Identification	Field Duplicate Identification
B01-P3-3-057	B02-P3-3-057
ERA-22M	ERA2-22M
U03-10345	U04-10345
U03-1400	U04-1400
U03-2315	U04-2315
U03-2318M	U04-2318M
U03-2323	U04-2323
R19-008F	R19-009F
R19-010F	R19-011F
R19-012F	R19-013F
R19-014F	R19-015F
R47-006F	R47-007F
R55M-006F	R55M-007F
R80-025F	R80-024F
U03-3312	U04-3312
R52A-001F	R52A-005F
R80-014F	R80-015F
B01-P3-3-059	B02-P3-3-059
R56-006F	R56-007F
R104-001F	R104-005F
R117-002F	R117-005F
R304-003F	R304-005F
R77M-003F	R77M-004F
R19-006F	R19-007F
R23-002F	R23-006F
R24-004F	R24-006F
R46-004F	R46-005F
R55-003F	R55-005F
R10-002F	R11-005F
R84-004F	R84-006F
60 Mesh	
R24-004F	R24-006F
R37-005F	R37-007F
R41-002F	R41-006F
R46-004F	R46-005F
R52-002F	R52-005F
R10-002F	R11-005F
R118-002F	R118-006F
R120-004F	R120-005F
R56-004F	R56-005F
R93-003F	R93-005F
R122-001F	R122-005F
R304-003F	R304-005F
RAN-01	RAN-02
TC EAST 003F	TC East 004F
U03-3312	U04-3312

Attachment C
Summary of Field Duplicate Samples

Parent Sample Identification	Field Duplicate Identification
R52A-001F	R52A-005F
B01-P3-3-050	B02-P3-3-050
U03-2315	U04-2315
R56-006F	R56-007F
R19-012F	R19-013F
B01-P3-2-008	B02-P3-2-008

Attachment D
Summary of Laboratory Duplicate Samples

Field Sample Identification	Data Package	Analyses
B01-P1-2-025	X9A0414, X9A0418	Percent Moisture, Organic Carbon, Paste pH
B01-P1-3-016	X9A0414	Organic Carbon
B01-P3-2-023	X9E0097	Paste pH
B01-P3-3-001	X9C0536	Percent Moisture, Paste pH
B01-P3-3-005M	X9C0538	Percent Moisture, Organic Carbon
B01-P3-3-046	X9E0137	Percent Moisture
B01-P3-3-050	X9E0137	Organic Carbon
B01-P3-3-080	X9E0140	Paste pH
R01-001F	X8L0311	Percent Moisture, Paste pH
R01-014F	X9E0524, X9E0527	Percent Moisture, Organic Carbon, Paste pH
R01-015F	X9E0524	Organic Carbon
R02-001F	X8L0566	Percent Moisture, Paste pH
R02-003F	X8L0566, X8L0570	Percent Moisture, Organic Carbon, Paste pH
R03B-002F	X8L0570	Organic Carbon
R03B-005F	X8L0569	Percent Moisture, Paste pH
R03B-007F	X8L0569	Organic Carbon
R09-001F	X8L0534	Percent Moisture, Paste pH
R09-003F	X8L0534, X8L0540	Percent Moisture, Organic Carbon, Paste pH
R09M-008F	X9B0034	Percent Moisture, Organic Carbon, Paste pH
R10-003F	X8L0411	Organic Carbon
R103-001F	X9A0057	Organic Carbon
R103-002F	X9A0058	Percent Moisture, Paste pH
R104-004F	X9A0058	Organic Carbon
R11-004F	X8L0367	Percent Moisture, Paste pH
R118-001F	X8L0506	Percent Moisture
R120-003F	X8L0506	Paste pH
R14-006F	X8L0283, X8L0311	Percent Moisture, Paste pH
R15-008F	X8L0367	Organic Carbon
R15-011F	X9A0392, X9A0393	Percent Moisture, Paste pH
R18-003F	X8L0282	Percent Moisture, Paste pH
R18-004F	X8L0282	Organic Carbon
R18-005F	X9D0229	Percent Moisture, Organic Carbon, Paste pH
R19-001F	X8L0045	Percent Moisture, Organic Carbon, Paste pH, Total Metals
R19-003F	X8L0051	Percent Moisture, Organic Carbon, Total Metals
R19-013F	X9E0703	Organic Carbon
R20-004F	X8L0045	Total Metals (6020B)
R21-001F	X8L0045	Percent Moisture
R22-003F	X8L0045	Paste pH, Total Metals (6010D)
R23-003F	X8L0101	Percent Moisture, Paste pH, Total Metals (6020B)
R24-003F	X8L0103	Paste pH
R25-003F	X8L0103	Organic Carbon
R27-001F	X8L0102	Organic Carbon
R30-003F	X8L0136, X8L0137	Percent Moisture, Paste pH
R30-005F	X8L0136, X8L0138	Percent Moisture, Organic Carbon
R302-001F	X9C0439	Percent Moisture, Organic Carbon, Paste pH
R307-001F	X9D0345	Paste pH
R307-005F	X9E0523, X9E0526	Percent Moisture, Organic Carbon, Paste pH
R310-002F	X9D0345	Organic Carbon

Attachment D
Summary of Laboratory Duplicate Samples

Field Sample Identification	Data Package	Analyses
R31-002F	X8L0138	Organic Carbon, Paste pH
R33-006F	X9A0057	Percent Moisture, Paste pH
R34-001F	X8L0137	Percent Moisture, Organic Carbon, Paste pH
R34-005F	X9A0392	Organic Carbon
R37-008F	X8L0492	Percent Moisture, Paste pH
R37-009F	X8L0534, X8L0540	Organic Carbon
R38-001F	X8L0192	Percent Moisture, Paste pH
R38-002F	X8L0192	Organic Carbon
R38-003F	X8L0192, X8L0196	Percent Moisture, Paste pH
R38-006F	X8L0423	Percent Moisture, Paste pH
R40-001F	X8L0196	Organic Carbon
R40-005F	X8L0423	Organic Carbon
R4-001F	X8L0362	Percent Moisture, Paste pH
R4-003F	X8L0362, X8L0411	Percent Moisture, Organic Carbon, Paste pH
R41-007F	X8L0423, X8L0439	Percent Moisture, Paste pH
R42-004F	X8L0196	Percent Moisture, Paste pH
R46-002F	X8L0311	Organic Carbon
R47-001F	X8L0283	Organic Carbon
R51-003F	X8L0308, X8L0311	Percent Moisture, Paste pH
R51-005F	X8L0308	Organic Carbon
R55M-006F	X9E0700, X9E0703	Percent Moisture, Organic Carbon, Paste pH
R55M-007F	X9E0700	Organic Carbon
R57-003F	X8L0423, X8L0439	Organic Carbon
R58-005F	X9E0337, X9E0351	Percent Moisture, Organic Carbon, Paste pH
R59-001F	X9D0024, X9D0033	Percent Moisture, Organic Carbon, Paste pH
R60-001F	X8L0431, X8L0439	Percent Moisture, Paste pH
R61-001F	X9C0439	Organic Carbon
R61-002F	X9C0439	Paste pH
R62-002F	X8L0431, X8L0439	Organic Carbon
R68-003F	X9D0029, X9D0033	Percent Moisture, Organic Carbon, Paste pH
R79-002F	X8L0193, X8L0196	Organic Carbon
R80-001F	X8L0435	Percent Moisture, Paste pH
R80-004F	X8L0435	Organic Carbon
R80-007F	X9D0341, X9D0346	Percent Moisture, Organic Carbon, Paste pH
R80-013F	X9D0341, X9D0346	Organic Carbon, Paste pH
R83-005F	X9E0342	Percent Moisture, Paste pH
R83-006F	X9E0342, X9E0351	Organic Carbon
R84-007F	X9C0519	Percent Moisture, Paste pH
R84-009F	X9C0519, X9C0522	Organic Carbon
R87-002F	X8L0492, X8L0508	Percent Moisture, Organic Carbon
R89-004F	X8L0492, X8L0508	Organic Carbon
R91-002F	X8L0537	Percent Moisture, Paste pH
R91-004F	X8L0537	Organic Carbon
R93-004F	X8L0506	Percent Moisture, Paste pH
R94-002F	X8L0506	Organic Carbon
TC EAST 001F	X9C0434, X9C0444	Percent Moisture, Organic Carbon, Paste pH
U02-2100	X9A0414	Organic Carbon
U02-3100	X9A0414	Paste pH

Attachment D
Summary of Laboratory Duplicate Samples

Field Sample Identification	Data Package	Analyses
U03-1202M	X9B0037, X9B0038	Percent Moisture, Paste pH, Total Metals (6020B)
U03-1301	X9C0533, X9C0538	Percent Moisture, Organic Carbon, Paste pH
U03-1302M	X9E0093, X9E0099	Percent Moisture, Organic Carbon, Paste pH
U03-1307M	X9E0097, X9E0099	Paste pH
U03-1309M	X9E0133, X9E0140	Percent Moisture, Organic Carbon, Paste pH
U03-1400	X9E0289, X9E0309	Percent Moisture, Organic Carbon, Paste pH
U03-2315	X9E0137	Paste pH
U03-3302	X9C0533, X9C0538	Organic Carbon
U03-3306	X9E0097	Percent Moisture, Organic Carbon
U03-3400	X9E0299	Percent Moisture, Organic Carbon, Paste pH
U03-7304M	X9C0533, X9C0538	Organic Carbon

Attachment E
Summary of Matrix Spike/Matrix Spike Duplicates

Sample Identification
10 Mesh
R34-001F
B01-P3-3-001
B01-P3-3-046
R51-003F
R02-001F
R02-003F
R09-001F
R60-001F
R11-004F
R118-001F
R18-003F
R03B-005F
R19-001F
R20-004F
R23-003F
R30-003F
B01-P1-2-025
R09M-008F
U03-1202M
TC EAST 001F
R38-001F
R302-001F
R4-001F
U03-1301
R42-004F
R59-001F
R68-003F
R18-005F
R80-007F
U03-1302M
U03-1309M
U03-1400
R80-001F
R58-005F
R307-005F
R83-005F
R84-007F
R01-014F
R91-002F
R93-004F
U03-3306

Attachment E
Summary of Matrix Spike/Matrix Spike Duplicates

Sample Identification
60 Mesh
R19-003F
R38-003F
R01-001F
R4-003F
R87-002F
R09-003F
R103-002F
B01-P1-2-025
TC EAST 001F
U03-1301
R59-001F
R80-007F
U03-1302M
U03-1309M
U03-1400
R58-005F
R307-005F
R01-014F

APPENDIX A
Qualified Data Sheets

INORGANIC ANALYSIS DATA SHEET

R19-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0045**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0045-01**

Solids: **10-Sieve Fraction** Sampled: **11/14/18 11:48** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	0.729	%		0.15	1		H1	EPA 600 3.2.13	J HT-I
PH	Paste pH	4.8	pH Units			1		H5	EPA 600/2-78-054	J HT-I
7440-43-9	Cadmium	1.85	mg/kg	0.57	4	10	J	D1	EPA 6010D	J SQL-I
7440-47-3	Chromium	110	mg/kg	2	6	10		D1	EPA 6010D	
7440-50-8	Copper	924	mg/kg	1.6	10	10		D2	EPA 6010D	
7439-89-6	Iron	93700	mg/kg	66	200	10		D2,M4	EPA 6010D	
7439-96-5	Manganese	1400	mg/kg	2.8	8	10		D2,M4	EPA 6010D	
7440-66-6	Zinc	217	mg/kg	3.4	10	10		D2,M4	EPA 6010D	J MS-H
7440-38-2	Arsenic	9.04	mg/kg	0.132	0.3	2		D1,M4	EPA 6020B	J MS-L
7439-92-1	Lead	414	mg/kg	0.018	0.1	2		D1,M4,R2B	EPA 6020B	J LD-I
NA	% Moisture (air dried)	4.1	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R19-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0045**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0045-02**

Solids: **10-Sieve Fraction** Sampled: **11/14/18 11:52** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.771	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	7.2	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	7.29	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	26.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	3050	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	74200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1440	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	2440	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.98	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	528	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	5.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

LS
12-18-19

INORGANIC ANALYSIS DATA SHEET

R19-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0045**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0045-03**
Sampled: **11/14/18 11:56** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.13	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	6.5	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	4.32	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	10.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	907	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	25500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1620	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1490	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.26	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	294	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

TP 12-18-19

INORGANIC ANALYSIS DATA SHEET

R19-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0045**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0045-04**

Solids: **10-Sieve Fraction** Sampled: **11/14/18 12:01** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.755	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	7.1	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	0.55	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	5.25	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	189	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	13400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	673	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	111	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	1.54	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	72.5	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

LS 12-12-19

INORGANIC ANALYSIS DATA SHEET

R19-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0045**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0045-06**

Solids: **10-Sieve Fraction** Sampled: **11/14/18 12:05** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13 J	HT-I
PH	Paste pH	7.5	pH Units			1		H5	EPA 600/2-78-054 J	HT-I
7440-43-9	Cadmium	0.40	mg/kg	0.06	0.4	1			EPA 6010D	
7440-47-3	Chromium	4.96	mg/kg	0.2	0.6	1			EPA 6010D	
7440-50-8	Copper	124	mg/kg	0.16	1	1			EPA 6010D	
7439-89-6	Iron	12200	mg/kg	6.6	20	1			EPA 6010D	
7439-96-5	Manganese	539	mg/kg	0.28	0.8	1			EPA 6010D	
7440-66-6	Zinc	107	mg/kg	0.3	1	1			EPA 6010D	
7440-38-2	Arsenic	1.04	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	40.9	mg/kg	0.018	0.1	2		D1	EPA 6020B J	FD-I
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R19-007F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0045**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0045-07**

Solids: **10-Sieve Fraction** Sampled: **11/14/18 12:10** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13	J HT-I
PH	Paste pH	7.5	pH Units			1		H5	EPA 600/2-78-054	J HT-I
7440-43-9	Cadmium	0.41	mg/kg	0.06	0.4	1			EPA 6010D	
7440-47-3	Chromium	5.09	mg/kg	0.2	0.6	1			EPA 6010D	
7440-50-8	Copper	113	mg/kg	0.16	1	1			EPA 6010D	
7439-89-6	Iron	12300	mg/kg	6.6	20	1			EPA 6010D	
7439-96-5	Manganese	582	mg/kg	0.28	0.8	1			EPA 6010D	
7440-66-6	Zinc	113	mg/kg	0.3	1	1			EPA 6010D	
7440-38-2	Arsenic	1.19	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	90.9	mg/kg	0.018	0.1	2		D1	EPA 6020B	J FD-I
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R20-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0045**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0045-08**

Solids: **10-Sieve Fraction** Sampled: **11/14/18 12:18** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.236	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	4.7	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.56	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	413	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	48800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1230	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1120	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.92	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	662	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R20-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0045**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0045-09**
Sampled: **11/14/18 12:21** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	7.0	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	2.44	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	10.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	372	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	39800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1240	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	477	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.53	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	363	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

CS 12-18-19

INORGANIC ANALYSIS DATA SHEET

R20-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0045**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0045-10**
Sampled: **11/14/18 12:24** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13 J HT-J
PH	Paste pH	6.1	pH Units			1		H5	EPA 600/2-78-054 J HT-J
7440-43-9	Cadmium	1.89	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	384	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	42200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1040	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	485	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.28	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	225	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R20-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0045**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0045-11**
Sampled: **11/14/18 12:28** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13	J HT-I
PH	Paste pH	4.6	pH Units			1		H5	EPA 600/2-78-054	J HT-I
7440-43-9	Cadmium	1.60	mg/kg	0.06	0.4	1			EPA 6010D	
7440-47-3	Chromium	11.9	mg/kg	0.2	0.6	1			EPA 6010D	
7440-50-8	Copper	538	mg/kg	0.16	1	1			EPA 6010D	
7439-89-6	Iron	45100	mg/kg	6.6	20	1			EPA 6010D	
7439-96-5	Manganese	1200	mg/kg	0.28	0.8	1			EPA 6010D	
7440-66-6	Zinc	678	mg/kg	0.3	1	1			EPA 6010D	
7440-38-2	Arsenic	3.33	mg/kg	0.132	0.3	2		D1,M4	EPA 6020B	J MS-L
7439-92-1	Lead	312	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B	
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-31-19

INORGANIC ANALYSIS DATA SHEET

R20-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0045**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0045-13**

Solids: **10-Sieve Fraction** Sampled: **11/13/18 12:40** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13 J
PH	Paste pH	6.2	pH Units			1		H5	EPA 600/2-78-054 J
7440-43-9	Cadmium	1.77	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	358	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	42200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	883	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	556	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.54	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	200	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

HT-I
HT-I

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R21-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0045**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0045-14**
Solids: **10-Sieve Fraction** Sampled: **11/12/18 09:30** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13	J HT-I
PH	Paste pH	7.7	pH Units			1		H5	EPA 600/2-78-054	J HT-I
7440-43-9	Cadmium	2.70	mg/kg	0.06	0.4	1			EPA 6010D	
7440-47-3	Chromium	8.84	mg/kg	0.2	0.6	1			EPA 6010D	
7440-50-8	Copper	788	mg/kg	0.16	1	1			EPA 6010D	
7439-89-6	Iron	28400	mg/kg	6.6	20	1			EPA 6010D	
7439-96-5	Manganese	962	mg/kg	0.28	0.8	1			EPA 6010D	
7440-66-6	Zinc	432	mg/kg	0.3	1	1			EPA 6010D	
7440-38-2	Arsenic	3.70	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	148	mg/kg	0.018	0.1	2		D1	EPA 6020B	
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

CG 12-18-19

INORGANIC ANALYSIS DATA SHEET

R21-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0045**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0045-15**
Solids: **10-Sieve Fraction** Sampled: **11/12/18 09:33** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.364	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	7.1	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	2.26	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	580	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	41000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	843	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	413	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.19	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	151	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R21-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0045**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0045-16**

Solids: **10-Sieve Fraction** Sampled: **11/12/18 09:43** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.719	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	7.4	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	2.83	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	582	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	35700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	991	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	544	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.79	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	161	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R21-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0045**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0045-17**

Solids: **10-Sieve Fraction** Sampled: **11/12/18 09:48** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13 J HT=I
PH	Paste pH	7.4	pH Units			1		H5	EPA 600/2-78-054 J HT=I
7440-43-9	Cadmium	1.84	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	10.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	415	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	34700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	831	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	278	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.11	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	93.9	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R22-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0045**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0045-19**
Sampled: **11/12/18 10:06** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	0.190	%		0.15	1		H1	EPA 600 3.2.13	J HT-I
PH	Paste pH	5.6	pH Units			1		H5	EPA 600/2-78-054	J HT-I
7440-43-9	Cadmium	2.63	mg/kg	0.57	4	10	J	D1	EPA 6010D	J SOL-I
7440-47-3	Chromium	23.4	mg/kg	2	6	10		D1	EPA 6010D	
7440-50-8	Copper	972	mg/kg	1.6	10	10		D2	EPA 6010D	
7439-89-6	Iron	99100	mg/kg	66	200	10		D2	EPA 6010D	
7439-96-5	Manganese	400	mg/kg	2.8	8	10		D1	EPA 6010D	
7440-66-6	Zinc	209	mg/kg	3.4	10	10		D1	EPA 6010D	
7440-38-2	Arsenic	2.75	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	153	mg/kg	0.018	0.1	2		D1	EPA 6020B	
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R22-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0045**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0045-20**
Sampled: **11/12/18 10:12** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	0.268	%		0.15	1		H1	EPA 600 3.2.13	J HT-7
PH	Paste pH	5.8	pH Units			1		H5	EPA 600/2-78-054	J HT-I
7440-43-9	Cadmium	2.97	mg/kg	0.57	4	10	J	D1	EPA 6010D	J SQL-I
7440-47-3	Chromium	42.7	mg/kg	2	6	10		D1	EPA 6010D	
7440-50-8	Copper	1020	mg/kg	1.6	10	10		D2	EPA 6010D	
7439-89-6	Iron	106000	mg/kg	66	200	10		D2,M4	EPA 6010D	
7439-96-5	Manganese	631	mg/kg	2.8	8	10		D1	EPA 6010D	
7440-66-6	Zinc	324	mg/kg	3.4	10	10		D2	EPA 6010D	
7440-38-2	Arsenic	6.70	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	136	mg/kg	0.018	0.1	2		D1	EPA 6020B	
NA	% Moisture (air dried)	2.4	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R22-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0045**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0045-21**

Solids: **10-Sieve Fraction** Sampled: **11/12/18 10:20** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.179	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	5.5	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.22	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	22.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1150	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	115000	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	1220	mg/kg	0.28	0.8	1		M3,R2B	EPA 6010D
7440-66-6	Zinc	455	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.14	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	341	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R22-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0045**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0045-22**
Solids: **10-Sieve Fraction** Sampled: **11/12/18 10:28** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.260	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	5.6	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	0.50	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	35.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1030	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	126000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	327	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	187	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.78	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	175	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

CS 12-18-19

INORGANIC ANALYSIS DATA SHEET

R23-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0045**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0045-24**

Solids: **10-Sieve Fraction** Sampled: **11/12/18 10:52** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	0.481	%		0.15	1		H1	EPA 600 3.2.13 J	HTI
PH	Paste pH	4.6	pH Units			1		H5	EPA 600/2-78-054 J	HTI
7440-43-9	Cadmium	0.44	mg/kg	0.06	0.4	1			EPA 6010D	
7440-47-3	Chromium	20.7	mg/kg	0.2	0.6	1			EPA 6010D	
7440-50-8	Copper	1120	mg/kg	0.16	1	1			EPA 6010D	
7439-89-6	Iron	59700	mg/kg	66	200	10		D2	EPA 6010D	
7439-96-5	Manganese	504	mg/kg	0.28	0.8	1			EPA 6010D	
7440-66-6	Zinc	215	mg/kg	0.3	1	1			EPA 6010D	
7440-38-2	Arsenic	3.52	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	158	mg/kg	0.018	0.1	2		D1	EPA 6020B	
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

LS 12-18-19

INORGANIC ANALYSIS DATA SHEET

R23-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0045**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0045-25**

Solids: **10-Sieve Fraction** Sampled: **11/12/18 10:57** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.248	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	6.8	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.24	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	541	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	35200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	754	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	294	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.37	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	128	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R23-006F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0045**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0045-26**
Sampled: **11/12/18 11:20** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.374	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	7.1	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.34	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	702	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	37500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	934	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	346	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.94	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	132	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

LS 12-18-19

INORGANIC ANALYSIS DATA SHEET

R19-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0051**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0051-01**
Sampled: **11/14/18 11:56** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	1.17	%		0.15	1		H1	EPA 600 3.2.13	J HT-I
PH	Paste pH	5.9	pH Units			1		H5	EPA 600/2-78-054	J HT-I
7440-43-9	Cadmium	3.29	mg/kg	0.06	0.4	1			EPA 6010D	
7440-47-3	Chromium	11.2	mg/kg	0.2	0.6	1			EPA 6010D	
7440-50-8	Copper	1080	mg/kg	0.16	1	1		M3	EPA 6010D	
7439-89-6	Iron	27500	mg/kg	6.6	20	1		M3	EPA 6010D	
7439-96-5	Manganese	1470	mg/kg	0.28	0.8	1		M3	EPA 6010D	
7440-66-6	Zinc	1230	mg/kg	0.3	1	1		M3	EPA 6010D	
7440-38-2	Arsenic	3.83	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	306	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B	
NA	% Moisture (air dried)	3.9	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R19-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0051**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0051-02**

Solids: **60-Sieve Fraction** Sampled: **11/14/18 12:05** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.318	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	7.5	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	0.43	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	7.40	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	207	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	14900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	623	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	112	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	1.36	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	52.2	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R20-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0051**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0051-03**
Sampled: **11/14/18 12:21** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.375	%		0.15	1		H1	EPA 600 3.2.13 J HT·I
PH	Paste pH	7.1	pH Units			1		H5	EPA 600/2-78-054 J HT·I
7440-43-9	Cadmium	2.43	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	564	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	43100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1320	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	529	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.34	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	321	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R21-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0051**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0051-05**
Sampled: **11/12/18 09:33** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	0.631	%		0.15	1		H1	EPA 600 3.2.13	J HT·I
PH	Paste pH	7.3	pH Units			1		H5	EPA 600/2-78-054	J HT·I
7440-43-9	Cadmium	1.97	mg/kg	0.06	0.4	1			EPA 6010D	
7440-47-3	Chromium	12.3	mg/kg	0.2	0.6	1			EPA 6010D	
7440-50-8	Copper	827	mg/kg	0.16	1	1			EPA 6010D	
7439-89-6	Iron	41000	mg/kg	6.6	20	1			EPA 6010D	
7439-96-5	Manganese	975	mg/kg	0.28	0.8	1			EPA 6010D	
7440-66-6	Zinc	475	mg/kg	0.3	1	1			EPA 6010D	
7440-38-2	Arsenic	3.41	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	182	mg/kg	0.018	0.1	2		D1	EPA 6020B	
NA	% Moisture (air dried)	2.8	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

CG 12-18-19

INORGANIC ANALYSIS DATA SHEET

R22-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0051**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0051-07**
Solids: **60-Sieve Fraction** Sampled: **11/12/18 10:20** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	0.299	%		0.15	1		H1	EPA 600 3.2.13	J HT.I
PH	Paste pH	5.8	pH Units			1		H5	EPA 600/2-78-054	J HT.I
7440-43-9	Cadmium	1.55	mg/kg	0.06	0.4	1			EPA 6010D	
7440-47-3	Chromium	24.3	mg/kg	0.2	0.6	1			EPA 6010D	
7440-50-8	Copper	1370	mg/kg	0.16	1	1			EPA 6010D	
7439-89-6	Iron	127000	mg/kg	66	200	10		D2	EPA 6010D	
7439-96-5	Manganese	1400	mg/kg	0.28	0.8	1			EPA 6010D	
7440-66-6	Zinc	516	mg/kg	0.3	1	1			EPA 6010D	
7440-38-2	Arsenic	2.95	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	210	mg/kg	0.018	0.1	2		D1	EPA 6020B	
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12.18.19

INORGANIC ANALYSIS DATA SHEET

R23-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0051**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0051-08**

Solids: **60-Sieve Fraction** Sampled: **11/12/18 10:52** Recv'd: **12/03/18 14:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	0.771	%		0.15	1		H1	EPA 600 3.2.13	J HT·I
PH	Paste pH	5.3	pH Units			1		H5	EPA 600/2-78-054	J HT·I
7440-43-9	Cadmium	0.45	mg/kg	0.06	0.4	1			EPA 6010D	
7440-47-3	Chromium	19.0	mg/kg	0.2	0.6	1			EPA 6010D	
7440-50-8	Copper	1040	mg/kg	0.16	1	1			EPA 6010D	
7439-89-6	Iron	56600	mg/kg	66	200	10		D2	EPA 6010D	
7439-96-5	Manganese	429	mg/kg	0.28	0.8	1			EPA 6010D	
7440-66-6	Zinc	211	mg/kg	0.3	1	1			EPA 6010D	
7440-38-2	Arsenic	3.23	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	150	mg/kg	0.018	0.1	2		D1	EPA 6020B	
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

RS 12-18-18

SVL Analytical, Inc. 04-Jan-19 11:44

INORGANIC ANALYSIS DATA SHEET

R23-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0101**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0101-01**
Sampled: **11/12/18 11:02** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.162	%		0.15	1		H1	EPA 600 3.2.13 J HT
PH	Paste pH	5.8	pH Units			1		H5	EPA 600/2-78-054 J HT
7440-43-9	Cadmium	0.92	mg/kg	0.57	4	10	J	D1	EPA 6010D J SOL
7440-47-3	Chromium	19.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	872	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron J ~~MS~~ SD-H	125000	mg/kg	66	200	10		D2,M4	EPA 6010D ~~J~~ SL
7439-96-5	Manganese	593	mg/kg	2.8	8	10		D1,M4	EPA 6010D ~~J~~ SL
7440-66-6	Zinc	336	mg/kg	3.4	10	10		D2,M4	EPA 6010D J MSD
7440-38-2	Arsenic	2.65	mg/kg	0.132	0.3	2		D1,M4	EPA 6020B J MS
7439-92-1	Lead J SD-L	128	mg/kg	0.018	0.1	2		D1,M4,R2B	EPA 6020B ~~J~~ SD
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

KA 2/26/20

12-18-19

SVL Analytical, Inc. 04-Jan-19 11:44

INORGANIC ANALYSIS DATA SHEET

R23-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0101**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0101-02**
Solids: **10-Sieve Fraction** Sampled: **11/12/18 11:08** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.263	%		0.15	1		H1	EPA 600 3.2.13 J HT
PH	Paste pH	5.0	pH Units			1		H5	EPA 600/2-78-054 J HT
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	17.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	856	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	76500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	568	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	292	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.65	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	107	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R24-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0101**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0101-04**
Solids: **10-Sieve Fraction** Sampled: **11/14/18 07:47** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13	J HT
PH	Paste pH	5.4	pH Units			1		H5	EPA 600/2-78-054	J HT
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D	
7440-47-3	Chromium	29.2	mg/kg	2	6	10		D1	EPA 6010D	
7440-50-8	Copper	887	mg/kg	1.6	10	10		D1	EPA 6010D	
7439-89-6	Iron	83700	mg/kg	66	200	10		D2	EPA 6010D	
7439-96-5	Manganese	356	mg/kg	2.8	8	10		D1	EPA 6010D	
7440-66-6	Zinc	188	mg/kg	3.4	10	10		D1	EPA 6010D	
7440-38-2	Arsenic	3.65	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	141	mg/kg	0.018	0.1	2		D1	EPA 6020B	
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

SVL Analytical, Inc. 04-Jan-19 11:44

INORGANIC ANALYSIS DATA SHEET

R24-002F

Laboratory: **SVL Analytical, Inc.** SDG. **X8L0101**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0101-05**

Solids: **10-Sieve Fraction** Sampled: **11/14/18 08:00** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13 J HT
PH	Paste pH	7.4	pH Units			1		H5	EPA 600/2-78-054 J HT
7440-43-9	Cadmium	1.07	mg/kg	0.57	4	10	J	D1	EPA 6010D J SQL
7440-47-3	Chromium	9.57	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	472	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	38400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1260	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	481	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.23	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	139	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

SVL Analytical, Inc. 04-Jan-19 11:44

INORGANIC ANALYSIS DATA SHEET

R24-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0101**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0101-06**
Solids: **10-Sieve Fraction** Sampled: **11/14/18 08:22** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.342	%		0.15	1		H1	EPA 600 3.2.13 J H7
PH	Paste pH	6.0	pH Units			1		H5	EPA 600/2-78-054 J H7
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	22.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1020	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	91900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	376	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	218	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.99	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	112	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R24-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0101**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0101-07**
Solids: **10-Sieve Fraction** Sampled: **11/14/18 08:38** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	0.190	%		0.15	1		H1	EPA 600 3.2.13	J HT:
PH	Paste pH	6.5	pH Units			1		H5	EPA 600/2-78-054	J HT:
7440-43-9	Cadmium	0.79	mg/kg	0.57	4	10	J	D1	EPA 6010D	J SOI
7440-47-3	Chromium	27.7	mg/kg	2	6	10		D1	EPA 6010D	
7440-50-8	Copper	956	mg/kg	1.6	10	10		D2	EPA 6010D	
7439-89-6	Iron	82700	mg/kg	66	200	10		D2	EPA 6010D	
7439-96-5	Manganese	589	mg/kg	2.8	8	10		D1	EPA 6010D	
7440-66-6	Zinc	352	mg/kg	3.4	10	10		D2	EPA 6010D	
7440-38-2	Arsenic	6.18	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	142	mg/kg	0.018	0.1	2		D1	EPA 6020B	
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

SVL Analytical, Inc. 04-Jan-19 11:44

INORGANIC ANALYSIS DATA SHEET

R24-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0101**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0101-09**
Solids: **10-Sieve Fraction** Sampled: **11/14/18 09:00** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	0.160	%		0.15	1		H1	EPA 600 3.2.13	J HT:
PH	Paste pH	6.5	pH Units			1		H5	EPA 600/2-78-054	J HT:
7440-43-9	Cadmium	0.89	mg/kg	0.57	4	10	J	D1	EPA 6010D	J SQL
7440-47-3	Chromium	25.2	mg/kg	2	6	10		D1	EPA 6010D	
7440-50-8	Copper	856	mg/kg	1.6	10	10		D1	EPA 6010D	
7439-89-6	Iron	69100	mg/kg	66	200	10		D2	EPA 6010D	
7439-96-5	Manganese	471	mg/kg	2.8	8	10		D1	EPA 6010D	
7440-66-6	Zinc	306	mg/kg	3.4	10	10		D2	EPA 6010D	
7440-38-2	Arsenic	3.71	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	168	mg/kg	0.018	0.1	2		D1	EPA 6020B	
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

SVL Analytical, Inc. 04-Jan-19 11:44

INORGANIC ANALYSIS DATA SHEET

R25-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0101**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0101-10**
Solids: **10-Sieve Fraction** Sampled: **11/16/18 16:17** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.246	%		0.15	1		H1	EPA 600 3.2.13 J HT:
PH	Paste pH	5.9	pH Units			1		H5	EPA 600/2-78-054 J HT:
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	42.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1090	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	70700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	459	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	252	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	4.36	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	104	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

SVL Analytical, Inc. 04-Jan-19 11:44

INORGANIC ANALYSIS DATA SHEET

R25-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0101**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0101-11**
Solids: **10-Sieve Fraction** Sampled: **11/14/18 09:17** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	0.456	%		0.15	1		H1	EPA 600 3.2.13	J HT:
PH	Paste pH	7.2	pH Units			1		H5	EPA 600/2-78-054	J HT:
7440-43-9	Cadmium	1.53	mg/kg	0.57	4	10	J	D1	EPA 6010D	J SQL:
7440-47-3	Chromium	11.7	mg/kg	2	6	10		D1	EPA 6010D	
7440-50-8	Copper	498	mg/kg	1.6	10	10		D1	EPA 6010D	
7439-89-6	Iron	42600	mg/kg	66	200	10		D2	EPA 6010D	
7439-96-5	Manganese	934	mg/kg	2.8	8	10		D2	EPA 6010D	
7440-66-6	Zinc	350	mg/kg	3.4	10	10		D2	EPA 6010D	
7440-38-2	Arsenic	3.50	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	119	mg/kg	0.018	0.1	2		D1	EPA 6020B	
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

SVL Analytical, Inc. 04-Jan-19 11:44

INORGANIC ANALYSIS DATA SHEET

R25-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0101**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0101-12**

Solids: **10-Sieve Fraction** Sampled: **11/14/18 09:43** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.397	%		0.15	1		H1	EPA 600 3.2.13 J HT:
PH	Paste pH	7.4	pH Units			1		H5	EPA 600/2-78-054 J HT:
7440-43-9	Cadmium	1.21	mg/kg	0.57	4	10	J	D1	EPA 6010D J SQL-
7440-47-3	Chromium	10.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	426	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	30900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1030	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	376	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.63	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	107	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

SVL Analytical, Inc. 04-Jan-19 11:44

INORGANIC ANALYSIS DATA SHEET

R25-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0101**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0101-13**
Solids: **10-Sieve Fraction** Sampled: **11/14/18 10:02** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13 UJ H1
PH	Paste pH	6.1	pH Units			1		H5	EPA 600/2-78-054 J H1
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	20.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1370	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	61000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	579	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	241	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	3.36	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	142	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

SVL Analytical, Inc. 04-Jan-19 11:44

INORGANIC ANALYSIS DATA SHEET

R26-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0101**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0101-16**

Solids: **10-Sieve Fraction** Sampled: **11/12/18 13:08** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.214	%		0.15	1		H1	EPA 600 3.2.13 J HT:4
PH	Paste pH	5.7	pH Units			1		H5	EPA 600/2-78-054 J HT:5
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	21.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1000	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	55000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	628	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	243	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	4.28	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	247	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R26-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0101**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0101-17**

Solids: **10-Sieve Fraction** Sampled: **11/12/18 13:14** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13 UJ HT
PH	Paste pH	4.6	pH Units			1		H5	EPA 600/2-78-054 J HT
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	29.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	946	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	109000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	228	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	144	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	3.85	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	158	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R26-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0101**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0101-18**
Solids: **10-Sieve Fraction** Sampled: **11/12/18 13:22** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13 UJ HT
PH	Paste pH	5.4	pH Units			1		H5	EPA 600/2-78-054 J HT:
7440-43-9	Cadmium	1.58	mg/kg	0.57	4	10	J	D1	EPA 6010D J SQL
7440-47-3	Chromium	23.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1640	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	114000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	736	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	418	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.81	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	188	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

SVL Analytical, Inc. 04-Jan-19 11:44

INORGANIC ANALYSIS DATA SHEET

R26-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0101**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0101-19**
Solids: **10-Sieve Fraction** Sampled: **11/12/18 13:27** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.162	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	5.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	27.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	825	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	64200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	730	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	254	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	4.23	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	358	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

J HT
J HT

12-18-19

INORGANIC ANALYSIS DATA SHEET

R27-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0102**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0102-02**
Solids: **10-Sieve Fraction** Sampled: **11/12/18 11:54** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.168	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	4.6	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	19.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	751	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	86700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	765	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	282	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	3.12	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	251	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R27-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0102**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0102-03**

Solids: **10-Sieve Fraction** Sampled: **11/12/18 12:01** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13 UJ HT:I
PH	Paste pH	7.2	pH Units			1		H5	EPA 600/2-78-054 J HT:I
7440-43-9	Cadmium	1.66	mg/kg	0.57	4	10	J	D1	EPA 6010D J SQL:I
7440-47-3	Chromium	11.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	965	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	42300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1150	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	406	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.04	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	220	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R27-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0102**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0102-04**

Solids: **10-Sieve Fraction** Sampled: **11/12/18 12:06** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13 UJ HT-I
PH	Paste pH	7.2	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.75	mg/kg	0.57	4	10	J	D1	EPA 6010D J SQL-I
7440-47-3	Chromium	11.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1390	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	35800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1020	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	417	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.69	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	146	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

CB 12-18-19

INORGANIC ANALYSIS DATA SHEET

R27-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0102**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0102-05**
Solids: **10-Sieve Fraction** Sampled: **11/15/18 09:06** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13	UJ HT-I
PH	Paste pH	4.5	pH Units			1		H5	EPA 600/2-78-054	J HT-I
7440-43-9	Cadmium	0.57	mg/kg	0.57	4	10	J	D1	EPA 6010D	J SOL-I
7440-47-3	Chromium	20.7	mg/kg	2	6	10		D1	EPA 6010D	
7440-50-8	Copper	1030	mg/kg	1.6	10	10		D2	EPA 6010D	
7439-89-6	Iron	173000	mg/kg	66	200	10		D2	EPA 6010D	
7439-96-5	Manganese	178	mg/kg	2.8	8	10		D1	EPA 6010D	
7440-66-6	Zinc	118	mg/kg	3.4	10	10		D1	EPA 6010D	
7440-38-2	Arsenic	3.60	mg/kg	0.132	0.3	2		D1	EPA 6020B	J IS-I
7439-92-1	Lead	110	mg/kg	0.018	0.1	2			EPA 6020B	
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R28-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0102**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0102-07**

Solids: **10-Sieve Fraction** Sampled: **11/12/18 12:19** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH	4.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	32.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	905	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	149000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	160	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	113	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	3.12	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	75.4	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

UJ HT-I
J HT-I

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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12-18-19

INORGANIC ANALYSIS DATA SHEET

R28-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0102**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0102-08**

Solids: **10-Sieve Fraction** Sampled: **11/12/18 12:44** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13 UJ HT-I
PH	Paste pH	4.4	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	0.70	mg/kg	0.57	4	10	J	D1	EPA 6010D J SQL-I
7440-47-3	Chromium	36.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1430	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	135000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	450	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	203	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	4.46	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	156	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R28-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0102**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0102-09**

Solids: **10-Sieve Fraction** Sampled: **11/12/18 12:50** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13 UJ HT-I
PH	Paste pH	5.5	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	0.65	mg/kg	0.57	4	10	J	D1	EPA 6010D J SOL-I
7440-47-3	Chromium	21.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	989	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	90600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	820	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	318	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.54	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	170	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R28-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0102**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0102-10**

Solids: **10-Sieve Fraction** Sampled: **11/12/18 12:58** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH	4.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	1.03	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	37.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	2260	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	127000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	357	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	207	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	4.65	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	213	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

UJ HT-I
J HT-I
J SQL-I

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

R29-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0102**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0102-12**
Solids: **10-Sieve Fraction** Sampled: **11/15/18 16:40** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13 UJ HT-I
PH	Paste pH	4.2	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	25.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	950	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	130000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	214	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	138	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.70	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	157	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

R29-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0102**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0102-13**

Solids: **10-Sieve Fraction** Sampled: **11/12/18 15:52** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.221	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	5.1	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.61	mg/kg	0.57	4	10	J	D1	EPA 6010D J SQL-I
7440-47-3	Chromium	11.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	7800	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	29900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	884	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	299	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.35	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	133	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R29-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0102**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0102-14**
Solids: **10-Sieve Fraction** Sampled: **11/15/18 16:45** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH	4.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	12.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	778	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	53500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	146	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	92.3	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	1.42	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	68.3	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

UJ HT-I
J HT-I

12-18-19

INORGANIC ANALYSIS DATA SHEET

R29-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0102**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0102-15**
Solids: **10-Sieve Fraction** Sampled: **11/15/18 16:50** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13 UJ HT-I
PH	Paste pH	5.5	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.02	mg/kg	0.57	4	10	J	D1	EPA 6010D J SQL-I
7440-47-3	Chromium	29.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1390	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	109000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	3410	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	333	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.38	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	157	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

R29-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0102**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0102-17**
Solids: **10-Sieve Fraction** Sampled: **11/15/18 16:58** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.311	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	4.1	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	11.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	737	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	50100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	140	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	86.8	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	1.43	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	74.3	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R30-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0102**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0102-18**

Solids: **10-Sieve Fraction** Sampled: **11/16/18 15:35** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	0.228	%		0.15	1		H1	EPA 600 3.2.13	J HT-I
PH	Paste pH	5.0	pH Units			1		H5	EPA 600/2-78-054	J HT-I
7440-43-9	Cadmium	0.94	mg/kg	0.57	4	10	J	D1	EPA 6010D	J SQL-I
7440-47-3	Chromium	25.5	mg/kg	2	6	10		D1	EPA 6010D	
7440-50-8	Copper	1180	mg/kg	1.6	10	10		D2	EPA 6010D	
7439-89-6	Iron	153000	mg/kg	66	200	10		D2	EPA 6010D	
7439-96-5	Manganese	630	mg/kg	2.8	8	10		D1	EPA 6010D	
7440-66-6	Zinc	296	mg/kg	3.4	10	10		D1	EPA 6010D	
7440-38-2	Arsenic	3.70	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	95.8	mg/kg	0.018	0.1	2			EPA 6020B	
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R30-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0102**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0102-19**
Solids: **10-Sieve Fraction** Sampled: **11/16/18 15:38** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.199	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	4.7	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	0.90	mg/kg	0.57	4	10	J	D1	EPA 6010D J SQL-I
7440-47-3	Chromium	45.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1950	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	220000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	285	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	208	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	5.36	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	137	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	3.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R24-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0103**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0103-02**

Solids: **60-Sieve Fraction** Sampled: **11/14/18 08:22** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.313	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	6.1	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	2.54	mg/kg	0.57	4	10	J	D1	EPA 6010D J SQL-I
7440-47-3	Chromium	24.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1410	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	105000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	495	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	262	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	3.42	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	154	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R24-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0103**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0103-03**

Solids: **60-Sieve Fraction** Sampled: **11/14/18 09:00** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	0.301	%		0.15	1		H1	EPA 600 3.2.13	J HT-I
PH	Paste pH	6.5	pH Units			1		H5	EPA 600/2-78-054	J HT-I
7440-43-9	Cadmium	2.25	mg/kg	0.57	4	10	J	D1	EPA 6010D	J SQL-I
7440-47-3	Chromium	22.9	mg/kg	2	6	10		D1	EPA 6010D	
7440-50-8	Copper	1040	mg/kg	1.6	10	10		D2	EPA 6010D	
7439-89-6	Iron	56800	mg/kg	66	200	10		D2	EPA 6010D	
7439-96-5	Manganese	684	mg/kg	2.8	8	10		D1	EPA 6010D	
7440-66-6	Zinc	382	mg/kg	3.4	10	10		D2	EPA 6010D	
7440-38-2	Arsenic	3.55	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	198	mg/kg	0.018	0.1	2		D1	EPA 6020B	
NA	% Moisture (air dried)	2.4	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R25-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0103**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0103-04**

Solids: **60-Sieve Fraction** Sampled: **11/14/18 09:43** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.288	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	1.77	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.77	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	501	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	30000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1130	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	400	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.92	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	153	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

J HT-I
J HT-I
J SQL-I

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R26-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0103**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0103-06**

Solids: **60-Sieve Fraction** Sampled: **11/12/18 13:22** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.260	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	5.6	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	3.06	mg/kg	0.57	4	10	J	D1	EPA 6010D J SOL-I
7440-47-3	Chromium	21.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1410	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	101000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	918	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	459	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.62	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	298	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R27-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0103**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0103-08**

Solids: **60-Sieve Fraction** Sampled: **11/12/18 12:06** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.238	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	7.3	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	2.39	mg/kg	0.57	4	10	J	D1	EPA 6010D J SQL-I
7440-47-3	Chromium	13.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1180	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	36500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1050	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	439	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.95	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	193	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R28-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0103**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0103-09**

Solids: **60-Sieve Fraction** Sampled: **11/12/18 12:19** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.157	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	4.6	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	4.59	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	50.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1780	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	224000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	458	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	235	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	3.01	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	125	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R28-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0103**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0103-10**
Solids: **60-Sieve Fraction** Sampled: **11/12/18 12:58** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.177	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	5.3	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	3.30	mg/kg	0.57	4	10	J	D1	EPA 6010D J SQL-I
7440-47-3	Chromium	42.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	2530	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	119000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	544	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	271	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	5.54	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	262	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R29-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0103**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0103-11**

Solids: **60-Sieve Fraction** Sampled: **11/12/18 15:52** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.540	%		0.15	1		H1	EPA 600 3.2.13 J HT-I
PH	Paste pH	5.2	pH Units			1		H5	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	3.21	mg/kg	0.57	4	10	J	D1	EPA 6010D J SQL-I
7440-47-3	Chromium	16.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	11400	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	36900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	987	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	396	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.87	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	148	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12-18-19

INORGANIC ANALYSIS DATA SHEET

R30-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0103**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0103-13**
Solids: **60-Sieve Fraction** Sampled: **11/16/18 15:38** Recv'd: **12/04/18 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.179	%		0.15	1		H1	EPA 600 3.2.13 J HT-J
PH	Paste pH	4.8	pH Units			1		H5	EPA 600/2-78-054 J HT-J
7440-43-9	Cadmium	6.09	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	58.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	2600	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	272000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	446	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	311	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.27	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	160	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	4.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12.18.19

SVL Analytical, Inc. 11-Jan-19 09:31

INORGANIC ANALYSIS DATA SHEET

R30-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0136**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0136-01**
Solids: **10-Sieve Fraction** Sampled: **11/16/18 15:45** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.151	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	7.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SGL-I	1.89	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	22.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	2460	mg/kg	1.6	10	10		D2,M4	EPA 6010D
7439-89-6	Iron	78500	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	778	mg/kg	2.8	8	10		D1,M4	EPA 6010D
7440-66-6	Zinc	384	mg/kg	3.4	10	10		B7,D1,M4	EPA 6010D
7440-38-2	Arsenic ~~J SGL~~	3.00	mg/kg	0.132	0.3	2		M4	EPA 6020B
7439-92-1	Lead	149	mg/kg	0.018	0.1	2		M4	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/13/19

KA 2/6/20

SVL Analytical, Inc. 11-Jan-19 09:31

INORGANIC ANALYSIS DATA SHEET

R30-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0136**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0136-02**

Solids: **10-Sieve Fraction** Sampled: **11/16/18 15:49** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ H1-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J H1-I	4.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	26.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	770	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	138000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	161	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	126	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.89	mg/kg	0.132	0.3	2			EPA 6020B
7439-92-1	Lead	142	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	2.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 2/13/19

KA 1/27/20

SVL Analytical, Inc. 11-Jan-19 09:31

INORGANIC ANALYSIS DATA SHEET

R30-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0136**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0136-04**

Solids: **10-Sieve Fraction** Sampled: **11/16/18 16:05** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HT-II L	4.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	28.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	885	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	152000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	141	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	104	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	5.50	mg/kg	0.132	0.3	2			EPA 6020B
7439-92-1	Lead	131	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	2.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/13/19

KA 1/27/20

SVL Analytical, Inc. 11-Jan-19 09:31

INORGANIC ANALYSIS DATA SHEET

R31-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0136**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0136-05**

Solids: **10-Sieve Fraction** Sampled: **11/13/18 13:42** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.209	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	0.85	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	16.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1540	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	53600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	825	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	333	mg/kg	3.4	10	10		B7,D1	EPA 6010D
7440-38-2	Arsenic	2.91	mg/kg	0.132	0.3	2			EPA 6020B
7439-92-1	Lead	171	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/13/19

SVL Analytical, Inc. 11-Jan-19 09:31

INORGANIC ANALYSIS DATA SHEET

R31-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0136**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0136-06**
Solids: **10-Sieve Fraction** Sampled: **11/13/18 14:13** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J H5-I	0.304	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	4.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	30.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1030	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	98300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	337	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	225	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.25	mg/kg	0.132	0.3	2			EPA 6020B
7439-92-1	Lead	1970	mg/kg	0.091	0.2	10		D2	EPA 6020B
NA	% Moisture (air dried)	2.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/13/19

SVL Analytical, Inc. 11-Jan-19 09:31

INORGANIC ANALYSIS DATA SHEET

R31-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0136**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0136-07**

Solids: **10-Sieve Fraction** Sampled: **11/13/18 14:46** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.151	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	5.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	19.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1000	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	55000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	417	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	235	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	5.07	mg/kg	0.132	0.3	2			EPA 6020B
7439-92-1	Lead	134	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/13/19

SVL Analytical, Inc. 11-Jan-19 09:31

INORGANIC ANALYSIS DATA SHEET

R31-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0136**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0136-08**

Solids: **10-Sieve Fraction** Sampled: **11/13/18 12:50** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ H1-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J H1-I-L	5.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	46.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1130	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	156000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	268	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	190	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	3.10	mg/kg	0.132	0.3	2			EPA 6020B
7439-92-1	Lead	115	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	3.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/13/19

KA 1/27/20

SVL Analytical, Inc. 11-Jan-19 09:31

INORGANIC ANALYSIS DATA SHEET

R32-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0136**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0136-11**

Solids: **10-Sieve Fraction** Sampled: **11/13/18 16:11** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I J J J	0.208	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	6.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.95	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	17.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	869	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	49600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1630	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	804	mg/kg	3.4	10	10		B7,D1	EPA 6010D
7440-38-2	Arsenic	3.34	mg/kg	0.132	0.3	2			EPA 6020B
7439-92-1	Lead	219	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/13/19

SVL Analytical, Inc. 11-Jan-19 09:31

INORGANIC ANALYSIS DATA SHEET

R32-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0136**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0136-12**

Solids: **10-Sieve Fraction** Sampled: **11/15/18 17:17** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.664	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	5.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQC-I	0.94	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	18.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	822	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	49800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1040	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	540	mg/kg	3.4	10	10		B7,D1	EPA 6010D
7440-38-2	Arsenic	3.30	mg/kg	0.132	0.3	2			EPA 6020B
7439-92-1	Lead	193	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/13/19

SVL Analytical, Inc. 11-Jan-19 09:31

INORGANIC ANALYSIS DATA SHEET

R32-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0136**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0136-13**

Solids: **10-Sieve Fraction** Sampled: **11/15/18 17:22** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HF-J	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HTI IL L	6.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SGL-I	1.41	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.74	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	763	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	33600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1180	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	463	mg/kg	3.4	10	10		B7,D1	EPA 6010D
7440-38-2	Arsenic	2.66	mg/kg	0.132	0.3	2			EPA 6020B
7439-92-1	Lead	157	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/13/19

KA 1/27/20

SVL Analytical, Inc. 11-Jan-19 09:31

INORGANIC ANALYSIS DATA SHEET

R32-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0136**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0136-14**

Solids: **10-Sieve Fraction** Sampled: **11/13/18 16:39** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HF-I	0.273	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	6.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.54	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	11.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	740	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	41000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1080	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	444	mg/kg	3.4	10	10		D1,B7	EPA 6010D
7440-38-2	Arsenic	2.80	mg/kg	0.132	0.3	2			EPA 6020B
7439-92-1	Lead	828	mg/kg	0.046	0.1	5		D2	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 12/13/18

SVL Analytical, Inc. 11-Jan-19 09:31

INORGANIC ANALYSIS DATA SHEET

R33-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0136**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0136-16**

Solids: **10-Sieve Fraction** Sampled: **11/16/18 10:17** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HI I	0.534	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.05	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.58	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	445	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	60700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	755	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	501	mg/kg	3.4	10	10		B7,D1	EPA 6010D
7440-38-2	Arsenic	9.02	mg/kg	0.132	0.3	2			EPA 6020B
7439-92-1	Lead	271	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/13/19

SVL Analytical, Inc. 11-Jan-19 09:31

INORGANIC ANALYSIS DATA SHEET

R33-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0136**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0136-17**

Solids: **10-Sieve Fraction** Sampled: **11/16/18 10:23** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.365	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH I I I	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQC-I	2.98	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.19	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	522	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	42500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2160	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1510	mg/kg	3.4	10	10		B7,D1	EPA 6010D
7440-38-2	Arsenic	3.84	mg/kg	0.132	0.3	2			EPA 6020B
7439-92-1	Lead	140	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

DC 12/13/19

SVL Analytical, Inc. 11-Jan-19 09:31

INORGANIC ANALYSIS DATA SHEET

R33-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0136**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0136-18**
Sampled: **11/16/18 10:37** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HTL-I L	7.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	2.88	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	8.72	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	539	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	45000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2200	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1650	mg/kg	3.4	10	10		B7,D1	EPA 6010D
7440-38-2	Arsenic	5.12	mg/kg	0.132	0.3	2			EPA 6020B
7439-92-1	Lead	154	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 12/13/19

KA 1/27/20

SVL Analytical, Inc. 11-Jan-19 09:31

INORGANIC ANALYSIS DATA SHEET

R33-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0136**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0136-19**

Solids: **10-Sieve Fraction** Sampled: **11/16/18 10:46** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.548	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	4.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SGL-I	1.05	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.97	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	404	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	53800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	752	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	536	mg/kg	3.4	10	10		B7,D1	EPA 6010D
7440-38-2	Arsenic	10.8	mg/kg	0.132	0.3	2			EPA 6020B
7439-92-1	Lead	392	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/13/19

SVL Analytical, Inc. 11-Jan-19 09:31

INORGANIC ANALYSIS DATA SHEET

R33-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0136**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0136-20**

Solids: **10-Sieve Fraction** Sampled: **11/16/18 10:30** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HII	0.493	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	4.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SGL-I	0.77	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.68	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	457	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	53200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	780	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	554	mg/kg	3.4	10	10		B7,D1	EPA 6010D
7440-38-2	Arsenic	11.1	mg/kg	0.132	0.3	2			EPA 6020B
7439-92-1	Lead	450	mg/kg	0.018	0.1	2			EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AR 12/13/19

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R34-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0137**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0137-01**

Solids: **10-Sieve Fraction** Sampled: **11/14/18 15:30** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I L L L	0.957	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	6.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	4.08	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	19.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1860	mg/kg	1.6	10	10		D2,M4	EPA 6010D
7439-89-6	Iron	56000	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	1370	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc	1220	mg/kg	3.4	10	10		D2,M4	EPA 6010D
7440-38-2	Arsenic	6.60	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	299	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL
12/13/19

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R34-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0137**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0137-02**
Sampled: **11/19/18 13:10** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.174	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	5.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQC-I	0.98	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	16.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	569	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	65600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1040	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	586	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	7.35	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	640	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 1/2/19

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R34-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0137**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0137-03**

Solids: **10-Sieve Fraction** Sampled: **11/14/18 15:36** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J H-I L L L	0.564	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	4.47	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	13.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	743	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	54200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1610	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1540	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.85	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	267	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/13/19

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R34-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0137**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0137-04**

Solids: **10-Sieve Fraction** Sampled: **11/14/18 15:40** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.153	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J L L	6.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	2.92	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	16.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	553	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	55500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1520	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1160	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	7.38	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	393	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/13/19

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R35-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0137**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0137-05**
Sampled: **11/15/18 15:01** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.358	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	6.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.34	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	26.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	3540	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	56000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	799	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	1120	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	7.44	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	356	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/13/19

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R35-007F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0137**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0137-06**

Solids: **10-Sieve Fraction** Sampled: **11/15/18 15:07** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.576	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	7.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.09	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	13.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1580	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	36100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1150	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	898	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.57	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	159	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 12/13/19

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R35-008F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0137**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0137-07**
Sampled: **11/19/18 12:38** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HFI 1 LL	3.68	%		1.5	1		D2,H1	EPA 600 3.2.13
PH	Paste pH	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	6.29	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	18.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	4860	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	42500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1030	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1300	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.63	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	269	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/13/19

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R35-010F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0137**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0137-08**

Solids: **10-Sieve Fraction** Sampled: **11/19/18 13:00** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HFI	1.16	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	7.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	6.38	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	19.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	4310	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	52500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1700	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1990	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	8.01	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	458	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/13/19

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R35-011F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0137**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0137-09**

Solids: **10-Sieve Fraction** Sampled: **11/19/18 12:44** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J 4T-I	0.593	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.40	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	14.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1950	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	38100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1130	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	909	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.70	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	173	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/13/19

KA 1/27/20

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R36-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0137**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0137-10**
Sampled: **11/16/18 11:39** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HF-I	0.558	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	4.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.49	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	21.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1750	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	52400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	609	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	541	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.09	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	194	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AP 12/13/19

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R36-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0137**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0137-11**
Sampled: **11/16/18 11:45** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.696	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	6.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SAL-I	2.15	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	22.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	965	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	43000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1030	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	782	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.17	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	145	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/13/19

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R36-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0137**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0137-12**
Sampled: **11/16/18 11:49** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HF-I	0.571	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	2.62	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	16.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1490	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	58400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1020	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	816	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.92	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	205	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/13/19

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R36-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0137**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0137-13**
Sampled: **11/16/18 11:52** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J 4T-I	0.546	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	5.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J 50L-I	1.68	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	23.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	2460	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	52800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	705	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	616	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.83	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	323	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

JC 12/13/18

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R37-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0137**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0137-14**

Solids: **10-Sieve Fraction** Sampled: **11/16/18 13:26** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J 47-I	0.289	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	4.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J 59C-I	0.67	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	36.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	447	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	50400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	267	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	271	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.47	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	55.7	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

QC 12/13/18

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R37-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0137**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0137-15**
Sampled: **11/16/18 13:32** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.379	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH I L L	4.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	0.88	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	15.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1400	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	48300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	565	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	444	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.64	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	270	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/13/19

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R37-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0137**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0137-16**
Sampled: **11/16/18 13:37** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.325	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.51	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	14.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1220	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	56700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	971	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	592	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.82	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	418	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/31/19

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R37-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0137**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0137-17**
Sampled: **11/16/18 13:50** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J H-I	0.344	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH 1 1 1	5.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SAL-I	1.84	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	30.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	2740	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	48500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	694	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	698	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.04	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	259	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/13/19

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R37-006F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0137**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0137-18**
Sampled: **11/16/18 13:59** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HF-I	0.729	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J LL	7.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SR-I	2.06	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	12.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1840	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	31000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	852	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	654	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.49	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	890	mg/kg	0.091	0.2	10		D2	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

QC 12/13/19

SVL Analytical, Inc. 07-Jan-19 09:57

INORGANIC ANALYSIS DATA SHEET

R37-007F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0137**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0137-19**
Sampled: **11/16/18 14:04** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HFI	0.199	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J L L	5.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	1.66	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	31.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	2550	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	50400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	673	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	683	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.10	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	226	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/13/19

SVL Analytical, Inc. 08-Jan-19 15:50

INORGANIC ANALYSIS DATA SHEET

R31-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0138**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0138-02**
Sampled: **11/13/18 14:13** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J 4I-I L L L	0.261	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	4.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	34.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1110	mg/kg	1.6	10	10		B7,D2	EPA 6010D
7439-89-6	Iron	103000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	338	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	238	mg/kg	3.4	10	10		B7,D1	EPA 6010D
7440-38-2	Arsenic	4.67	mg/kg	0.132	0.3	2		D1,E	EPA 6020B
7439-92-1	Lead	254	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 08-Jan-19 15:50

INORGANIC ANALYSIS DATA SHEET

R32-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0138**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0138-04**

Solids: **60-Sieve Fraction** Sampled: **11/15/18 17:17** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.384	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J L L	5.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOW-I	0.99	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	19.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	973	mg/kg	1.6	10	10		B7,D2	EPA 6010D
7439-89-6	Iron	49200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	871	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	514	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.01	mg/kg	0.132	0.3	2		D1,E	EPA 6020B
7439-92-1	Lead	267	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 08-Jan-19 15:50

INORGANIC ANALYSIS DATA SHEET

R33-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0138**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0138-06**

Solids: **60-Sieve Fraction** Sampled: **11/16/18 10:37** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J LL	6.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.33	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	10.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	697	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	64400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1290	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1230	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	8.74	mg/kg	0.132	0.3	2		D1,E	EPA 6020B
7439-92-1	Lead	308	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 08-Jan-19 15:50

INORGANIC ANALYSIS DATA SHEET

R34-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0138**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0138-07**
Sampled: **11/14/18 15:30** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.774	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	6.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOC-I	3.20	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	19.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	2070	mg/kg	1.6	10	10		B7,D2	EPA 6010D
7439-89-6	Iron	57400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1180	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1310	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	9.32	mg/kg	0.132	0.3	2		D1,E	EPA 6020B
7439-92-1	Lead	407	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 08-Jan-19 15:50

INORGANIC ANALYSIS DATA SHEET

R34-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0138**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0138-08**
Sampled: **11/14/18 15:40** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.254	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH I L L	6.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SAL-L	2.76	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	16.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	654	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	61300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1450	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1270	mg/kg	3.4	10	10		D2,B7	EPA 6010D
7440-38-2	Arsenic	10.4	mg/kg	0.132	0.3	2		D1,E	EPA 6020B
7439-92-1	Lead	549	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 08-Jan-19 15:50

INORGANIC ANALYSIS DATA SHEET

R35-008F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0138**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0138-09**
Sampled: **11/19/18 12:38** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J J HF J J	2.83	%		1.5	1		D2,H1	EPA 600 3.2.13
PH	Paste pH	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	5.91	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	20.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	5430	mg/kg	1.6	10	10		B7,D2	EPA 6010D
7439-89-6	Iron	41400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	962	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	1600	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	6.56	mg/kg	0.132	0.3	2		D1,E	EPA 6020B
7439-92-1	Lead	346	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/17

SVL Analytical, Inc. 08-Jan-19 15:50

INORGANIC ANALYSIS DATA SHEET

R36-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0138**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0138-10**
Sampled: **11/16/18 11:39** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.469	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	5.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.15	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	21.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1930	mg/kg	1.6	10	10		B7,D2	EPA 6010D
7439-89-6	Iron	46800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	539	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	584	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.39	mg/kg	0.132	0.3	2		D1,E	EPA 6020B
7439-92-1	Lead	230	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 08-Jan-19 15:50

INORGANIC ANALYSIS DATA SHEET

R36-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0138**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0138-11**
Sampled: **11/16/18 11:52** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.514	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J LL	4.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.73	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	24.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	2670	mg/kg	1.6	10	10		B7,D2	EPA 6010D
7439-89-6	Iron	52200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	645	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	675	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	6.44	mg/kg	0.132	0.3	2		D1,E	EPA 6020B
7439-92-1	Lead	346	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AE 12/16/19

SVL Analytical, Inc. 08-Jan-19 15:50

INORGANIC ANALYSIS DATA SHEET

R37-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0138**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0138-12**
Sampled: **11/16/18 13:37** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HT-I L	7.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J 5K-I	1.57	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	15.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1360	mg/kg	1.6	10	10		B7,D2	EPA 6010D
7439-89-6	Iron	63100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1140	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	769	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	5.93	mg/kg	0.132	0.3	2		D1,E	EPA 6020B
7439-92-1	Lead	237	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

KA. 1/27/20

SVL Analytical, Inc. 08-Jan-19 15:50

INORGANIC ANALYSIS DATA SHEET

R37-007F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0138**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0138-13**

Solids: **60-Sieve Fraction** Sampled: **11/16/18 14:04** Recv'd: **12/05/18 15:46**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J SQC-I HT-I	0.417	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J-5 LL	5.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQC-I	1.77	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	35.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	3030	mg/kg	1.6	10	10		B7,D2	EPA 6010D
7439-89-6	Iron	52100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	753	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	795	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	7.86	mg/kg	0.132	0.3	2		D1,E	EPA 6020B
7439-92-1	Lead	252	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/17

SVL Analytical, Inc. 21-Jan-19 16:16

INORGANIC ANALYSIS DATA SHEET

R38-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0192**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0192-01**
Sampled: **11/19/18 10:25** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.840	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	5.79	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	10.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	661	mg/kg	1.6	10	10		D1,M4	EPA 6010D
7439-89-6	Iron	42900	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	1820	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc	1980	mg/kg	3.4	10	10		D2,M4	EPA 6010D
7440-38-2	Arsenic	3.98	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	181	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 21-Jan-19 16:16

INORGANIC ANALYSIS DATA SHEET

R38-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0192**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0192-02**
Sampled: **11/19/18 10:35** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HH-I	0.245	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH I I I	6.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	2.89	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	12.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	685	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	68100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1240	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	965	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	7.15	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	240	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 21-Jan-19 16:16

INORGANIC ANALYSIS DATA SHEET

R38-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0192**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0192-03**

Solids: **10-Sieve Fraction** Sampled: **11/19/18 10:45** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J L L	6.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.73	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	12.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	672	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	71200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1530	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	926	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.50	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	248	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 21-Jan-19 16:16

INORGANIC ANALYSIS DATA SHEET

R38-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0192**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0192-04**

Solids: **10-Sieve Fraction** Sampled: **11/19/18 10:50** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ H1-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J L1	6.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.65	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	12.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	630	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	59400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1400	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1140	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.06	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	249	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 21-Jan-19 16:16

INORGANIC ANALYSIS DATA SHEET

R38-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0192**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0192-05**

Solids: **10-Sieve Fraction** Sampled: **11/19/18 10:55** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.618	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	5.35	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	10.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	587	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	41100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1820	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1890	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.76	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	162	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 21-Jan-19 16:16

INORGANIC ANALYSIS DATA SHEET

R40-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0192**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0192-06**

Solids: **10-Sieve Fraction** Sampled: **11/19/18 08:35** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.656	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	6.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	4.34	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	13.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1140	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	57500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1410	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1210	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.77	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	215	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

2/16/19

SVL Analytical, Inc. 21-Jan-19 16:16

INORGANIC ANALYSIS DATA SHEET

R40-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0192**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0192-07**
Sampled: **11/19/18 08:43** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.225	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SGL-I	3.89	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.84	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	476	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	40100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2120	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1370	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.96	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	211	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

INORGANIC ANALYSIS DATA SHEET

R40-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0192**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0192-08**
Sampled: **11/19/18 08:47** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.852	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	5.44	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	11.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	632	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	50100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1900	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1850	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.30	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	221	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

INORGANIC ANALYSIS DATA SHEET

R40-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0192**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0192-09**

Solids: **10-Sieve Fraction** Sampled: **11/19/18 08:52** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HF-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J J J	7.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SGL-I	3.72	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	12.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	646	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	54100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1400	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1200	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.85	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	273	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 21-Jan-19 16:16

INORGANIC ANALYSIS DATA SHEET

R41-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0192**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0192-10**

Solids: **10-Sieve Fraction** Sampled: **11/19/18 14:18** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.244	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.47	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	13.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	602	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	51400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1470	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1170	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.57	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	194	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 21-Jan-19 16:16

INORGANIC ANALYSIS DATA SHEET

R41-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0192**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0192-11**

Solids: **10-Sieve Fraction** Sampled: **11/19/18 14:28** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HI-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J L	6.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.38	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	16.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	651	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	66400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1210	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1010	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.00	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	222	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 21-Jan-19 16:16

INORGANIC ANALYSIS DATA SHEET

R41-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0192**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0192-12**

Solids: **10-Sieve Fraction** Sampled: **11/19/18 14:46** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J L L	7.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.92	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	11.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	461	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	40400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1730	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1360	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.83	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	140	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 21-Jan-19 16:16

INORGANIC ANALYSIS DATA SHEET

R41-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0192**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0192-13**
Sampled: **11/19/18 14:50** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.640	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	4.52	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	9.71	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	546	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	39600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1740	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1700	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.59	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	207	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 21-Jan-19 16:16

INORGANIC ANALYSIS DATA SHEET

R41-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0192**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0192-14**

Solids: **10-Sieve Fraction** Sampled: **11/19/18 14:55** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HFI	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J LL	6.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	1.98	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	18.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	635	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	61900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	864	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	478	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.28	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	211	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

2/16/19

SVL Analytical, Inc. 21-Jan-19 16:16

INORGANIC ANALYSIS DATA SHEET

R41-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0192**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0192-15**

Solids: **10-Sieve Fraction** Sampled: **11/19/18 15:00** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.282	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L LL	7.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SAL-I	3.24	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	16.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	619	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	65200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1150	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	896	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.03	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	210	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 21-Jan-19 16:16

INORGANIC ANALYSIS DATA SHEET

R42-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0192**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0192-16**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 15:51** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.16	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	5.32	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	11.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	632	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	39100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1690	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1790	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.32	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	159	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 21-Jan-19 16:16

INORGANIC ANALYSIS DATA SHEET

R42-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0192**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0192-17**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 15:55** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.387	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J 1 1	7.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	3.78	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	7.91	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	475	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	33300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1540	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1300	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.85	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	146	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 21-Jan-19 16:16

INORGANIC ANALYSIS DATA SHEET

R42-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0192**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0192-18**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 15:58** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.151	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	5.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.69	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	12.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	628	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	38600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1560	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	658	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.61	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	240	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 18-Jan-19 10:15

INORGANIC ANALYSIS DATA SHEET

R42-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-01**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 16:02** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J 4T-I	0.244	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	6.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	6.42	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	7.86	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	935	mg/kg	1.6	10	10		D2,M4	EPA 6010D
7439-89-6	Iron	34100	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	1920	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc	2680	mg/kg	3.4	10	10		D2,M4	EPA 6010D
7440-38-2	Arsenic	4.53	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	227	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:15

INORGANIC ANALYSIS DATA SHEET

R79-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-02**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 11:18** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	1.20	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SGL-I	1.66	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.11	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	382	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	29300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1460	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	476	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.58	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	174	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AE 12/17/19

SVL Analytical, Inc. 18-Jan-19 10:15

INORGANIC ANALYSIS DATA SHEET

R79-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-03**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 11:28** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.376	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	1.77	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	5.96	mg/kg	2	6	10	J	D1	EPA 6010D
7440-50-8	Copper	269	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	22800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1570	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	420	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	1.96	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	161	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

INORGANIC ANALYSIS DATA SHEET

R79-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-04**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 11:31** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.684	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L LL	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SGL-I	2.07	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	7.26	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	365	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	25700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1430	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	564	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.23	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	141	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/17/19

INORGANIC ANALYSIS DATA SHEET

R79-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-05**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 11:36** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J H1-I	0.524	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	2.70	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	7.37	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	506	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	25400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1620	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	743	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.54	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	174	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:15

INORGANIC ANALYSIS DATA SHEET

R14-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-06**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 15:27** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.977	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	7.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	0.75	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	10.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	210	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	26100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	351	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	278	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	1.69	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	54.0	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/17/19

SVL Analytical, Inc. 18-Jan-19 10:15

INORGANIC ANALYSIS DATA SHEET

R14-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-07**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 15:31** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.941	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	2.32	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	8.98	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	409	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	27100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1210	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	694	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.27	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	102	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:15

INORGANIC ANALYSIS DATA SHEET

R14-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0193**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0193-08**
Sampled: **11/20/18 15:35** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HF-I	0.984	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J 1 L	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SGL-I	2.03	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.36	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	332	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	26100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1210	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	634	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.20	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	98.8	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AE 12/17/19

SVL Analytical, Inc. 18-Jan-19 10:15

INORGANIC ANALYSIS DATA SHEET

R14-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-09**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 15:38** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.419	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J L L	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.59	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	8.16	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	177	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	29200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2140	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	356	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.05	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	60.3	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:15

INORGANIC ANALYSIS DATA SHEET

R14-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-10**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 15:42** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HF-I L L L	0.778	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.73	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.45	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	290	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	24800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1240	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	552	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.21	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	89.9	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 12/11/19

SVL Analytical, Inc. 18-Jan-19 10:15

INORGANIC ANALYSIS DATA SHEET

R15-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-11**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 08:18** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.485	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	4.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	1.47	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	31.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	845	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	82500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	276	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	487	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.59	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	185	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:15

INORGANIC ANALYSIS DATA SHEET

R15-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-12**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 08:26** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.577	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH 1 1 1	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.96	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	8.16	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	450	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	38300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1670	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1270	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.59	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	145	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

INORGANIC ANALYSIS DATA SHEET

R15-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-13**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 08:32** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.274	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	3.46	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	8.20	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	419	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	38600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1520	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1320	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.24	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	134	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

J HZ-I
1 1 1
J SGL-I

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:15

INORGANIC ANALYSIS DATA SHEET

R15-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-14**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 08:40** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J ~~SOIL~~ HI	0.421	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-I	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	3.86	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.56	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	508	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	36800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1720	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1470	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.40	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	165	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:15

INORGANIC ANALYSIS DATA SHEET

R15-005F

Laboratory: SVL Analytical, Inc.
Client: Freeport McMoRan - Chino Mines
Matrix: Soil
Solids: 10-Sieve Fraction

SDG: X8L0193
Project: HWCIU Post-excavation Level 3
Laboratory ID: X8L0193-15
Sampled: 11/20/18 10:05 Recv'd: 12/07/18 14:30

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.923	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	1.82	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	4.96	mg/kg	2	6	10	J	D1	EPA 6010D
7440-50-8	Copper	194	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	15800	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese	875	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	443	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	1.86	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	81.8	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

J HT-I L L
SQL-I L L

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:15

INORGANIC ANALYSIS DATA SHEET

R15-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-16**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 10:10** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HI I	0.177	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	6.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.18	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	25.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	815	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	60600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	690	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	480	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.20	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	179	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/18

SVL Analytical, Inc. 18-Jan-19 10:15

INORGANIC ANALYSIS DATA SHEET

R15-007F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-17**

Solids: **10-Sieve Fraction** Sampled: **11/20/18 10:20** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J L	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.48	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	8.35	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	386	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	39100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1650	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1360	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.87	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	146	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:15

INORGANIC ANALYSIS DATA SHEET

R18-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-18**

Solids: **10-Sieve Fraction** Sampled: **11/28/18 10:10** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon U J HT-I LI	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium U MB-I 4	~~2.88~~	mg/kg	~~2.88~~ 0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	10.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	291	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	29000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1300	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1060	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.99	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	158	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:15

INORGANIC ANALYSIS DATA SHEET

R18-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0193**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0193-19**

Solids: **10-Sieve Fraction** Sampled: **11/28/18 10:30** Recv'd: **12/07/18 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.347	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.33	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	153	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	2180	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	128000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2450	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1140	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	12.6	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	663	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:12

INORGANIC ANALYSIS DATA SHEET

R38-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0196**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0196-01**
Sampled: **11/19/18 10:45** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.459	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	6.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	3.98	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	15.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	897	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	92900	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	1330	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc	1310	mg/kg	3.4	10	10		D2,M4	EPA 6010D
7440-38-2	Arsenic	7.90	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	356	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:12

INORGANIC ANALYSIS DATA SHEET

R40-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0196**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0196-02**
Sampled: **11/19/18 08:35** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.448	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	6.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	3.90	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	12.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	849	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	73000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1730	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1460	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	8.43	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	252	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:12

INORGANIC ANALYSIS DATA SHEET

R40-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0196**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0196-03**
Sampled: **11/19/18 08:52** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.249	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	3.25	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	13.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	761	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	66000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1570	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1440	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	7.62	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	297	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:12

INORGANIC ANALYSIS DATA SHEET

R41-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0196**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0196-04**

Solids: **60-Sieve Fraction** Sampled: **11/19/18 14:46** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.229	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.53	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	10.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	489	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	50500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1660	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1370	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.67	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	173	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:12

INORGANIC ANALYSIS DATA SHEET

R41-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0196**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0196-05**

Solids: **60-Sieve Fraction** Sampled: **11/19/18 15:00** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J H1-I	0.401	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH I I I	7.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	3.36	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	20.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	877	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	93500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1700	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1440	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.56	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	297	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:12

INORGANIC ANALYSIS DATA SHEET

R42-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0196**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0196-06**

Solids: **60-Sieve Fraction** Sampled: **11/20/18 15:58** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HFI	0.154	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	5.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J JQL-I	1.27	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	14.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	690	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	51600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1680	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	722	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	7.16	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	295	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:12

INORGANIC ANALYSIS DATA SHEET

R79-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0196**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0196-07**

Solids: **60-Sieve Fraction** Sampled: **11/20/18 11:28** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HJ I	0.373	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	7.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.05	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	6.83	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	266	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	22200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1280	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	374	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	1.86	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	122	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

INORGANIC ANALYSIS DATA SHEET

R14-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0196**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0196-08**

Solids: **60-Sieve Fraction** Sampled: **11/20/18 15:27** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.451	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	7.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	0.76	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	14.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	260	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	29900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	345	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	307	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	1.77	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	53.2	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:12

INORGANIC ANALYSIS DATA SHEET

R14-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0196**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0196-09**

Solids: **60-Sieve Fraction** Sampled: **11/20/18 15:38** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J H1-I	0.690	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	2.14	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	11.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	290	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	34900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	3370	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	467	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.61	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	71.4	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:12

INORGANIC ANALYSIS DATA SHEET

R15-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0196**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0196-10**

Solids: **60-Sieve Fraction** Sampled: **11/20/18 08:26** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HI-I	0.333	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.44	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	11.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	473	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	58200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1610	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1330	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.76	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	170	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:12

INORGANIC ANALYSIS DATA SHEET

R15-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0196**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0196-11**

Solids: **60-Sieve Fraction** Sampled: **11/20/18 10:05** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.926	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.66	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	7.84	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	245	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	20400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	884	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	548	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	1.89	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	74.0	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:12

INORGANIC ANALYSIS DATA SHEET

R18-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0196**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0196-12**

Solids: **60-Sieve Fraction** Sampled: **11/28/18 10:10** Recv'd: **12/06/18 12:45**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J SGC-IHH	0.152	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-I	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SGL-I	3.05	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		12.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		352	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		58700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1570	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		1180	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		3.54	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		180	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 18-Jan-19 10:30

INORGANIC ANALYSIS DATA SHEET

R18-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-01**

Solids: **10-Sieve Fraction** Sampled: **11/28/18 10:52** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J 4T-I	1.20	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J 5GL-I	3.76	mg/kg	0.57	4	10	J	D1,M4	EPA 6010D
7440-47-3	Chromium	14.0	mg/kg	2	6	10		D1,M4	EPA 6010D
7440-50-8	Copper	460	mg/kg	1.6	10	10		D1,M4	EPA 6010D
7439-89-6	Iron	39700	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	1420	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc	1260	mg/kg	3.4	10	10		D2,M4	EPA 6010D
7440-38-2	Arsenic	4.37	mg/kg	0.132	0.3	2		D1,M4	EPA 6020B
7439-92-1	Lead	185	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 12/16/19

SVL Analytical, Inc. 18-Jan-19 10:30

INORGANIC ANALYSIS DATA SHEET

R18-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-02**

Solids: **10-Sieve Fraction** Sampled: **11/28/18 12:43** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	4.20	%		1.5	1		D2,H1	EPA 600 3.2.13
PH	Paste pH I L L	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium I SQL-I	2.48	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	10.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	298	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	29700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1520	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	879	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	4.04	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	176	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 1/16/19

SVL Analytical, Inc. 18-Jan-19 10:30

INORGANIC ANALYSIS DATA SHEET

R01-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-03**

Solids: **10-Sieve Fraction** Sampled: **11/29/18 08:44** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HI-I	0.896	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH | L I	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium | SOL-I	1.41	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	7.76	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	230	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	25900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1100	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	530	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	4.17	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	182	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 12/14/19

SVL Analytical, Inc. 18-Jan-19 10:30

INORGANIC ANALYSIS DATA SHEET

R01-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-04**

Solids: **10-Sieve Fraction** Sampled: **11/29/18 08:55** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J H2-I	1.19	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH I I I	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium I SQL-I	2.91	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	12.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	401	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	37900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1510	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	958	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	4.41	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	148	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/14/19

SVL Analytical, Inc. 18-Jan-19 10:30

INORGANIC ANALYSIS DATA SHEET

R01-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-05**

Solids: **10-Sieve Fraction** Sampled: **11/29/18 09:14** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.223	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium J 5&C-I	2.40	mg/kg	2	6	10	J	D1	EPA 6010D
7440-50-8	Copper	66.6	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	12300	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese	457	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	157	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	3.26	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	124	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/14/18

SVL Analytical, Inc. 18-Jan-19 10:30

INORGANIC ANALYSIS DATA SHEET

R01-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-06**

Solids: **10-Sieve Fraction** Sampled: **11/29/18 09:22** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.425	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium J SQL-I	3.87	mg/kg	2	6	10	J	D1	EPA 6010D
7440-50-8	Copper	54.0	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	12500	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese	259	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	82.7	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.36	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	114	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/14/19

SVL Analytical, Inc. 18-Jan-19 10:30

INORGANIC ANALYSIS DATA SHEET

R01-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-07**

Solids: **10-Sieve Fraction** Sampled: **11/29/18 09:40** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I L I	0.791	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	0.77	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium SOL-I L I	3.98	mg/kg	2	6	10	J	D1	EPA 6010D
7440-50-8	Copper	119	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	16700	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese	639	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	162	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	4.24	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	187	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/14/19

SVL Analytical, Inc. 18-Jan-19 10:30

INORGANIC ANALYSIS DATA SHEET

R46-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-08**

Solids: **10-Sieve Fraction** Sampled: **11/29/18 07:50** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HI-I	0.206	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH | 1 1	7.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium | SQL-I	1.44	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	13.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	348	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	50400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	865	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	387	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	5.76	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	294	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 1/21/19

SVL Analytical, Inc. 18-Jan-19 10:30

INORGANIC ANALYSIS DATA SHEET

R46-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-09**

Solids: **10-Sieve Fraction** Sampled: **11/29/18 08:00** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.332	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L	8.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	1.87	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium JQL-I L L	2.34	mg/kg	2	6	10	J	D1	EPA 6010D
7440-50-8	Copper	66.6	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	22300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2340	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	888	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.26	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	646	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/14/19

INORGANIC ANALYSIS DATA SHEET

R46-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-10**

Solids: **10-Sieve Fraction** Sampled: **11/29/18 08:10** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.924	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH I I	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium I SQL-I	1.88	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	6.92	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	252	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	28900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1190	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	691	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	4.18	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	242	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/14/19

SVL Analytical, Inc. 18-Jan-19 10:30

INORGANIC ANALYSIS DATA SHEET

R46-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-11**

Solids: **10-Sieve Fraction** Sampled: **11/29/18 08:24** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J 4T-I	0.213	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH 1 I	7.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium 1 SQL-I	3.02	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	12.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper J FD-I	299	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	38300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1440	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc J FD-I	1260	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.58	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	183	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/14/19

SVL Analytical, Inc. 18-Jan-19 10:30

INORGANIC ANALYSIS DATA SHEET

R46-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-12**

Solids: **10-Sieve Fraction** Sampled: **11/29/18 08:26** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.175	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH 1 1	7.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium SQL-I	1.13	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium 1 1	5.68	mg/kg	2	6	10	J	D1	EPA 6010D
7440-50-8	Copper J FD-I	147	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	30200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1010	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc J FD-I	307	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	3.07	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	190	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/14/19

SVL Analytical, Inc. 18-Jan-19 10:30

INORGANIC ANALYSIS DATA SHEET

R44-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-13**

Solids: **10-Sieve Fraction** Sampled: **11/28/18 13:05** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	1.03	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium QC J	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium J SQL-I	3.59	mg/kg	2	6	10	J	D1	EPA 6010D
7440-50-8	Copper	79.1	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	12600	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese	405	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	59.3	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.18	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	48.3	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/14/19

SVL Analytical, Inc. 18-Jan-19 10:30

INORGANIC ANALYSIS DATA SHEET

R44-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-14**

Solids: **10-Sieve Fraction** Sampled: **11/28/18 13:14** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J L L	6.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	1.24	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	29.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	453	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	78200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	763	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	252	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	5.26	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	226	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/14/19

SVL Analytical, Inc. 18-Jan-19 10:30

INORGANIC ANALYSIS DATA SHEET

R44-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-15**

Solids: **10-Sieve Fraction** Sampled: **11/28/18 13:32** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.224	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH | LI	6.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium | SQL-I	0.59	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	6.25	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	176	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	17300	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese J FD-I	555	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	277	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	1.84	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	47.4	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 1/21/19

KA 1/27/20

SVL Analytical, Inc. 18-Jan-19 10:30

INORGANIC ANALYSIS DATA SHEET

R44-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-16**

Solids: **10-Sieve Fraction** Sampled: **11/28/18 13:17** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HF-I	1.93	%		1.5	1		D2,H1	EPA 600 3.2.13
PH	Paste pH L I	5.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.44	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.21	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	408	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	28000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	984	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	226	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	3.56	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	90.8	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/14/19

SVL Analytical, Inc. 18-Jan-19 10:30

INORGANIC ANALYSIS DATA SHEET

R44-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0282**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0282-17**

Solids: **10-Sieve Fraction** Sampled: **11/28/18 13:40** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.733	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH | I I	6.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium | SQL-I	0.81	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	7.35	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	220	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	21700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese J FD-I	835	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	271	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.05	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	49.5	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/18/19

KA 1/27/20

SVL Analytical, Inc. 18-Jan-19 10:33

INORGANIC ANALYSIS DATA SHEET

R47-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0283**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0283-02**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 08:15** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	1.19	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	4.55	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	12.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	637	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	47200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1840	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1730	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.72	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	292	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 12/18/19

SVL Analytical, Inc. 18-Jan-19 10:33

INORGANIC ANALYSIS DATA SHEET

R47-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0283**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0283-03**
Solids: **10-Sieve Fraction** Sampled: **12/01/18 08:28** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT,FD-I	0.662	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-I	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-I	3.47	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		13.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		494	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		46800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1390	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		1240	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		5.29	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		340	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/14/19

SVL Analytical, Inc. 18-Jan-19 10:33

INORGANIC ANALYSIS DATA SHEET

R47-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0283**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0283-04**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 08:35** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HFI	0.268	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH LL	4.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium SGC-I	0.75	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	33.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1280	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	193000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	281	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	280	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	4.08	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	285	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/14/19

SVL Analytical, Inc. 18-Jan-19 10:33

INORGANIC ANALYSIS DATA SHEET

R47-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0283**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0283-05**
Sampled: **12/01/18 08:57** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J 4T-I	0.244	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH I I	6.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium I 3QL-I	1.51	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	16.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	947	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	85100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	938	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	679	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.58	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	333	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/21/19

SVL Analytical, Inc. 18-Jan-19 10:33

INORGANIC ANALYSIS DATA SHEET

R47-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0283**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0283-06**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 08:45** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT,FD-I	1.02	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-I	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.32	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	14.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	421	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	40500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1390	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1160	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.72	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	296	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/14/19

SVL Analytical, Inc. 18-Jan-19 10:33

INORGANIC ANALYSIS DATA SHEET

R48-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0283**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0283-07**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 09:00** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.558	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH | L L	7.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium | SOL-I	2.96	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	18.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	590	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	57300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1490	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1170	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	8.12	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	339	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/14/19

SVL Analytical, Inc. 18-Jan-19 10:33

INORGANIC ANALYSIS DATA SHEET

R48-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0283**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0283-08**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 09:23** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.855	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH I LI	7.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium I SOL-I	1.37	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	18.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	480	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	52800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	815	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	673	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.49	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	224	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/14/18

SVL Analytical, Inc. 18-Jan-19 10:33

INORGANIC ANALYSIS DATA SHEET

R48-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0283**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0283-09**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 09:35** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J I I	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	2.19	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	13.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	275	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	37700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1250	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1060	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.27	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	187	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/19

SVL Analytical, Inc. 18-Jan-19 10:33

INORGANIC ANALYSIS DATA SHEET

R48-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0283**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0283-10**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 09:30** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.176	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.11	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	13.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	326	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	43700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1410	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1160	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.73	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	221	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/14/19

SVL Analytical, Inc. 18-Jan-19 10:33

INORGANIC ANALYSIS DATA SHEET

R50-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0283**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0283-11**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 12:14** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-I	0.150	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J I I	5.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	0.82	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	11.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	197	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	64500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	623	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	538	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	1.88	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	288	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/18/19

SVL Analytical, Inc. 18-Jan-19 10:33

INORGANIC ANALYSIS DATA SHEET

R50-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0283**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0283-12**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 12:24** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.515	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	3.22	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	12.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	394	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	39200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1540	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1190	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.64	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	281	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/14/19

SVL Analytical, Inc. 18-Jan-19 10:33

INORGANIC ANALYSIS DATA SHEET

R50-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0283**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0283-13**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 12:32** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.04	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	3.11	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	13.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	422	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	37500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1450	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1260	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.71	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	158	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

J HT-I L L

J SQL-I

12/14/19

SVL Analytical, Inc. 18-Jan-19 10:33

INORGANIC ANALYSIS DATA SHEET

R50-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0283**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0283-14**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 12:43** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.176	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium L SQC-I	2.42	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	10.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	331	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	35300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1520	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1030	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.84	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	190	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

JC, 2/14/19

SVL Analytical, Inc. 18-Jan-19 10:33

INORGANIC ANALYSIS DATA SHEET

R51-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0283**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0283-15**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 10:50** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.223	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	2.82	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	12.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	296	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	34700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1340	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1080	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.86	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	217	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

J HT-I
L L
SQL-I

12/12/19

SVL Analytical, Inc. 18-Jan-19 10:33

INORGANIC ANALYSIS DATA SHEET

R51-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0283**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0283-16**
Sampled: **12/01/18 10:59** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I LL SOL-I	0.471	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	3.28	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	13.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	413	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	38200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1440	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1270	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.73	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	203	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/14/19

SVL Analytical, Inc. 18-Jan-19 15:10

INORGANIC ANALYSIS DATA SHEET

R51-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0308**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0308-01**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 11:06** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.181	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L	7.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium SQL-I	2.26	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	11.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	536	mg/kg	1.6	10	10		D1,M4	EPA 6010D
7439-89-6	Iron	54600	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	1530	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc	1000	mg/kg	3.4	10	10		D2,M4	EPA 6010D
7440-38-2	Arsenic	6.99	mg/kg	0.132	0.3	2		D1,M4	EPA 6020B
7439-92-1	Lead	266	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 18-Jan-19 15:10

INORGANIC ANALYSIS DATA SHEET

R51-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0308**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0308-02**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 11:13** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.208	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH LL	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.75	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	11.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	451	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	56200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1240	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	744	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.22	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	234	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/18

SVL Analytical, Inc. 18-Jan-19 15:10

INORGANIC ANALYSIS DATA SHEET

R51-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0308**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0308-03**
Sampled: **12/01/18 11:18** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.233	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium SQL-I	2.63	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	11.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	508	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	48700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1770	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	875	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.64	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	208	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/19/19

SVL Analytical, Inc. 18-Jan-19 15:10

INORGANIC ANALYSIS DATA SHEET

R52-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0308**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0308-04**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 13:24** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.242	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L	6.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium SQL-I	1.20	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	13.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	487	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	58800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1240	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	699	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.23	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	317	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/10/19

SVL Analytical, Inc. 18-Jan-19 15:10

INORGANIC ANALYSIS DATA SHEET

R52-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0308**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0308-05**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 13:30** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I L I	0.274	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium I SQC-I	3.29	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	11.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	447	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	45000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1850	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1190	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.53	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	162	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/19

SVL Analytical, Inc. 18-Jan-19 15:10

INORGANIC ANALYSIS DATA SHEET

R52-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0308**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0308-06**
Sampled: **12/01/18 13:45** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J SQGHI-I	0.193	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH ⊥ ⊥	6.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium ⊥ SQL-I	0.59	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	17.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	415	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	55400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	737	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	372	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.22	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	221	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 12/19/19

SVL Analytical, Inc. 18-Jan-19 15:10

INORGANIC ANALYSIS DATA SHEET

R52-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0308**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0308-07**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 13:35** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.265	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH I I	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium I SOL-I	2.18	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	11.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	329	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	34500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1250	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	954	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.92	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	158	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AE 1/29/19

SVL Analytical, Inc. 18-Jan-19 15:10

INORGANIC ANALYSIS DATA SHEET

R55-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0308**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0308-08**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 14:20** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.154	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH | LL	7.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium | SQL-I	1.97	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	13.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	486	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	42600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	997	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	862	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.74	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	170	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 1/2/19/19

SVL Analytical, Inc. 18-Jan-19 15:10

INORGANIC ANALYSIS DATA SHEET

R55-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0308**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0308-09**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 14:35** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.755	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH I I	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium I SQL-I	1.21	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	12.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	439	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	34800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	877	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	531	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.99	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	139	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 18-Jan-19 15:10

INORGANIC ANALYSIS DATA SHEET

R55-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0308**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0308-10**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 14:50** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.240	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH | LL	6.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium | SOC-I	1.74	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	15.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	576	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	58500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1010	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	814	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	8.05	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	307	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 18-Jan-19 15:10

INORGANIC ANALYSIS DATA SHEET

R55-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0308**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0308-11**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 15:10** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.257	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH I I	6.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium I SQL-I	1.98	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	13.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	594	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	52300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1000	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	924	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	9.37	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	319	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 18-Jan-19 15:10

INORGANIC ANALYSIS DATA SHEET

R55-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0308**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0308-12**

Solids: **10-Sieve Fraction** Sampled: **12/01/18 15:00** Recv'd: **12/11/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J L I	7.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium I SQL-I	2.20	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	12.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	514	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	52900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1330	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1070	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.94	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	253	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 18-Jan-19 15:14

INORGANIC ANALYSIS DATA SHEET

R01-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0311**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0311-01**
Sampled: **11/29/18 08:44** Recv'd: **12/11/18 10:39**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.419	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium I SOL-I	3.53	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	11.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	357	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	34000	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	1470	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc	1330	mg/kg	3.4	10	10		D2,M4	EPA 6010D
7440-38-2	Arsenic	3.53	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	162	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 18-Jan-19 15:14

INORGANIC ANALYSIS DATA SHEET

R01-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0311**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0311-02**
Sampled: **11/29/18 09:22** Recv'd: **12/11/18 10:39**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.401	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium I SGL-I	0.96	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	10.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	122	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	21100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	444	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	356	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.20	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	111	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 18-Jan-19 15:14

INORGANIC ANALYSIS DATA SHEET

R46-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0311**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0311-03**

Solids: **60-Sieve Fraction** Sampled: **11/29/18 08:00** Recv'd: **12/11/18 10:39**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J H7-I	0.332	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J J J	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	4.80	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	7.42	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	197	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	33800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2730	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1770	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.73	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	566	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

DC 12/19/19

SVL Analytical, Inc. 18-Jan-19 15:14

INORGANIC ANALYSIS DATA SHEET

R46-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0311**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0311-04**
Sampled: **11/29/18 08:26** Recv'd: **12/11/18 10:39**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.235	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L	7.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium SQL-I	3.36	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	13.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	394	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	53700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1560	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1280	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.05	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	229	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

DE 1/2/19

SVL Analytical, Inc. 18-Jan-19 15:14

INORGANIC ANALYSIS DATA SHEET

R44-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0311**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0311-05**
Sampled: **11/28/18 13:32** Recv'd: **12/11/18 10:39**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.774	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	6.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium SQL-I	1.43	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	11.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	357	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	26600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	828	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	605	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	1.93	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	49.1	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/19/19

SVL Analytical, Inc. 18-Jan-19 15:14

INORGANIC ANALYSIS DATA SHEET

R47-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0311**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0311-07**
Sampled: **12/01/18 08:35** Recv'd: **12/11/18 10:39**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.619	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	5.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	0.95	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	31.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1160	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	178000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	456	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	462	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.62	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	469	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	5.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

J HT-I
I L I
I Sol-I

12/19/19

SVL Analytical, Inc. 18-Jan-19 15:14

INORGANIC ANALYSIS DATA SHEET

R48-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0311**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0311-08**
Sampled: **12/01/18 09:00** Recv'd: **12/11/18 10:39**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.444	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH I I	7.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium I SGL-I	3.63	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	17.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	763	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	67500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1840	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1500	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	9.05	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	426	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 18-Jan-19 15:14

INORGANIC ANALYSIS DATA SHEET

R48-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0311**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0311-09**

Solids: **60-Sieve Fraction** Sampled: **12/01/18 09:30** Recv'd: **12/11/18 10:39**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.235	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH I I	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium I SQL-I	2.59	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	15.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	436	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	47600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1420	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1100	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.99	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	249	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 18-Jan-19 15:14

INORGANIC ANALYSIS DATA SHEET

R50-003F

Laboratory: SVL Analytical, Inc.
Client: Freeport McMoRan - Chino Mines
Matrix: Soil
Solids: 60-Sieve Fraction

SDG: X8L0311
Project: HWCIU Post-excavation Level 3
Laboratory ID: X8L0311-10
Sampled: 12/01/18 12:32 Recv'd: 12/11/18 10:39

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.420	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium SQL-I	3.34	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	14.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	432	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	41300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1520	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1320	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.79	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	167	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/19/19

SVL Analytical, Inc. 18-Jan-19 15:14

INORGANIC ANALYSIS DATA SHEET

R51-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0311**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0311-11**

Solids: **60-Sieve Fraction** Sampled: **12/01/18 10:59** Recv'd: **12/11/18 10:39**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.552	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	3.59	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	13.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	473	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	42800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1580	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1420	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.13	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	204	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

SVL Analytical, Inc. 18-Jan-19 15:14

INORGANIC ANALYSIS DATA SHEET

R51-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0311**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0311-12**
Sampled: **12/01/18 11:06** Recv'd: **12/11/18 10:39**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.181	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	3.29	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	13.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	627	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	78800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1840	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1270	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	9.50	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	362	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

J HT-I
I I
I SQL-I

1/14/19

SVL Analytical, Inc. 18-Jan-19 15:14

INORGANIC ANALYSIS DATA SHEET

R52-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0311**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0311-13**
Sampled: **12/01/18 13:24** Recv'd: **12/11/18 10:39**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.168	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	6.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	1.45	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	16.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	632	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	81200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1460	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	789	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	9.51	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	329	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

SVL Analytical, Inc. 18-Jan-19 15:14

INORGANIC ANALYSIS DATA SHEET

R52-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0311**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0311-14**
Sampled: **12/01/18 13:35** Recv'd: **12/11/18 10:39**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.389	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH ⊥ ⊥	7.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium ⊥ SQL-I	2.94	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	14.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	453	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	51500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1510	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1140	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	8.85	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	311	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 12/19/19

SVL Analytical, Inc. 18-Jan-19 15:14

INORGANIC ANALYSIS DATA SHEET

R55-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0311**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0311-15**

Solids: **60-Sieve Fraction** Sampled: **12/01/18 14:50** Recv'd: **12/11/18 10:39**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.270	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	1.86	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	14.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	636	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	64600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	977	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	916	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	11.2	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	387	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 21-Jan-19 14:37

INORGANIC ANALYSIS DATA SHEET

R4-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0362**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0362-01**
Sampled: **12/10/18 13:12** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.450	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.9	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.57	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	10.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	830	mg/kg	1.6	10	10		B7,D1,M4	EPA 6010D
7439-89-6	Iron	25100	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	886	mg/kg	2.8	8	10		D1,M4	EPA 6010D
7440-66-6	Zinc	474	mg/kg	3.4	10	10		B7,D2,M4	EPA 6010D
7440-38-2	Arsenic	2.47	mg/kg	0.132	0.3	2	J	D1,M4	EPA 6020B MS-L
7439-92-1	Lead	85.6	mg/kg	0.018	0.1	2		B7,D1,M4	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greenwood 12/16/19

SVL Analytical, Inc. 21-Jan-19 14:37

INORGANIC ANALYSIS DATA SHEET

R4-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0362**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0362-02**
Sampled: **12/10/18 13:20** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.504	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.74	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	8.94	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	367	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	27300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	653	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	364	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.64	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	185	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Ennis 12/16/19

SVL Analytical, Inc. 21-Jan-19 14:37

INORGANIC ANALYSIS DATA SHEET

R4-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0362**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0362-03**

Solids: **10-Sieve Fraction** Sampled: **12/10/18 13:25** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.597	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	4.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	12.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	366	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	30900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	322	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	283	mg/kg	3.4	10	10		B7,D1	EPA 6010D
7440-38-2	Arsenic	2.94	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	59.2	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	3.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 21-Jan-19 14:37

INORGANIC ANALYSIS DATA SHEET

R4-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0362**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0362-04**

Solids: **10-Sieve Fraction** Sampled: **12/10/18 13:15** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.334	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.25	mg/kg	0.57	4	10	J		EPA 6010D SQL-I
7440-47-3	Chromium	8.57	mg/kg	2	6	10			EPA 6010D
7440-50-8	Copper	729	mg/kg	1.6	10	10			EPA 6010D
7439-89-6	Iron	27600	mg/kg	66	200	10			EPA 6010D
7439-96-5	Manganese	638	mg/kg	2.8	8	10			EPA 6010D
7440-66-6	Zinc	352	mg/kg	3.4	10	10			EPA 6010D
7440-38-2	Arsenic	3.34	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	166	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greenwood 12/16/19

SVL Analytical, Inc. 21-Jan-19 14:37

INORGANIC ANALYSIS DATA SHEET

R4-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0362**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0362-05**
Sampled: **12/10/18 13:28** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.410	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	4.1	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.58	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	14.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	384	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	33600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	321	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	295	mg/kg	3.4	10	10		B7,D1	EPA 6010D
7440-38-2	Arsenic	2.82	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	68.6	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	3.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Gruning 12/16/19

SVL Analytical, Inc. 21-Jan-19 14:37

INORGANIC ANALYSIS DATA SHEET

R6-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0362**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0362-06**
Sampled: **12/10/18 12:18** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.452	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.11	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	11.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	693	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	29300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	908	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	628	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	2.86	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	107	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Gray 12/16/19

INORGANIC ANALYSIS DATA SHEET

R6-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0362**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0362-07**
Sampled: **12/10/18 12:34** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.669	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.3	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.69	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	14.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	979	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	38700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	928	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	994	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.69	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	190	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greiner 12/16/19

SVL Analytical, Inc. 21-Jan-19 14:37

INORGANIC ANALYSIS DATA SHEET

R6-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0362**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0362-08**
Sampled: **12/10/18 12:30** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.05	%		0.15	1		H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.7	pH Units			1		H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.50	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	7.40	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	489	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	24500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	747	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	474	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.96	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	186	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greig 12/16/19

SVL Analytical, Inc. 21-Jan-19 14:37

INORGANIC ANALYSIS DATA SHEET

R6-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0362**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0362-09**
Sampled: **12/10/18 12:25** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.648	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.67	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	12.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	639	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	34100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	998	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	826	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	3.27	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	118	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Ewing 12/16/19

SVL Analytical, Inc. 21-Jan-19 14:37

INORGANIC ANALYSIS DATA SHEET

R10-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0362**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0362-10**
Sampled: **12/10/18 13:57** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.17	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	8.1	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.66	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	10.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1140	mg/kg	1.6	10	10		B7,D2	EPA 6010D
7439-89-6	Iron	20400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	825	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	223	mg/kg	3.4	10	10		B7,D1	EPA 6010D
7440-38-2	Arsenic	2.43	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	73.4	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 21-Jan-19 14:37

INORGANIC ANALYSIS DATA SHEET

R10-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0362**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0362-11**
Sampled: **12/10/18 14:01** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	0.908	%		0.15	1	J	H1	EPA 600 3.2.13	HT-I
PH	Paste pH	7.8	pH Units			1	J	H5	EPA 600/2-78-054	HT-I
7440-43-9	Cadmium	1.18	mg/kg	0.57	4	10	J	D1	EPA 6010D	SQL-I
7440-47-3	Chromium	12.8	mg/kg	2	6	10		D1	EPA 6010D	
7440-50-8	Copper	318	mg/kg	1.6	10	10	J	B7,D1	EPA 6010D	FD-I
7439-89-6	Iron	28700	mg/kg	66	200	10	J	D2	EPA 6010D	FD-I
7439-96-5	Manganese	942	mg/kg	2.8	8	10		D1	EPA 6010D	
7440-66-6	Zinc	352	mg/kg	3.4	10	10		B7,D2	EPA 6010D	
7440-38-2	Arsenic	2.67	mg/kg	0.132	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	157	mg/kg	0.018	0.1	2	J	B7,D1	EPA 6020B	FD-I
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greig 12/16/19

SVL Analytical, Inc. 21-Jan-19 14:37

INORGANIC ANALYSIS DATA SHEET

R10-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0362**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0362-12**
Sampled: **12/10/18 14:15** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	8.2	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	11.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	61.2	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	22400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1680	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	74.8	mg/kg	3.4	10	10		B7,D1	EPA 6010D
7440-38-2	Arsenic	1.84	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	24.0	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

INORGANIC ANALYSIS DATA SHEET

R10-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0362**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0362-13**
Sampled: **12/10/18 14:20** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	5.9	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.52	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	18.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	467	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	57600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	702	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	411	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	6.12	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	255	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greig 12/16/19

SVL Analytical, Inc. 21-Jan-19 14:37

INORGANIC ANALYSIS DATA SHEET

R11-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0362**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0362-14**
Solids: **10-Sieve Fraction** Sampled: **12/10/18 08:02** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.92	%		1.5	1		D2,H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.6	pH Units			1		H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.75	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	12.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	507	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	34000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1160	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	862	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	3.50	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	126	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/16/19

SVL Analytical, Inc. 21-Jan-19 14:37

INORGANIC ANALYSIS DATA SHEET

R11-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0362**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0362-15**
Sampled: **12/10/18 08:07** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.20	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	5.9	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.70	mg/kg	0.57	4	10	J	D1	EPA 6010D SVL-I
7440-47-3	Chromium	16.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	510	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	68000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	728	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	209	mg/kg	3.4	10	10		B7,D1	EPA 6010D
7440-38-2	Arsenic	2.60	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	65.7	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greiner 12/16/19

SVL Analytical, Inc. 21-Jan-19 14:37

INORGANIC ANALYSIS DATA SHEET

R11-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0362**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0362-16**
Sampled: **12/10/18 08:21** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.21	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.3	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.43	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	16.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1670	mg/kg	1.6	10	10		B7,D2	EPA 6010D
7439-89-6	Iron	31900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1050	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	961	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.21	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	152	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	3.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/16/19

SVL Analytical, Inc. 22-Jan-19 13:06

INORGANIC ANALYSIS DATA SHEET

R11-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0367**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0367-01**

Solids: **10-Sieve Fraction** Sampled: **12/10/18 08:36** Recv'd: **12/17/18 13:04**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.555	%		0.15	1	44	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.0	pH Units			1	44	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.32	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	9.55	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	279	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	26700	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	1060	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc	381	mg/kg	3.4	10	10	44	D2,M4	EPA 6010D MS-H
7440-38-2	Arsenic	2.55	mg/kg	0.132	0.3	2	44	D1,M4	EPA 6020B MS-L
7439-92-1	Lead	83.2	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Zuniga 12/17/19

SVL Analytical, Inc. 22-Jan-19 13:06

INORGANIC ANALYSIS DATA SHEET

R11-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0367**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0367-02**
Solids: **10-Sieve Fraction** Sampled: **12/10/18 08:10** Recv'd: **12/17/18 13:04**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.996	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	5.3	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.79	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	17.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	600	mg/kg	1.6	10	10	J	D1	EPA 6010D FD-I
7439-89-6	Iron	116000	mg/kg	66	200	10	J	D2	EPA 6010D FD-I
7439-96-5	Manganese	690	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	228	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.41	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	85.5	mg/kg	0.018	0.1	2	J	D1	EPA 6020B FD-I
NA	% Moisture (air dried)	3.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Zinn 12/17/19

SVL Analytical, Inc. 22-Jan-19 13:06

INORGANIC ANALYSIS DATA SHEET

R85-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0367**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0367-06**
Sampled: **12/06/18 14:40** Recv'd: **12/17/18 13:04**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.8	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.42	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	15.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	489	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	52700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	908	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	593	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.01	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	181	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/17/19

SVL Analytical, Inc. 22-Jan-19 13:06

INORGANIC ANALYSIS DATA SHEET

R85-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0367**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0367-07**

Solids: **10-Sieve Fraction** Sampled: **12/06/18 14:47** Recv'd: **12/17/18 13:04**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.282	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.2	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.85	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	14.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	482	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	47200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1200	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	639	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.49	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	153	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greiner 12/17/19

SVL Analytical, Inc. 22-Jan-19 13:06

INORGANIC ANALYSIS DATA SHEET

R85-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0367**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0367-08**
Sampled: **12/06/18 14:49** Recv'd: **12/17/18 13:04**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.67	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	13.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	494	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	52500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1080	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	564	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.25	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	164	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/17/19

INORGANIC ANALYSIS DATA SHEET

R85-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0367**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0367-09**

Solids: **10-Sieve Fraction** Sampled: **12/06/18 15:10** Recv'd: **12/17/18 13:04**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U~~J~~	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.88	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	14.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	422	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	64700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	833	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	377	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.31	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	206	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Ziegler 12/17/19

INORGANIC ANALYSIS DATA SHEET

R86-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0367**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0367-10**
Sampled: **12/06/18 11:37** Recv'd: **12/17/18 13:04**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.40	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	14.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	378	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	59300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	887	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	494	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.13	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	189	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Gruijo 12/17/19

INORGANIC ANALYSIS DATA SHEET

R86-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0367**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0367-11**
Solids: **10-Sieve Fraction** Sampled: **12/06/18 11:42** Recv'd: **12/17/18 13:04**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.21	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	4.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.36	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	13.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	548	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	53400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	513	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	595	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	8.64	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	278	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Zinn 12/17/19

SVL Analytical, Inc. 22-Jan-19 13:06

INORGANIC ANALYSIS DATA SHEET

R86-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0367**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0367-12**
Sampled: **12/06/18 11:47** Recv'd: **12/17/18 13:04**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.20	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	4.2	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.79	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	14.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	637	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	58500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	668	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	494	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	8.15	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	286	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

INORGANIC ANALYSIS DATA SHEET

R86-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0367**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0367-13**

Solids: **10-Sieve Fraction** Sampled: **12/06/18 11:50** Recv'd: **12/17/18 13:04**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.3	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.69	mg/kg	0.57	4	10	J	D1	EPA 6010D SWL-I
7440-47-3	Chromium	12.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	373	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	45500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	771	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	629	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.89	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	146	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 22-Jan-19 14:11

INORGANIC ANALYSIS DATA SHEET

R4-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0411**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0411-01**
Sampled: **12/10/18 13:25** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.338	%		0.15	1	J	H10	EPA 600 3.2.13 HT-I
PH	Paste pH	4.1	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	14.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	338	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	33000	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	322	mg/kg	2.8	8	10	J	D1,M4	EPA 6010D MS-H
7440-66-6	Zinc	273	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.72	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	57.3	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	3.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/17/19

INORGANIC ANALYSIS DATA SHEET

R6-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0411**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0411-02**

Solids: **60-Sieve Fraction** Sampled: **12/10/18 12:18** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.599	%		0.15	1	J	H10	EPA 600 3.2.13 HT-I
PH	Paste pH	7.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.81	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	13.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	732	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	33000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1030	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	663	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	3.14	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	128	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Gruio 12/17/19

SVL Analytical, Inc. 22-Jan-19 14:11

INORGANIC ANALYSIS DATA SHEET

R6-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0411**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0411-03**
Sampled: **12/10/18 12:25** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.679	%		0.15	1	J	H10	EPA 600 3.2.13 HT-I
PH	Paste pH	7.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.58	mg/kg	0.57	4	10	J	D1	EPA 6010D SOL-I
7440-47-3	Chromium	14.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	699	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	35800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1100	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1120	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.67	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	130	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/17/19

SVL Analytical, Inc. 22-Jan-19 14:11

INORGANIC ANALYSIS DATA SHEET

R10-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0411**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0411-04**
Solids: **60-Sieve Fraction** Sampled: **12/10/18 14:15** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H10	EPA 600 3.2.13 HT-I
PH	Paste pH	8.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	18.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	78.8	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	28000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	769	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	77.7	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	1.76	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	15.8	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Grijalva 12/17/19

INORGANIC ANALYSIS DATA SHEET

R11-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0411**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0411-05**
Solids: **60-Sieve Fraction** Sampled: **12/10/18 08:07** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.928	%		0.15	1	J	H10	EPA 600 3.2.13 HT-I
PH	Paste pH	5.9	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.89	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	19.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	600	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	93900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	683	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	212	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.68	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	72.2	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/17/19

SVL Analytical, Inc. 22-Jan-19 14:11

INORGANIC ANALYSIS DATA SHEET

R11-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0411**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0411-06**
Solids: **60-Sieve Fraction** Sampled: **12/10/18 08:10** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.12	%		0.15	1	J	H10	EPA 600 3.2.13 HT-I
PH	Paste pH	5.1	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.27	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	19.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	736	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	148000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	593	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	225	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.37	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	114	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greig 12/17/19

INORGANIC ANALYSIS DATA SHEET

R85-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0411**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0411-08**

Solids: **60-Sieve Fraction** Sampled: **12/06/18 14:49** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H10	EPA 600 3.2.13 HT-I
PH	Paste pH	7.2	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.67	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	16.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	506	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	62000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1370	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	745	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	4.53	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	188	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greig 12/17/19

INORGANIC ANALYSIS DATA SHEET

R86-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0411**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0411-09**
Sampled: **12/06/18 11:42** Recv'd: **12/17/18 10:22**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.464	%		0.15	1	J	H10	EPA 600 3.2.13 HT-I
PH	Paste pH	4.3	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.40	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	15.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	555	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	55900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	557	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	639	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	8.40	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	284	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/17/19

SVL Analytical, Inc. 28-Jan-19 14:17

INORGANIC ANALYSIS DATA SHEET

R56-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0423**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0423-05**
Sampled: **12/03/18 09:46** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.321	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.8	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.44	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	15.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	616	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	67800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1650	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	884	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.79	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	231	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/17/19

INORGANIC ANALYSIS DATA SHEET

R56-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0423**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0423-06**
Sampled: **12/03/18 09:50** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.999	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.07	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	14.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	321	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	33500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	968	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	771	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.55	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	126	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/17/19

INORGANIC ANALYSIS DATA SHEET

R56-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0423**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0423-07**
Solids: **10-Sieve Fraction** Sampled: **12/03/18 10:00** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.702	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.48	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	12.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	561	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	33600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1330	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	678	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.55	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	113	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greig 12/17/19

SVL Analytical, Inc. 28-Jan-19 14:17

INORGANIC ANALYSIS DATA SHEET

R56-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0423**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0423-08**
Sampled: **12/03/18 10:00** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.650	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.3	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.17	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	14.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	817	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	60900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1780	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1390	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.76	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	255	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/17/19

INORGANIC ANALYSIS DATA SHEET

R56-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0423**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0423-09**
Sampled: **12/03/18 10:15** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.685	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.3	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.02	mg/kg	0.57	4	10	J	D1	EPA 6010D SOL-I
7440-47-3	Chromium	14.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	743	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	56000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1630	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1270	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.65	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	249	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Ervin 12/17/19

INORGANIC ANALYSIS DATA SHEET

R57-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0423**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0423-10**

Solids: **10-Sieve Fraction** Sampled: **12/03/18 10:40** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.170	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.8	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.50	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	13.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	441	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	51400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1410	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1100	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.95	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	145	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 28-Jan-19 14:17

INORGANIC ANALYSIS DATA SHEET

R57-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0423**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0423-11**

Solids: **10-Sieve Fraction** Sampled: **12/03/18 10:43** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.454	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.8	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.51	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	13.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	477	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	55600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1540	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1300	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.86	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	223	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

INORGANIC ANALYSIS DATA SHEET

R57-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0423**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0423-12**

Solids: **10-Sieve Fraction** Sampled: **12/03/18 10:57** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.189	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.43	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	13.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	490	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	52800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1410	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	959	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.80	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	187	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Enj 12/17/19

INORGANIC ANALYSIS DATA SHEET

R57-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0423**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0423-13**

Solids: **10-Sieve Fraction** Sampled: **12/03/18 10:48** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.151	%		0.15	1	LJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.8	pH Units			1	LJ	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.43	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	11.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	501	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	57700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1600	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1280	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.80	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	174	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Gray 12/17/19

INORGANIC ANALYSIS DATA SHEET

R58-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0423**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0423-14**

Solids: **10-Sieve Fraction** Sampled: **12/04/18 10:10** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.943	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.5	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.39	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	11.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	684	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	41300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1030	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	850	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.09	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	168	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/17/19

SVL Analytical, Inc. 28-Jan-19 14:17

INORGANIC ANALYSIS DATA SHEET

R58-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0423**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0423-15**
Sampled: **12/04/18 10:20** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.151	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.61	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	11.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	670	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	39600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1400	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	864	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.15	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	169	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/17/19

SVL Analytical, Inc. 28-Jan-19 14:17

INORGANIC ANALYSIS DATA SHEET

R58-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0423**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0423-16**
Solids: **10-Sieve Fraction** Sampled: **12/04/18 10:30** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.8	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.82	mg/kg	0.57	4	10	J	D1	EPA 6010D SOL-I
7440-47-3	Chromium	12.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	726	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	49400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1340	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	827	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.91	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	217	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Quiroz 12/17/19

SVL Analytical, Inc. 28-Jan-19 14:17

INORGANIC ANALYSIS DATA SHEET

R58-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0423**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0423-17**

Solids: **10-Sieve Fraction** Sampled: **12/04/18 10:35** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.192	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	10.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	394	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	28700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2770	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	473	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.54	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	134	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/17/19

SVL Analytical, Inc. 29-Jan-19 14:46

INORGANIC ANALYSIS DATA SHEET

R60-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0431**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0431-01**
Sampled: **12/04/18 15:00** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.435	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.5	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.75	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	12.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	349	mg/kg	1.6	10	10	J	D1,M4	EPA 6010D MS-H
7439-89-6	Iron	36400	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	1780	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc	901	mg/kg	3.4	10	10		D2,M4	EPA 6010D
7440-38-2	Arsenic	3.13	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	171	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/18/19

SVL Analytical, Inc. 29-Jan-19 14:46

INORGANIC ANALYSIS DATA SHEET

R60-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0431**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0431-02**
Sampled: **12/04/18 15:08** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.345	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.08	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	11.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	415	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	36600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1300	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1100	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.50	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	177	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/18/19

SVL Analytical, Inc. 29-Jan-19 14:46

INORGANIC ANALYSIS DATA SHEET

R62-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0431**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0431-03**
Solids: **10-Sieve Fraction** Sampled: **12/05/18 08:45** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.2	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.31	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	11.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	378	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	40600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1170	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	911	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.35	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	163	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

SVL Analytical, Inc. 29-Jan-19 14:46

INORGANIC ANALYSIS DATA SHEET

R62-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0431**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0431-04**

Solids: **10-Sieve Fraction** Sampled: **12/05/18 09:10** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.252	%		0.15	1		H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.6	pH Units			1		H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.17	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	13.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	2160	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	33600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2750	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1560	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.48	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	286	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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Joel 12/18/19

SVL Analytical, Inc. 29-Jan-19 14:46

INORGANIC ANALYSIS DATA SHEET

R62-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0431**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0431-05**
Solids: **10-Sieve Fraction** Sampled: **12/05/18 08:56** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.1	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.19	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	19.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	398	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	65100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	753	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	407	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.88	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	277	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

SVL Analytical, Inc. 29-Jan-19 14:46

INORGANIC ANALYSIS DATA SHEET

R62-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0431**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0431-06**
Solids: **10-Sieve Fraction** Sampled: **12/05/18 09:01** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.279	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	4.9	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.75	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	28.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	666	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	64800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	651	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	402	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.31	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	267	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

SVL Analytical, Inc. 29-Jan-19 14:46

INORGANIC ANALYSIS DATA SHEET

R63-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0431**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0431-07**
Sampled: **12/05/18 15:20** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.177	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.9	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.54	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	16.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	491	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	45900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1340	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1070	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.26	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	168	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

SVL Analytical, Inc. 29-Jan-19 14:46

INORGANIC ANALYSIS DATA SHEET

R63-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0431**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0431-08**
Solids: **10-Sieve Fraction** Sampled: **12/05/18 15:24** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.947	%		0.15	1		H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.4	pH Units			1		H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.38	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	15.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	428	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	38000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1720	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1010	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.76	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	202	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

SVL Analytical, Inc. 29-Jan-19 14:46

INORGANIC ANALYSIS DATA SHEET

R63-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0431**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0431-09**

Solids: **10-Sieve Fraction** Sampled: **12/05/18 15:33** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.233	%		0.15	1	LJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.7	pH Units			1	LJ	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.26	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	13.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	323	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	36700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1080	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	836	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.70	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	182	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

SVL Analytical, Inc. 29-Jan-19 14:46

INORGANIC ANALYSIS DATA SHEET

R63-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0431**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0431-10**
Sampled: **12/05/18 15:37** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	5.42	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	18.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	489	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	56500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1010	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	553	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.54	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	187	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Anij 12/18/19

SVL Analytical, Inc. 29-Jan-19 14:46

INORGANIC ANALYSIS DATA SHEET

R78-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0431**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0431-11**
Sampled: **12/06/18 10:03** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.206	%		0.15	1	4	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.7	pH Units			1	4	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.33	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	10.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	481	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	30100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1110	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	445	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.40	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	164	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

INORGANIC ANALYSIS DATA SHEET

R78-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0431**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0431-12**

Solids: **10-Sieve Fraction** Sampled: **12/06/18 10:09** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.216	%		0.15	1		H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.6	pH Units			1		H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.06	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	12.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	340	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	39600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1040	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	404	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.49	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	128	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

INORGANIC ANALYSIS DATA SHEET

R78-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0431**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0431-13**

Solids: **10-Sieve Fraction** Sampled: **12/06/18 10:15** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	5.5	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.89	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	11.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	481	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	52500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1050	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	419	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.36	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	201	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

SVL Analytical, Inc. 29-Jan-19 14:46

INORGANIC ANALYSIS DATA SHEET

R78-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0431**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0431-14**
Solids: **10-Sieve Fraction** Sampled: **12/06/18 10:23** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.204	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.99	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	12.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	409	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	39900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	973	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	440	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.01	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	194	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greig 12/18/19

INORGANIC ANALYSIS DATA SHEET

R78-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0431**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0431-15**

Solids: **10-Sieve Fraction** Sampled: **12/06/18 10:18** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	5.2	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.75	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	12.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	450	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	42400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1050	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	383	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.87	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	183	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

SVL Analytical, Inc. 29-Jan-19 15:39

INORGANIC ANALYSIS DATA SHEET

R80-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0435**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0435-01**
Solids: **10-Sieve Fraction** Sampled: **12/03/18 15:00** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.313	%		0.15	1	J	H1	EPA 600 3.2.13 HT-
PH	Paste pH	7.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-
7440-43-9	Cadmium	2.16	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL
7440-47-3	Chromium	12.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	548	mg/kg	1.6	10	10		D1,M4	EPA 6010D
7439-89-6	Iron	52700	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	1150	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc	947	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.97	mg/kg	0.132	0.3	2	J	D1,M4	EPA 6020B SD
7439-92-1	Lead	222	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

KT 2/6/20

12/18/19

INORGANIC ANALYSIS DATA SHEET

R80-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0435**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0435-02**
Sampled: **12/03/18 15:10** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.242	%		0.15	1	47	H1	EPA 600 3.2.13 HT
PH	Paste pH	5.6	pH Units			1	47	H5	EPA 600/2-78-054 HT
7440-43-9	Cadmium	1.28	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL
7440-47-3	Chromium	16.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	644	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	63800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	939	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	610	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	10.7	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	438	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

SVL Analytical, Inc. 29-Jan-19 15:39

INORGANIC ANALYSIS DATA SHEET

R80-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0435**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0435-03**
Solids: **10-Sieve Fraction** Sampled: **12/03/18 15:20** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.277	%		0.15	1		H1	EPA 600 3.2.13 HT-
PH	Paste pH	6.8	pH Units			1		H5	EPA 600/2-78-054 HT-
7440-43-9	Cadmium	1.04	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL
7440-47-3	Chromium	14.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	680	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	53200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1460	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	720	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	9.46	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	300	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/1

INORGANIC ANALYSIS DATA SHEET

R80-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0435**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0435-04**
Solids: **10-Sieve Fraction** Sampled: **12/03/18 15:25** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.157	%		0.15	1	4	H1	EPA 600 3.2.13 HT.
PH	Paste pH	7.1	pH Units			1	4	H5	EPA 600/2-78-054 HT.
7440-43-9	Cadmium	1.57	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL
7440-47-3	Chromium	13.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	919	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	40100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1260	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	750	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.85	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	191	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Zinn 12/18/19

SVL Analytical, Inc. 29-Jan-19 15:39

INORGANIC ANALYSIS DATA SHEET

R80-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0435**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0435-05**
Solids: **10-Sieve Fraction** Sampled: **12/03/18 15:05** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.232	%		0.15	1		H1	EPA 600 3.2.13 HT-
PH	Paste pH	6.9	pH Units			1		H5	EPA 600/2-78-054 HT-
7440-43-9	Cadmium	2.11	mg/kg	0.57	4	10	J	D1	EPA 6010D JQL
7440-47-3	Chromium	15.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	573	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	54100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1320	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	964	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.87	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	247	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

INORGANIC ANALYSIS DATA SHEET

R80-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0435**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0435-06**
Solids: **10-Sieve Fraction** Sampled: **12/03/18 15:30** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.286	%		0.15	1	J	H1	EPA 600 3.2.13 HT
PH	Paste pH	7.8	pH Units			1	J	H5	EPA 600/2-78-054 HT
7440-43-9	Cadmium	3.33	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL
7440-47-3	Chromium	10.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	805	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	35600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1090	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1480	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.51	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	160	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

INORGANIC ANALYSIS DATA SHEET

R83-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0435**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0435-07**
Solids: **10-Sieve Fraction** Sampled: **12/05/18 10:00** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.276	%		0.15	1		H1	EPA 600 3.2.13 HT
PH	Paste pH	7.0	pH Units			1		H5	EPA 600/2-78-054 HT
7440-43-9	Cadmium	1.69	mg/kg	0.57	4	10	J	D1	EPA 6010D SOL
7440-47-3	Chromium	16.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	501	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	59500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1210	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	720	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.61	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	238	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

SVL Analytical, Inc. 29-Jan-19 15:39

INORGANIC ANALYSIS DATA SHEET

R83-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0435**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0435-08**
Solids: **10-Sieve Fraction** Sampled: **12/05/18 10:23** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.204	%		0.15	1	J	H1	EPA 600 3.2.13 HT-
PH	Paste pH	7.2	pH Units			1	J	H5	EPA 600/2-78-054 HT-
7440-43-9	Cadmium	1.58	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL
7440-47-3	Chromium	11.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	518	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	36700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1220	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	749	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.85	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	159	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

SVL Analytical, Inc. 29-Jan-19 15:39

INORGANIC ANALYSIS DATA SHEET

R83-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0435**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0435-09**
Sampled: **12/05/18 10:30** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.389	%		0.15	1	44	H1	EPA 600 3.2.13 HT
PH	Paste pH	6.9	pH Units			1	44	H5	EPA 600/2-78-054 HT
7440-43-9	Cadmium	4.38	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	11.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	967	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	41300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1240	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1550	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	7.63	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	257	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

SVL Analytical, Inc. 29-Jan-19 15:39

INORGANIC ANALYSIS DATA SHEET

R83-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0435**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0435-10**
Solids: **10-Sieve Fraction** Sampled: **12/05/18 10:36** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.156	%		0.15	1	J	H1	EPA 600 3.2.13 HT
PH	Paste pH	5.8	pH Units			1	J	H5	EPA 600/2-78-054 HT
7440-43-9	Cadmium	1.05	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL
7440-47-3	Chromium	12.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	530	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	56800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1250	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	489	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.57	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	249	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/18/19

SVL Analytical, Inc. 29-Jan-19 15:39

INORGANIC ANALYSIS DATA SHEET

R84-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0435**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0435-11**
Solids: **10-Sieve Fraction** Sampled: **12/06/18 14:00** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.155	%		0.15	1	J	H1	EPA 600 3.2.13 HT
PH	Paste pH	5.7	pH Units			1	J	H5	EPA 600/2-78-054 HT
7440-43-9	Cadmium	0.91	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL
7440-47-3	Chromium	16.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	445	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	57000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	903	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	470	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.94	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	216	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

INORGANIC ANALYSIS DATA SHEET

R84-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0435**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0435-12**
Solids: **10-Sieve Fraction** Sampled: **12/06/18 14:05** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.85	%		1.5	1	J	D2,H1	EPA 600 3.2.13 HT.
PH	Paste pH	6.4	pH Units			1	J	H5	EPA 600/2-78-054 HT.
7440-43-9	Cadmium	1.86	mg/kg	0.57	4	10	J	D1	EPA 6010D SDL
7440-47-3	Chromium	11.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	637	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	32700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1920	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	768	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.49	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	181	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/18/19

SVL Analytical, Inc. 29-Jan-19 15:39

INORGANIC ANALYSIS DATA SHEET

R84-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0435**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0435-13**
Solids: **10-Sieve Fraction** Sampled: **12/06/18 14:12** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.293	%		0.15	1	J	H1	EPA 600 3.2.13 HT
PH	Paste pH	6.0	pH Units			1	J	H5	EPA 600/2-78-054 HT
7440-43-9	Cadmium	1.21	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL
7440-47-3	Chromium	12.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	775	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	45000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1010	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	591	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	7.42	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	239	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/1

SVL Analytical, Inc. 29-Jan-19 15:39

INORGANIC ANALYSIS DATA SHEET

R84-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0435**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0435-14**
Solids: **10-Sieve Fraction** Sampled: **12/06/18 14:22** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.737	%		0.15	1	J	H1	EPA 600 3.2.13 HT
PH	Paste pH	7.4	pH Units			1	J	H5	EPA 600/2-78-054 HT
7440-43-9	Cadmium	3.45	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL
7440-47-3	Chromium	11.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1090	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	41600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1120	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1450	mg/kg	3.4	10	10	J	D2	EPA 6010D FD
7440-38-2	Arsenic	4.77	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	210	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1	J		Percent Solids FD

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

SVL Analytical, Inc. 29-Jan-19 15:39

INORGANIC ANALYSIS DATA SHEET

R84-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0435**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0435-15**
Solids: **10-Sieve Fraction** Sampled: **12/06/18 14:25** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.91	%		1.5	1	J	D2,H1	EPA 600 3.2.13 HT
PH	Paste pH	7.3	pH Units			1	J	H5	EPA 600/2-78-054 HT
7440-43-9	Cadmium	4.38	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	11.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1200	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	43400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1300	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1680	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.33	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	230	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

SVL Analytical, Inc. 29-Jan-19 15:39

INORGANIC ANALYSIS DATA SHEET

R84-006F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0435**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0435-16**
Sampled: **12/06/18 14:32** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U J	H1	EPA 600 3.2.13 HT
PH	Paste pH	5.5	pH Units			1	J	H5	EPA 600/2-78-054 HT
7440-43-9	Cadmium	1.31	mg/kg	0.57	4	10	J	D1	EPA 6010D SQ
7440-47-3	Chromium	9.66	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	736	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	35100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1300	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	667	mg/kg	3.4	10	10	J	D2	EPA 6010D FD
7440-38-2	Arsenic	4.54	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	193	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.7	%		0.1	1	J		Percent Solids FD

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Zuniga 12/18/19

SVL Analytical, Inc. 29-Jan-19 13:13

INORGANIC ANALYSIS DATA SHEET

R56-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0439-02**
Sampled: **12/03/18 09:50** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.22	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.9	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.62	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	17.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	422	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	37900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1300	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1100	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.19	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	173	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/18/19

INORGANIC ANALYSIS DATA SHEET

R56-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0439-03**
Sampled: **12/03/18 10:15** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.743	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.4	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.80	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	17.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	942	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	62200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1680	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1680	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	7.77	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	314	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Zamora 12/18/19

INORGANIC ANALYSIS DATA SHEET

R57-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0439**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0439-04**

Solids: **60-Sieve Fraction** Sampled: **12/03/18 10:57** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.240	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.63	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	15.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	492	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	75700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1630	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1160	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.90	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	231	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/18/19

INORGANIC ANALYSIS DATA SHEET

R58-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0439-05**
Sampled: **12/04/18 10:20** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.286	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.50	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	16.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	917	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	52300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1570	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1080	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.87	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	244	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Zinn 12/18/19

INORGANIC ANALYSIS DATA SHEET

R60-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0439**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0439-06**

Solids: **60-Sieve Fraction** Sampled: **12/04/18 15:00** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.951	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.64	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	14.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	394	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	49500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1460	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	979	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.82	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	226	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

INORGANIC ANALYSIS DATA SHEET

R62-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0439-07**
Sampled: **12/05/18 09:10** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.314	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.35	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	15.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1850	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	46900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2160	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1430	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.11	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	350	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

INORGANIC ANALYSIS DATA SHEET

R63-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0439**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0439-08**

Solids: **60-Sieve Fraction** Sampled: **12/05/18 15:20** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.882	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.8	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.52	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	15.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	550	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	45600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1610	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1410	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.81	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	223	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	14.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

INORGANIC ANALYSIS DATA SHEET

R63-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0439**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0439-09**

Solids: **60-Sieve Fraction** Sampled: **12/05/18 15:37** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.5	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.26	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	18.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	734	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	91400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1430	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	708	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	7.84	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	275	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Zemba 12/18/19

INORGANIC ANALYSIS DATA SHEET

R78-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0439**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0439-10**

Solids: **60-Sieve Fraction** Sampled: **12/06/18 10:15** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-J
PH	Paste pH	5.2	pH Units			1	J	H5	EPA 600/2-78-054 HT-J
7440-43-9	Cadmium	0.67	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-J
7440-47-3	Chromium	15.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	585	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	77800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1590	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	512	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	6.71	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	282	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/18/19

INORGANIC ANALYSIS DATA SHEET

R80-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0439-12**
Sampled: **12/03/18 15:20** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.334	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.9	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.12	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	17.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	976	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	86800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2000	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1040	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	16.4	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	481	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

INORGANIC ANALYSIS DATA SHEET

R80-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0439**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0439-13**
Solids: **60-Sieve Fraction** Sampled: **12/03/18 15:30** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.220	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.8	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	5.04	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	14.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1070	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	52600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1510	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	2080	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.91	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	230	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/18/19

INORGANIC ANALYSIS DATA SHEET

R83-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0439-14**
Sampled: **12/05/18 10:30** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.284	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.9	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	5.52	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	15.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1260	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	61000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1510	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1860	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	10.5	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	365	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Ennis 12/18/19

INORGANIC ANALYSIS DATA SHEET

R84-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0439**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0439-15**
Solids: **60-Sieve Fraction** Sampled: **12/06/18 14:05** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.314	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.33	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	15.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	803	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	46700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2220	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1060	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.25	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	205	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greenwood 12/18/19

INORGANIC ANALYSIS DATA SHEET

R84-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0439-16**
Sampled: **12/06/18 14:25** Recv'd: **12/14/18 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.381	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.3	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	5.35	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	15.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1400	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	55500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1460	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1950	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.87	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	256	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greig 12/18/19

SVL Analytical, Inc. 07-Feb-19 17:02

INORGANIC ANALYSIS DATA SHEET

R87-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0492**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0492-02**
Sampled: **12/06/18 12:01** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.74	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	25.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	407	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	110000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1330	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	530	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.46	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	177	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/18/19

INORGANIC ANALYSIS DATA SHEET

R87-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0492**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0492-03**

Solids: **10-Sieve Fraction** Sampled: **12/06/18 12:08** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.83	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	18.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	477	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	68400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1200	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	451	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.55	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	171	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/18/19

INORGANIC ANALYSIS DATA SHEET

R87-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0492**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0492-04**
Solids: **10-Sieve Fraction** Sampled: **12/06/18 12:15** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-J
PH	Paste pH	5.8	pH Units			1	J	H5	EPA 600/2-78-054 HT-J
7440-43-9	Cadmium	0.85	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-J
7440-47-3	Chromium	20.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	486	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	81200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	980	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	436	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.76	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	196	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Zemaj 12/18/19

SVL Analytical, Inc. 07-Feb-19 17:02

INORGANIC ANALYSIS DATA SHEET

R87-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0492**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0492-05**
Sampled: **12/06/18 12:17** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	5.4	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	18.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	410	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	69700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	788	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	368	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.92	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	446	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/18/19

INORGANIC ANALYSIS DATA SHEET

R89-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0492**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0492-06**
Solids: **10-Sieve Fraction** Sampled: **12/10/18 14:06** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.954	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	8.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	21.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	162	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	36300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	906	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	125	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.24	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	26.3	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

INORGANIC ANALYSIS DATA SHEET

R89-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0492**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0492-07**
Sampled: **12/10/18 14:44** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	5.3	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.74	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	23.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	457	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	75800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1060	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	508	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	8.66	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	451	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Zinn 12/18/19

INORGANIC ANALYSIS DATA SHEET

R89-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0492**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0492-08**
Sampled: **12/10/18 14:47** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	4.73	%		1.5	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.78	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	19.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	475	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	50800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1230	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	735	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.24	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	164	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/18/19

Joel

SVL Analytical, Inc. 07-Feb-19 17:02

INORGANIC ANALYSIS DATA SHEET

R89-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0492**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0492-09**
Solids: **10-Sieve Fraction** Sampled: **12/10/18 14:50** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.8	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.79	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	21.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	210	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	47800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	964	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	320	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.02	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	57.7	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Smith 12/18/19

INORGANIC ANALYSIS DATA SHEET

R90-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0492**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0492-10**

Solids: **10-Sieve Fraction** Sampled: **12/11/18 13:00** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.37	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	20.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	682	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	94600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1660	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	798	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.30	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	200	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greenwood 12/18/19

SVL Analytical, Inc. 07-Feb-19 17:02

INORGANIC ANALYSIS DATA SHEET

R90-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0492**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0492-11**

Solids: **10-Sieve Fraction** Sampled: **12/11/18 13:06** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.178	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.2	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.79	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	17.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	444	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	57100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	901	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	362	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.37	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	297	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/18/19

SVL Analytical, Inc. 07-Feb-19 17:02

INORGANIC ANALYSIS DATA SHEET

R90-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0492**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0492-12**
Sampled: **12/11/18 13:10** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.2	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.48	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	16.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	584	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	58300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1260	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	523	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.86	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	174	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/18/19

INORGANIC ANALYSIS DATA SHEET

R90-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0492**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0492-13**
Sampled: **12/11/18 13:14** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U-J	H1	EPA 600 3.2.13 HT-J
PH	Paste pH	7.2	pH Units			1	J	H5	EPA 600/2-78-054 HT-J
7440-43-9	Cadmium	2.35	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-J
7440-47-3	Chromium	36.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	551	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	61700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1090	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	788	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.83	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	357	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Quiroz 12/18/19

INORGANIC ANALYSIS DATA SHEET

R93-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0492**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0492-14**
Sampled: **12/11/18 09:35** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 H1-J
PH	Paste pH	6.1	pH Units			1	J	H5	EPA 600/2-78-054 H1-J
7440-43-9	Cadmium	0.92	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-J
7440-47-3	Chromium	23.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	651	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	83600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	802	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	465	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.84	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	205	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/18/19

INORGANIC ANALYSIS DATA SHEET

R93-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0492**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0492-15**
Solids: **10-Sieve Fraction** Sampled: **12/11/18 09:38** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	5.2	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.00	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	18.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	475	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	79200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	795	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	358	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.61	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	242	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/18/19

SVL Analytical, Inc. 07-Feb-19 17:02

INORGANIC ANALYSIS DATA SHEET

R93-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0492**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0492-16**
Solids: **10-Sieve Fraction** Sampled: **12/11/18 09:43** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.322	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.00	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	21.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	587	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	66500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1110	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	644	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.03	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	275	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	3.9	%		0.1	1	J		Percent Solids FD-I

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/18/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R93-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Solid**
Solids: **10-Sieve Fraction**

SDG: **X8L0506**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0506-01**
Sampled: **12/11/18 09:46** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.958	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	5.1	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.96	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	19.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	727	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	52600	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	705	mg/kg	2.8	8	10		D1,M4	EPA 6010D
7440-66-6	Zinc	686	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	7.16	mg/kg	0.132	0.3	2	J	D1	EPA 6020B SD-I
7439-92-1	Lead	349	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greig 12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R93-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0506**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Solid** Laboratory ID: **X8L0506-02**
Solids: **10-Sieve Fraction** Sampled: **12/11/18 09:51** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.370	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.35	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	16.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	542	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	56400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	753	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	574	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	5.64	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	262	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1	J		Percent Solids FD-I

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R94-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Solid**
Solids: **10-Sieve Fraction**

SDG: **X8L0506**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0506-03**
Sampled: **12/11/18 11:04** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.297	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	4.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	20.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	426	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	82100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	628	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	386	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.90	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	229	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R94-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Solid**
Solids: **10-Sieve Fraction**

SDG: **X8L0506**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0506-04**
Sampled: **12/11/18 11:00** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	5.3	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	15.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	433	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	74400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	541	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	323	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.21	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	212	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R94-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Solid**
Solids: **10-Sieve Fraction**

SDG: **X8L0506**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0506-05**
Sampled: **12/11/18 11:10** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.497	%		0.15	1	4	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.5	pH Units			1	4	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	4.70	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	14.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1090	mg/kg	1.6	10	10		B7,D2	EPA 6010D
7439-89-6	Iron	42500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1240	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1600	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	5.58	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	208	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

INORGANIC ANALYSIS DATA SHEET

R94-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0506**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Solid** Laboratory ID: **X8L0506-06**
Solids: **10-Sieve Fraction** Sampled: **12/11/18 11:15** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.16	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.5	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.61	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	16.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	762	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	41700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1140	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	867	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.64	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	192	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greenwood 12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R95-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Solid**
Solids: **10-Sieve Fraction**

SDG: **X8L0506**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0506-07**
Sampled: **12/11/18 10:37** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.561	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.98	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	13.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	726	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	43800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1330	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1380	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	5.67	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	212	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R95-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0506**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Solid** Laboratory ID: **X8L0506-08**

Solids: **10-Sieve Fraction** Sampled: **12/11/18 10:41** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.425	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.34	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	10.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	792	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	26600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	965	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	545	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	2.34	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	77.8	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R116-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Solid**
Solids: **10-Sieve Fraction**

SDG: **X8L0506**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0506-09**
Sampled: **12/03/18 11:28** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.846	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.9	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.97	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	14.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	295	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	40100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	831	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	424	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.56	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	150	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/19/19

INORGANIC ANALYSIS DATA SHEET

R116-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0506**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Solid** Laboratory ID: **X8L0506-10**
Solids: **10-Sieve Fraction** Sampled: **12/03/18 11:35** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.295	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.5	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.06	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	17.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	361	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	53900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	890	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	500	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	5.96	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	182	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Z 12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R116-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Solid**
Solids: **10-Sieve Fraction**

SDG: **X8L0506**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0506-11**
Sampled: **12/03/18 11:40** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.479	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	5.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.69	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	19.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	585	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	91500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	733	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	336	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.46	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	243	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R116-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Solid**
Solids: **10-Sieve Fraction**

SDG: **X8L0506**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0506-12**
Sampled: **12/03/18 11:45** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.233	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.9	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.86	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	19.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	651	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	70500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	948	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	776	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.48	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	255	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/19/19

INORGANIC ANALYSIS DATA SHEET

R118-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Solid**
Solids: **10-Sieve Fraction**

SDG: **X8L0506**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0506-13**
Sampled: **12/10/18 14:21** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	19.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	393	mg/kg	1.6	10	10	J	D1,M4	EPA 6010D MS-H
7439-89-6	Iron	55200	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	684	mg/kg	2.8	8	10		M4,D1	EPA 6010D
7440-66-6	Zinc	325	mg/kg	3.4	10	10		D2,M4	EPA 6010D
7440-38-2	Arsenic	4.56	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	223	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R118-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Solid**
Solids: **10-Sieve Fraction**

SDG: **X8L0506**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0506-14**
Sampled: **12/10/18 14:26** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.1	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	14.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	373	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	60500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	856	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	313	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.88	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	196	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R118-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Solid**
Solids: **10-Sieve Fraction**

SDG: **X8L0506**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0506-15**
Sampled: **12/10/18 15:30** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.234	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	4.1	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.53	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	26.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	564	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	66800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1010	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	717	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.74	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	261	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R118-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0506**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Solid** Laboratory ID: **X8L0506-16**

Solids: **10-Sieve Fraction** Sampled: **12/10/18 14:42** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.473	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.4	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.82	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	18.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	799	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	63800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	987	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	707	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.89	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	218	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R118-006F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Solid**
Solids: **10-Sieve Fraction**

SDG: **X8L0506**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0506-17**
Sampled: **12/10/18 14:27** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	5.9	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.65	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-J
7440-47-3	Chromium	14.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	363	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	57700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	688	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	306	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.57	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	205	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R118-008F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Solid**
Solids: **10-Sieve Fraction**

SDG: **X8L0506**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0506-18**
Sampled: **12/10/18 15:00** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.245	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	4.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.24	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	25.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	2240	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	74000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	564	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	475	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	14.1	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	479	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greiner 12/19/19

INORGANIC ANALYSIS DATA SHEET

R120-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0506**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Solid** Laboratory ID: **X8L0506-19**

Solids: **10-Sieve Fraction** Sampled: **12/11/18 11:45** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	5.5	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.89	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	14.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	547	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	50200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	825	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	344	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.12	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	199	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R120-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Solid**
Solids: **10-Sieve Fraction**

SDG: **X8L0506**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0506-20**
Sampled: **12/11/18 11:47** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.552	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.62	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	13.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1090	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	38300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1090	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	833	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.07	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	149	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Ewing 12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R120-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0506**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Solid** Laboratory ID: **X8L0506-21**

Solids: **10-Sieve Fraction** Sampled: **12/11/18 11:54** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.306	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.3	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.99	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	16.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	668	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	52100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	962	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	575	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.73	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	199	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 16:13

INORGANIC ANALYSIS DATA SHEET

R120-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Solid**
Solids: **10-Sieve Fraction**

SDG: **X8L0506**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0506-22**
Sampled: **12/11/18 12:00** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.204	%		0.15	1	J	H1	EPA 600 3.2.13 HT·I
PH	Paste pH	7.6	pH Units			1	J	H5	EPA 600/2-78-054 HT·I
7440-43-9	Cadmium	1.23	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	13.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	465	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	48300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	909	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	595	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.61	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	212	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

INORGANIC ANALYSIS DATA SHEET

R120-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0506**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Solid** Laboratory ID: **X8L0506-23**
Solids: **10-Sieve Fraction** Sampled: **12/11/18 12:04** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.193	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.4	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.68	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	13.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	480	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	47700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	939	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	570	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.46	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	194	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Zimmerman 12/19/19

SVL Analytical, Inc. 31-Jan-19 17:10

INORGANIC ANALYSIS DATA SHEET

R87-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0508**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0508-01**

Solids: **60-Sieve Fraction** Sampled: **12/06/18 12:08** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.152	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.2	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.31	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	18.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	534	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	78700	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	1560	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc	568	mg/kg	3.4	10	10		D1,M4	EPA 6010D
7440-38-2	Arsenic	6.59	mg/kg	0.132	0.3	2	J	D1	EPA 6020B ~~SD-L~~
7439-92-1	Lead	244	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

ICA 2/6/20

Joel 12/19/19

SVL Analytical, Inc. 31-Jan-19 17:10

INORGANIC ANALYSIS DATA SHEET

R89-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0508**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0508-02**
Solids: **60-Sieve Fraction** Sampled: **12/10/18 14:06** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.164	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	8.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	17.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	192	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	29900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	814	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	136	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.23	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	31.4	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greig 12/19/19

SVL Analytical, Inc. 31-Jan-19 17:10

INORGANIC ANALYSIS DATA SHEET

R89-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0508**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0508-03**
Solids: **60-Sieve Fraction** Sampled: **12/10/18 14:50** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.19	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	25.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	306	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	51200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	955	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	419	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	3.38	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	108	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 17:10

INORGANIC ANALYSIS DATA SHEET

R90-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0508**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0508-04**
Solids: **60-Sieve Fraction** Sampled: **12/11/18 13:10** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.191	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	5.9	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.48	mg/kg	0.57	4	10	J	D1	EPA 6010D SOL-I
7440-47-3	Chromium	15.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	684	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	55800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1380	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	615	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	6.54	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	245	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 17:10

INORGANIC ANALYSIS DATA SHEET

R93-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0508**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0508-05**
Solids: **60-Sieve Fraction** Sampled: **12/11/18 09:38** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.246	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	5.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.58	mg/kg	0.57	4	10	J	D1	EPA 6010D SJL-I
7440-47-3	Chromium	18.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	482	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	78300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	804	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	378	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	7.32	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	379	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 17:10

INORGANIC ANALYSIS DATA SHEET

R93-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0508**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0508-06**
Solids: **60-Sieve Fraction** Sampled: **12/11/18 09:51** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.298	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.37	mg/kg	0.57	4	10	J	D1	EPA 6010D SVL-I
7440-47-3	Chromium	19.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	574	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	61800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	895	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	643	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	6.29	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	293	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids I (FD-)

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/19/19

INORGANIC ANALYSIS DATA SHEET

R94-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0508**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0508-07**

Solids: **60-Sieve Fraction** Sampled: **12/11/18 11:10** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.481	%		0.15	1	J	H1	EPA 600 3.2.13 H1-J
PH	Paste pH	6.3	pH Units			1	J	H5	EPA 600/2-78-054 H1-J
7440-43-9	Cadmium	5.41	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	18.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1250	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	51100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1440	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1890	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	7.10	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	270	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 17:10

INORGANIC ANALYSIS DATA SHEET

R95-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0508**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0508-08**
Sampled: **12/11/18 10:41** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.527	%		0.15	1		H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.6	pH Units			1		H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.02	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	14.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	828	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	35600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	951	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	654	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.87	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	103	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

INORGANIC ANALYSIS DATA SHEET

R116-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0508**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0508-09**
Sampled: **12/03/18 11:40** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.455	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	5.3	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.81	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	27.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	766	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	123000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	601	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	402	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	6.26	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	379	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 17:10

INORGANIC ANALYSIS DATA SHEET

R118-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0508**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0508-10**
Solids: **60-Sieve Fraction** Sampled: **12/10/18 14:26** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.4	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.73	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	18.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	418	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	82200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1070	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	364	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	6.72	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	285	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 17:10

INORGANIC ANALYSIS DATA SHEET

R118-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0508**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0508-11**

Solids: **60-Sieve Fraction** Sampled: **12/10/18 14:27** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	6.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.60	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	17.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	382	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	76000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	950	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	356	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	6.50	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	280	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 17:10

INORGANIC ANALYSIS DATA SHEET

R120-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0508**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0508-12**
Solids: **60-Sieve Fraction** Sampled: **12/11/18 11:47** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.527	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.90	mg/kg	0.57	4	10	J	D1	EPA 6010D SOL-I
7440-47-3	Chromium	15.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1290	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	42100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1130	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1020	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.41	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	194	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 17:10

INORGANIC ANALYSIS DATA SHEET

R120-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0508**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Solid** Laboratory ID: **X8L0508-13**

Solids: **60-Sieve Fraction** Sampled: **12/11/18 12:04** Recv'd: **12/19/18 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.275	%		0.15	1	J	H1	EPA 600 3.2.13 HT-I
PH	Paste pH	7.5	pH Units			1	J	H5	EPA 600/2-78-054 HT,F
7440-43-9	Cadmium	1.66	mg/kg	0.57	4	10	J	D1	EPA 6010D SWL-I
7440-47-3	Chromium	14.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	493	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	53700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1080	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	651	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	5.09	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	220	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/19/19

SVL Analytical, Inc. 31-Jan-19 18:07

INORGANIC ANALYSIS DATA SHEET

R09-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0534**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0534-01**
Sampled: **12/14/18 11:47** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.410	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	6.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	3.13	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		14.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		782	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron		48900	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese		1340	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc		1200	mg/kg	3.4	10	10		B7,D2,M4	EPA 6010D
7440-38-2	Arsenic		5.82	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		209	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)		1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/24/19

SVL Analytical, Inc. 31-Jan-19 18:07

INORGANIC ANALYSIS DATA SHEET

R09-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0534**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0534-02**

Solids: **10-Sieve Fraction** Sampled: **12/14/18 11:52** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HT-1	6.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	1.11	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	15.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	352	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	57800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	739	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	431	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.36	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	138	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

CMW 12/24/19

SVL Analytical, Inc. 31-Jan-19 18:07

INORGANIC ANALYSIS DATA SHEET

R09-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0534**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0534-03**
Solids: **10-Sieve Fraction** Sampled: **12/14/18 12:00** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1, MB-1	0.196	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	6.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SAL-1	1.62	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	17.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	549	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	61100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	883	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	473	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.69	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	174	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

CMW 12/24/19

SVL Analytical, Inc. 31-Jan-19 18:07

INORGANIC ANALYSIS DATA SHEET

R09-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0534**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0534-04**

Solids: **10-Sieve Fraction** Sampled: **12/14/18 12:05** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1, MB-1	0.168	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	6.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SGL-1	1.34	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	17.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	694	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	60300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	706	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	397	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	5.39	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	183	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

CMW 12/24/19

SVL Analytical, Inc. 31-Jan-19 18:07

INORGANIC ANALYSIS DATA SHEET

R09-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0534**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0534-05**
Solids: **10-Sieve Fraction** Sampled: **12/14/18 12:10** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1, MB-1	0.299	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SAL-1	1.17	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	12.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	415	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	36900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	645	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	377	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	3.73	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	130	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

CMW 12/24/18

SVL Analytical, Inc. 31-Jan-19 18:07

INORGANIC ANALYSIS DATA SHEET

R09-006F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0534**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0534-06**
Sampled: **12/14/18 12:12** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	1.22	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	6.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.81	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		9.26	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		262	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron		32100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		556	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		251	mg/kg	3.4	10	10		B7,D1	EPA 6010D
7440-38-2	Arsenic		2.28	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		58.7	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

CWL 12/24/19

SVL Analytical, Inc. 31-Jan-19 18:07

INORGANIC ANALYSIS DATA SHEET

R09-007F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0534**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0534-07**

Solids: **10-Sieve Fraction** Sampled: **12/14/18 11:57** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HT-1	6.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SGL-1	1.27	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	17.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	405	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	62100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	951	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	430	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.69	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	176	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

CMW 12/24/18

INORGANIC ANALYSIS DATA SHEET

R75-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0534**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0534-09**
Sampled: **12/14/18 10:05** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.416	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	6.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	1.44	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	12.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	514	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	43800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	750	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	480	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	5.25	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	168	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

CWL 12/24/18

SVL Analytical, Inc. 31-Jan-19 18:07

INORGANIC ANALYSIS DATA SHEET

R75-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0534**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0534-10**
Sampled: **12/14/18 10:18** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.931	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	3.77	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		16.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		722	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron		47200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1120	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		1060	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic		5.92	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		207	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

CWW 12/24/18

SVL Analytical, Inc. 31-Jan-19 18:07

INORGANIC ANALYSIS DATA SHEET

R75-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0534**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0534-11**
Sampled: **12/14/18 10:21** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1, MB-1	0.326	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	5.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SGL-1	1.18	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	15.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	524	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	48300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	988	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	596	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	5.30	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	201	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/18

SVL Analytical, Inc. 31-Jan-19 18:07

INORGANIC ANALYSIS DATA SHEET

R75-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0534**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0534-12**

Solids: **10-Sieve Fraction** Sampled: **12/14/18 10:11** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJHT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HT-1	6.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	1.27	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	13.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	436	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	52300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	789	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	501	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.41	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	147	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/18

SVL Analytical, Inc. 31-Jan-19 18:07

INORGANIC ANALYSIS DATA SHEET

R75-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0534**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0534-13**

Solids: **10-Sieve Fraction** Sampled: **12/14/18 10:00** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.391	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	6.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.43	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		11.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		568	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron		39800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		762	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		522	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic		5.68	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		172	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/18

SVL Analytical, Inc. 31-Jan-19 18:07

INORGANIC ANALYSIS DATA SHEET

R91-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0534**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0534-14**

Solids: **10-Sieve Fraction** Sampled: **12/14/18 08:55** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1, MB-1	0.186	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH JHT-1	5.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	1.04	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	16.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	501	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	49300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	664	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	408	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	5.77	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	240	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 06-Feb-19 12:22

INORGANIC ANALYSIS DATA SHEET

R91-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0537**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0537-01**
Solids: **10-Sieve Fraction** Sampled: **12/14/18 09:00** Recv'd: **12/24/18 10:54**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.778	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	7.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	1.42	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	12.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	516	mg/kg	1.6	10	10		D1,M4	EPA 6010D
7439-89-6	Iron	37400	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	825	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc	467	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic J MS-L	3.88	mg/kg	0.132	0.3	2		D1,M4	EPA 6020B
7439-92-1	Lead	129	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 06-Feb-19 12:22

INORGANIC ANALYSIS DATA SHEET

R91-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0537**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0537-02**
Solids: **10-Sieve Fraction** Sampled: **12/14/18 09:05** Recv'd: **12/24/18 10:54**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.289	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	5.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	0.97	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	15.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	390	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	51300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	690	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	318	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.02	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	188	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 06-Feb-19 12:22

INORGANIC ANALYSIS DATA SHEET

R91-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0537**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0537-03**

Solids: **10-Sieve Fraction** Sampled: **12/14/18 09:09** Recv'd: **12/24/18 10:54**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	JHT-1	0.355	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	JHT-1	7.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	JSQL-1	1.66	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		12.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		398	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		55400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		833	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		489	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		4.53	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		201	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 06-Feb-19 12:22

INORGANIC ANALYSIS DATA SHEET

R91-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0537**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0537-04**

Solids: **10-Sieve Fraction** Sampled: **12/14/18 09:03** Recv'd: **12/24/18 10:54**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.525	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	6.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.22	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		13.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		451	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		39800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		766	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		394	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		3.82	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		128	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 06-Feb-19 12:22

INORGANIC ANALYSIS DATA SHEET

R92-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0537**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0537-05**
Solids: **10-Sieve Fraction** Sampled: **12/14/18 09:18** Recv'd: **12/24/18 10:54**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.347	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	5.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SGL-1	1.04	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		12.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		477	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		43100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		523	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		313	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		4.56	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		170	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 06-Feb-19 12:22

INORGANIC ANALYSIS DATA SHEET

R92-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0537**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0537-06**
Solids: **10-Sieve Fraction** Sampled: **12/14/18 09:22** Recv'd: **12/24/18 10:54**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.485	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	5.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SGL-1	1.26	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		11.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		1310	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron		26600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1540	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		411	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		2.93	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		71.3	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		3.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 06-Feb-19 12:22

INORGANIC ANALYSIS DATA SHEET

R92-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0537**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0537-07**

Solids: **10-Sieve Fraction** Sampled: **12/14/18 09:25** Recv'd: **12/24/18 10:54**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	4.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.71	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		11.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		677	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		60600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		481	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		251	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic		5.24	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		180	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		2.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

CMW 12/24/19

SVL Analytical, Inc. 06-Feb-19 12:22

INORGANIC ANALYSIS DATA SHEET

R92-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0537**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0537-08**

Solids: **10-Sieve Fraction** Sampled: **12/14/18 09:33** Recv'd: **12/24/18 10:54**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HT-1	4.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	1.21	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	17.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	250	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	37800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	650	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	316	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.62	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	51.8	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

INORGANIC ANALYSIS DATA SHEET

R122-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0537**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0537-09**
Solids: **10-Sieve Fraction** Sampled: **12/12/18 15:16** Recv'd: **12/24/18 10:54**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HT-1	5.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	0.75	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	17.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	476	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	49700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	760	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	331	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.57	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	226	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

CMW 12/24/19

SVL Analytical, Inc. 06-Feb-19 12:22

INORGANIC ANALYSIS DATA SHEET

R122-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0537**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0537-10**
Sampled: **12/12/18 15:26** Recv'd: **12/24/18 10:54**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HT-1	5.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SGL-1	2.37	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	15.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	523	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	58200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	572	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	374	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.08	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	220	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Cmm 12/24/19

SVL Analytical, Inc. 06-Feb-19 12:22

INORGANIC ANALYSIS DATA SHEET

R122-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0537**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0537-11**

Solids: **10-Sieve Fraction** Sampled: **12/12/18 15:30** Recv'd: **12/24/18 10:54**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HT-1	5.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	0.64	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	14.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	481	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	52400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	656	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	318	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.62	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	179	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 06-Feb-19 12:22

INORGANIC ANALYSIS DATA SHEET

R122-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0537**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0537-12**
Solids: **10-Sieve Fraction** Sampled: **12/12/18 15:37** Recv'd: **12/24/18 10:54**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HT-1	6.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-1	1.21	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	14.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	579	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	51100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	742	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	433	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.69	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	224	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/18

SVL Analytical, Inc. 06-Feb-19 12:22

INORGANIC ANALYSIS DATA SHEET

R122-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0537**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0537-13**

Solids: **10-Sieve Fraction** Sampled: **12/12/18 15:10** Recv'd: **12/24/18 10:54**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HT-1	5.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	0.72	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	16.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	457	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	50300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	567	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	320	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.97	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	218	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/18

SVL Analytical, Inc. 04-Feb-19 14:28

INORGANIC ANALYSIS DATA SHEET

R09-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0540**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0540-01**

Solids: **60-Sieve Fraction** Sampled: **12/14/18 12:00** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.263	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	6.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.74	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		69.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		596	mg/kg	1.6	10	10		D1,M4	EPA 6010D
7439-89-6	Iron		73900	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese		1160	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc		661	mg/kg	3.4	10	10		D2,M4	EPA 6010D
7440-38-2	Arsenic		5.98	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		223	mg/kg	0.018	0.1	2		B7,D1,M4	EPA 6020B
NA	% Moisture (air dried)		1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/18

SVL Analytical, Inc. 04-Feb-19 14:28

INORGANIC ANALYSIS DATA SHEET

R09-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0540**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0540-02**

Solids: **60-Sieve Fraction** Sampled: **12/14/18 12:12** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.580	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	6.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.00	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		45.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		361	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		42400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		665	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		352	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		2.58	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		66.8	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 04-Feb-19 14:28

INORGANIC ANALYSIS DATA SHEET

R75-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0540**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0540-04**

Solids: **60-Sieve Fraction** Sampled: **12/14/18 10:21** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.293	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	5.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	1.76	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	52.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	618	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	55700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1240	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	807	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.36	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	220	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

J HT-1
J HT-1
J SQL-1

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 04-Feb-19 14:28

INORGANIC ANALYSIS DATA SHEET

R91-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0540**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0540-05**

Solids: **60-Sieve Fraction** Sampled: **12/14/18 08:55** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.346	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	5.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.44	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		60.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		630	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		63500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		898	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		571	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		6.47	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		261	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 04-Feb-19 14:28

INORGANIC ANALYSIS DATA SHEET

R91-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0540**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0540-06**

Solids: **60-Sieve Fraction** Sampled: **12/14/18 08:55** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.160	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	5.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	0.82	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	58.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	434	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	61900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	852	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	365	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.65	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	220	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 04-Feb-19 14:28

INORGANIC ANALYSIS DATA SHEET

R92-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0540**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0540-07**

Solids: **60-Sieve Fraction** Sampled: **12/14/18 09:18** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.253	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	5.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SOL-1	0.87	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		51.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		584	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		52400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		734	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		382	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		6.45	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		262	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 04-Feb-19 14:28

INORGANIC ANALYSIS DATA SHEET

R122-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0540**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0540-08**

Solids: **60-Sieve Fraction** Sampled: **12/12/18 15:26** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.215	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	5.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	2.71	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		59.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		601	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		67200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		873	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		502	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		5.11	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		191	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 04-Feb-19 14:28

INORGANIC ANALYSIS DATA SHEET

R122-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0540**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0540-09**

Solids: **60-Sieve Fraction** Sampled: **12/12/18 15:10** Recv'd: **12/24/18 10:06**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HT-1	5.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	1.40	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	54.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	517	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	71800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	917	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	415	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.65	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	266	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/18

SVL Analytical, Inc. 05-Feb-19 12:13

INORGANIC ANALYSIS DATA SHEET

R02-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0566**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0566-01**

Solids: **10-Sieve Fraction** Sampled: **12/17/18 14:09** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.185	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	5.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.72	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		15.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		927	mg/kg	1.6	10	10		D2,M4	EPA 6010D
7439-89-6	Iron		39300	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese		961	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc		699	mg/kg	3.4	10	10		D2,M4	EPA 6010D
7440-38-2	Arsenic		5.99	mg/kg	0.132	0.3	2		D1,M4	EPA 6020B
7439-92-1	Lead		247	mg/kg	0.018	0.1	2		B7,D1,M4	EPA 6020B
NA	% Moisture (air dried)		1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:13

INORGANIC ANALYSIS DATA SHEET

R02-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0566**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0566-02**

Solids: **10-Sieve Fraction** Sampled: **12/17/18 14:13** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.312	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	3.02	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		13.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		861	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		41000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1090	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		1060	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		3.52	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		155	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:13

INORGANIC ANALYSIS DATA SHEET

R02-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0566**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0566-03**

Solids: **10-Sieve Fraction** Sampled: **12/17/18 14:21** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon JHT-1	0.478	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	7.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-1	2.12	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	14.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	599	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	38900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1330	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	796	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.64	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	144	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:13

INORGANIC ANALYSIS DATA SHEET

R02-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0566**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0566-04**

Solids: **10-Sieve Fraction** Sampled: **12/17/18 14:23** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.333	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SOL-1	3.22	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		11.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		992	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron		37500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1100	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		1330	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		5.11	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		201	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:13

INORGANIC ANALYSIS DATA SHEET

R02-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0566**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0566-05**
Solids: **10-Sieve Fraction** Sampled: **12/17/18 14:25** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.315	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SGL-1	3.00	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		13.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		967	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron		40100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1080	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		1240	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		5.03	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		178	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:13

INORGANIC ANALYSIS DATA SHEET

R03A-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0566**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0566-06**

Solids: **10-Sieve Fraction** Sampled: **12/18/18 08:21** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	1.25	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	6.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	U	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium		19.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		465	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		34400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		561	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		251	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic		3.71	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		94.9	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

INORGANIC ANALYSIS DATA SHEET

R03A-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0566**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0566-07**

Solids: **10-Sieve Fraction** Sampled: **12/18/18 08:26** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	1.15	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.98	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		16.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		459	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		23600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1000	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		176	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic		2.81	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		80.4	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:13

INORGANIC ANALYSIS DATA SHEET

R03A-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0566**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0566-08**

Solids: **10-Sieve Fraction** Sampled: **12/18/18 08:31** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.337	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	4.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SGL-1	2.72	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		30.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		768	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		57600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		695	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		1000	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		6.01	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		338	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		3.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:13

INORGANIC ANALYSIS DATA SHEET

R03A-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0566**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0566-09**

Solids: **10-Sieve Fraction** Sampled: **12/18/18 08:40** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.347	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	6.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	2.85	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		12.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		473	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		22600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1200	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		1210	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		2.69	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		51.2	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		2.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:13

INORGANIC ANALYSIS DATA SHEET

R03A-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0566**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0566-10**

Solids: **10-Sieve Fraction** Sampled: **12/18/18 08:35** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.611	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	4.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-1	2.74	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	28.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	764	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	55900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	796	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	1090	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.16	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	361	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	3.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:13

INORGANIC ANALYSIS DATA SHEET

R03B-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0566**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0566-11**

Solids: **10-Sieve Fraction** Sampled: **12/18/18 09:57** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.783	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	7.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	0.70	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	10.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	399	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	20400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	831	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	246	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.69	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	47.5	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:13

INORGANIC ANALYSIS DATA SHEET

R03B-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0566**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0566-12**

Solids: **10-Sieve Fraction** Sampled: **12/18/18 12:42** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.527	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	8.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SOL-1	1.15	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		11.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		808	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		28400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		940	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		565	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		2.59	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		111	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:13

INORGANIC ANALYSIS DATA SHEET

R03B-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0566**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0566-13**

Solids: **10-Sieve Fraction** Sampled: **12/18/18 13:00** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	1.12	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SOL-1	1.05	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		15.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		1250	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron		23700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1120	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		416	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		2.88	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		73.9	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:13

INORGANIC ANALYSIS DATA SHEET

R03B-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0566**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0566-14**

Solids: **10-Sieve Fraction** Sampled: **12/18/18 13:07** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.669	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	8.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.96	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		13.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		953	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		26600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		995	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		721	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		3.09	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		105	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:42

INORGANIC ANALYSIS DATA SHEET

R03B-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0569**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0569-01**

Solids: **10-Sieve Fraction** Sampled: **12/18/18 13:11** Recv'd: **12/28/18 11:18**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SG2-1	2.26	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		10.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		698	mg/kg	1.6	10	10		D1,M4	EPA 6010D
7439-89-6	Iron		28300	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese		1060	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc		829	mg/kg	3.4	10	10		D2,M4	EPA 6010D
7440-38-2	Arsenic	J MS-L	5.02	mg/kg	0.132	0.3	2		D1,M4	EPA 6020B
7439-92-1	Lead		145	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)		0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:42

INORGANIC ANALYSIS DATA SHEET

R03B-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0569**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0569-02**
Solids: **10-Sieve Fraction** Sampled: **12/18/18 12:51** Recv'd: **12/28/18 11:18**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HT-1	5.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium U	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	13.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	572	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	43900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	637	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	324	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.70	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	187	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:42

INORGANIC ANALYSIS DATA SHEET

R03B-007F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0569**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0569-03**

Solids: **10-Sieve Fraction** Sampled: **12/18/18 12:45** Recv'd: **12/28/18 11:18**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.504	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.12	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		10.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		635	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		25400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		842	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		452	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		2.84	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		76.6	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:42

INORGANIC ANALYSIS DATA SHEET

R52-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0569**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0569-04**
Solids: **10-Sieve Fraction** Sampled: **12/18/18 10:25** Recv'd: **12/28/18 11:18**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	6.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.06	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		17.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		390	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		56500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		996	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		572	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		6.11	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		239	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:42

INORGANIC ANALYSIS DATA SHEET

R97-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0569**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0569-05**

Solids: **10-Sieve Fraction** Sampled: **12/17/18 11:05** Recv'd: **12/28/18 11:18**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1 J HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH		7.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.50	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		16.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		367	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		45800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		783	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		504	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		4.23	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		151	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:42

INORGANIC ANALYSIS DATA SHEET

R97-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0569**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0569-06**

Solids: **10-Sieve Fraction** Sampled: **12/17/18 11:18** Recv'd: **12/28/18 11:18**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.421	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	8.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.96	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		10.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		390	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		24900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1080	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		405	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		2.59	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		77.7	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:42

INORGANIC ANALYSIS DATA SHEET

R97-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0569**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0569-07**
Sampled: **12/17/18 11:30** Recv'd: **12/28/18 11:18**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.17	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		10.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		572	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		31300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1110	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		432	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		3.55	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		93.3	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:42

INORGANIC ANALYSIS DATA SHEET

R97-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0569**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0569-08**

Solids: **10-Sieve Fraction** Sampled: **12/17/18 11:37** Recv'd: **12/28/18 11:18**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.516	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.40	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		14.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		539	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		44000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1050	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		541	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		4.18	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		149	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

INORGANIC ANALYSIS DATA SHEET

R97-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0569**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0569-09**

Solids: **10-Sieve Fraction** Sampled: **12/17/18 11:42** Recv'd: **12/28/18 11:18**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.164	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	4.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.71	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		16.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		564	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		53200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		710	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		333	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		4.89	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		187	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:42

INORGANIC ANALYSIS DATA SHEET

R97-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0569**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0569-10**

Solids: **10-Sieve Fraction** Sampled: **12/17/18 11:48** Recv'd: **12/28/18 11:18**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.863	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	7.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-1	2.07	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	14.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	445	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	40400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1280	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	740	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.94	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	152	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:42

INORGANIC ANALYSIS DATA SHEET

R97-007F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X8L0569**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0569-11**
Sampled: **12/17/18 11:08** Recv'd: **12/28/18 11:18**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.240	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.84	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		15.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		397	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		44400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		706	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		477	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		3.85	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		156	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:42

INORGANIC ANALYSIS DATA SHEET

R98-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0569**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0569-12**

Solids: **10-Sieve Fraction** Sampled: **12/17/18 13:00** Recv'd: **12/28/18 11:18**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.81	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		11.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		625	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		34700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1060	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		715	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		4.04	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		193	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:42

INORGANIC ANALYSIS DATA SHEET

R98-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0569**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0569-13**

Solids: **10-Sieve Fraction** Sampled: **12/17/18 13:07** Recv'd: **12/28/18 11:18**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	5.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.88	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		16.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		556	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		49200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		770	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		369	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		4.18	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		168	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:42

INORGANIC ANALYSIS DATA SHEET

R98-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0569**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0569-14**

Solids: **10-Sieve Fraction** Sampled: **12/17/18 13:11** Recv'd: **12/28/18 11:18**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HT-1	6.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	0.96	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	15.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	365	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	53600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	906	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	464	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.16	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	103	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 05-Feb-19 12:42

INORGANIC ANALYSIS DATA SHEET

R98-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0569**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X8L0569-15**
Solids: **10-Sieve Fraction** Sampled: **12/17/18 13:15** Recv'd: **12/28/18 11:18**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.192	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	6.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	0.94	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	13.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	335	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	44700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	685	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	488	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.77	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	85.5	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 04-Feb-19 15:26

INORGANIC ANALYSIS DATA SHEET

R02-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0570**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0570-01**

Solids: **60-Sieve Fraction** Sampled: **12/17/18 14:21** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.414	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	2.24	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		13.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		596	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		40000	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese		1250	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc		784	mg/kg	3.4	10	10		D2,M4	EPA 6010D
7440-38-2	Arsenic		3.97	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	J SD-1	149	mg/kg	0.018	0.1	2		B7,D1,M4	EPA 6020B
NA	% Moisture (air dried)		1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 04-Feb-19 15:26

INORGANIC ANALYSIS DATA SHEET

R03A-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0570**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0570-02**
Sampled: **12/18/18 08:21** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	1.33	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	6.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	0.59	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	18.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	459	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	31700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	550	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	215	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	3.28	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	104	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 04-Feb-19 15:26

INORGANIC ANALYSIS DATA SHEET

R03A-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0570**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0570-03**
Sampled: **12/18/18 08:40** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.425	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	6.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	2.66	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	10.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	461	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	21100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1120	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1300	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.48	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	48.7	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/20/19

SVL Analytical, Inc. 04-Feb-19 15:26

INORGANIC ANALYSIS DATA SHEET

R03B-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0570**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0570-04**

Solids: **60-Sieve Fraction** Sampled: **12/18/18 12:42** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.462	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.40	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		11.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		810	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		28500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		910	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		571	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		2.88	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		94.2	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 04-Feb-19 15:26

INORGANIC ANALYSIS DATA SHEET

R03B-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0570**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0570-05**

Solids: **60-Sieve Fraction** Sampled: **12/18/18 13:11** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.467	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	3.37	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		15.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		1010	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron		55100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1270	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		1030	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		7.38	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		222	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 04-Feb-19 15:26

INORGANIC ANALYSIS DATA SHEET

R52-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0570**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0570-06**

Solids: **60-Sieve Fraction** Sampled: **12/18/18 10:25** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HT-1	6.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	1.28	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	17.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	454	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	72900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1340	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	708	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	8.90	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	312	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 04-Feb-19 15:26

INORGANIC ANALYSIS DATA SHEET

R97-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0570**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0570-07**
Sampled: **12/17/18 11:30** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.533	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	5.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	1.79	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	17.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	724	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	49600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1430	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	667	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.37	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	163	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 04-Feb-19 15:26

INORGANIC ANALYSIS DATA SHEET

R97-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X8L0570**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X8L0570-08**
Sampled: **12/17/18 11:42** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.232	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	5.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.72	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		17.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		571	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		56500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		718	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		363	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		5.13	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		196	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 04-Feb-19 15:26

INORGANIC ANALYSIS DATA SHEET

R98-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0570**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0570-09**

Solids: **60-Sieve Fraction** Sampled: **12/17/18 13:00** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.154	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	2.61	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	14.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	703	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	53600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1350	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	750	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	7.48	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	221	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 04-Feb-19 15:26

INORGANIC ANALYSIS DATA SHEET

R98-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X8L0570**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X8L0570-10**

Solids: **60-Sieve Fraction** Sampled: **12/17/18 13:15** Recv'd: **12/28/18 10:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.230	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	7.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	1.54	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	18.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	403	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	69300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1060	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	537	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.12	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	167	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 07-Feb-19 16:46

INORGANIC ANALYSIS DATA SHEET

R103-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0057-02**

Solids: **10-Sieve Fraction** Sampled: **12/21/18 09:10** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.182	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.03	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		13.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		365	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		44300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		781	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		447	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		3.84	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		141	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 07-Feb-19 16:46

INORGANIC ANALYSIS DATA SHEET

R103-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0057-03**

Solids: **10-Sieve Fraction** Sampled: **12/21/18 09:13** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.596	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.38	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		12.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		400	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		38100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		877	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		503	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		3.77	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		123	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 07-Feb-19 16:46

INORGANIC ANALYSIS DATA SHEET

R103-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0057-04**

Solids: **10-Sieve Fraction** Sampled: **12/21/18 09:16** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.256	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	6.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.81	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		11.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		357	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		44100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		833	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		404	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		3.48	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		114	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 07-Feb-19 16:46

INORGANIC ANALYSIS DATA SHEET

R103-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0057-05**

Solids: **10-Sieve Fraction** Sampled: **12/21/18 09:20** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1 J HT-1 J SQL-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH		6.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium		1.05	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		13.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		426	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		53600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		893	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		521	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		4.18	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		142	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 07-Feb-19 16:46

INORGANIC ANALYSIS DATA SHEET

R104-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0057-06**

Solids: **10-Sieve Fraction** Sampled: **12/21/18 07:32** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	U	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	J SQL-1	3.90	mg/kg	2	6	10	J	D1	EPA 6010D
7440-50-8	Copper		571	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		10400	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese		149	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		22.5	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic		0.965	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		5.97	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 07-Feb-19 16:46

INORGANIC ANALYSIS DATA SHEET

R104-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0057-07**

Solids: **10-Sieve Fraction** Sampled: **12/21/18 07:37** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.692	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	6.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	0.83	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.17	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1570	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	18000	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese	447	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	103	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	1.95	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	24.2	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/20/19

SVL Analytical, Inc. 07-Feb-19 16:46

INORGANIC ANALYSIS DATA SHEET

R104-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0057-08**

Solids: **10-Sieve Fraction** Sampled: **12/21/18 07:40** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	1.62	%		1.5	1		D2,H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	2.41	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		13.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		1870	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron		17200	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese		451	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		95.5	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic		3.00	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		30.1	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		4.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 07-Feb-19 16:46

INORGANIC ANALYSIS DATA SHEET

R104-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0057-09**

Solids: **10-Sieve Fraction** Sampled: **12/21/18 07:44** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	1.67	%		1.5	1		D2,H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SOL-1	0.57	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		17.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		746	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		21700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		371	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		86.2	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic		2.91	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		22.8	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		5.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/20/19

SVL Analytical, Inc. 07-Feb-19 16:46

INORGANIC ANALYSIS DATA SHEET

R104-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0057-10**

Solids: **10-Sieve Fraction** Sampled: **12/21/18 07:35** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J H1-1	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium U	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium J SQL-1	5.31	mg/kg	2	6	10	J	D1	EPA 6010D
7440-50-8	Copper	605	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	10700	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese	213	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	25.6	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	1.15	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	7.84	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 07-Feb-19 16:46

INORGANIC ANALYSIS DATA SHEET

R105-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X9A0057-11**
Solids: **10-Sieve Fraction** Sampled: **12/21/18 07:50** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	2.33	%		1.5	1		D2,H1	EPA 600 3.2.13
PH	Paste pH J HT-1	5.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	0.93	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	8.39	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	892	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	12200	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese	456	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	85.3	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	3.22	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	36.8	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

INORGANIC ANALYSIS DATA SHEET

R105-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0057-12**

Solids: **10-Sieve Fraction** Sampled: **12/21/18 07:54** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	2.36	%		1.5	1		D2,H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium		6.06	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium		8.89	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		4200	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron		19800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1030	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		383	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		4.35	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		80.1	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		3.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/20/19

INORGANIC ANALYSIS DATA SHEET

R105-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0057-13**

Solids: **10-Sieve Fraction** Sampled: **12/21/18 08:00** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	JHT-1	0.238	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	JHT-1	7.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	U	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium		8.62	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		1850	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron		15700	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese		307	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		111	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic		2.81	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		48.5	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

SVL Analytical, Inc. 07-Feb-19 16:46

INORGANIC ANALYSIS DATA SHEET

R105-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0057-14**

Solids: **10-Sieve Fraction** Sampled: **12/21/18 08:06** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.774	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	2.87	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		9.18	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		2390	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron		15700	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese		469	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		118	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic		2.58	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		32.5	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		3.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 07-Feb-19 16:46

INORGANIC ANALYSIS DATA SHEET

R117-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0057-15**

Solids: **10-Sieve Fraction** Sampled: **12/21/18 08:12** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	2.18	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SGL-1	2.45	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	16.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1010	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	27200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1110	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	659	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.92	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	109	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	4.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/20/19

SVL Analytical, Inc. 07-Feb-19 16:46

INORGANIC ANALYSIS DATA SHEET

R117-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0057-16**

Solids: **10-Sieve Fraction** Sampled: **12/21/18 08:16** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.478	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.94	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		10.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		3030	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron		17300	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese		404	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		86.4	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic		2.36	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		23.5	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 07-Feb-19 16:46

INORGANIC ANALYSIS DATA SHEET

R117-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0057-17**

Solids: **10-Sieve Fraction** Sampled: **12/21/18 08:26** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	1.07	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SGL-1	1.58	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		10.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		2150	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron		17900	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese		407	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		103	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic		3.19	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		27.6	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		4.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 07-Feb-19 16:46

INORGANIC ANALYSIS DATA SHEET

R117-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X9A0057-18**
Solids: **10-Sieve Fraction** Sampled: **12/21/18 08:30** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.887	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	2.04	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		12.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		479	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		26300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1070	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		569	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		3.41	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		103	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		3.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 07-Feb-19 16:46

INORGANIC ANALYSIS DATA SHEET

R117-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0057**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0057-19**

Solids: **10-Sieve Fraction** Sampled: **12/21/18 08:20** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.214	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH J HT-1	8.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	1.11	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	7.62	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	2510	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	14800	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese	286	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	60.0	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	1.96	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	16.9	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 07-Feb-19 16:47

INORGANIC ANALYSIS DATA SHEET

R103-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0058**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0058-01**

Solids: **60-Sieve Fraction** Sampled: **12/21/18 09:13** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.476	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.90	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		14.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		387	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		44200	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese		1030	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		560	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		3.60	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		130	mg/kg	0.018	0.1	2		B7,D1,M4	EPA 6020B
NA	% Moisture (air dried)		1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 07-Feb-19 16:47

INORGANIC ANALYSIS DATA SHEET

R104-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0058**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0058-02**

Solids: **60-Sieve Fraction** Sampled: **12/21/18 07:32** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH	6.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	4.08	mg/kg	2	6	10	J	D1	EPA 6010D
7440-50-8	Copper	490	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	11100	mg/kg	66	200	10		D1	EPA 6010D
7439-96-5	Manganese	107	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	17.9	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	0.826	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	5.48	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

4J HT-1
J HT-1
U
J SQL-1

12/26/19

SVL Analytical, Inc. 07-Feb-19 16:47

INORGANIC ANALYSIS DATA SHEET

R104-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0058**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0058-03**

Solids: **60-Sieve Fraction** Sampled: **12/21/18 07:44** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.564	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.11	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		16.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		992	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron		21800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		362	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc		89.0	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic		2.89	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		24.6	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		5.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 07-Feb-19 16:47

INORGANIC ANALYSIS DATA SHEET

R105-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0058**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0058-04**

Solids: **60-Sieve Fraction** Sampled: **12/21/18 07:54** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	7.01	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium		6.59	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium		10.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		4520	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron		22900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		1090	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		430	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		4.65	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		91.7	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		3.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 07-Feb-19 16:47

INORGANIC ANALYSIS DATA SHEET

R117-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0058**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0058-05**

Solids: **60-Sieve Fraction** Sampled: **12/21/18 08:12** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	1.62	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.90	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		14.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		902	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron		25700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		995	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		550	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		3.57	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		95.9	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		3.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 07-Feb-19 16:47

INORGANIC ANALYSIS DATA SHEET

R117-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0058**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0058-06**

Solids: **60-Sieve Fraction** Sampled: **12/21/18 08:30** Recv'd: **01/03/19 11:15**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.627	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	J HT-1	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	1.79	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium		10.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper		423	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron		26000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese		968	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc		493	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic		3.25	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead		97.5	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		2.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/24/19

INORGANIC ANALYSIS DATA SHEET

R121-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0392**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0392-07**

Solids: **10-Sieve Fraction** Sampled: **01/14/19 09:40** Recv'd: **01/22/19 14:54**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon U	*0.150*	%		0.15	1	U		EPA 600 3.2.13
PH	Paste pH J HT-1	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	1.73	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	101	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	390	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	55700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1230	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	678	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.48	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	103	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 13-Feb-19 12:25

INORGANIC ANALYSIS DATA SHEET

R36-005

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9A0393**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9A0393-02**
Sampled: **01/14/19 15:20** Recv'd: **01/22/19 14:54**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.918	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J HT-I	4.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	0.61	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	44.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	991	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	30300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	331	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	357	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.50	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	43.6	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

KA 2/5/20

SVL Analytical, Inc. 13-Feb-19 12:25

INORGANIC ANALYSIS DATA SHEET

R121-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9A0393**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9A0393-03**
Sampled: **01/14/19 09:40** Recv'd: **01/22/19 14:54**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600 3.2.13
PH	Paste pH	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	1.52	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	101	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	381	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	66200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1150	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	620	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.65	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	122	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

U JHT-1 J SQL-1

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/26/19

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

B01-P1-2-025

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0414**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X9A0414-01**
Solids: **10-Sieve Fraction** Sampled: **01/08/19 10:15** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	4.24	%		1.5	1		D2,H1	EPA 600 3.2.13
PH	Paste pH J J J	7.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	13.2	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	8.14	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	465	mg/kg	1.6	10	10		D1,E,M4	EPA 6010D
7439-89-6	Iron	41100	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	2150	mg/kg	2.8	8	10		M4,D2	EPA 6010D
7440-66-6	Zinc	5250	mg/kg	17	50	50		D2,M4	EPA 6010D
7440-38-2	Arsenic	8.26	mg/kg	0.132	0.3	2		D1,M4	EPA 6020B
7439-92-1	Lead	525	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AK 1/6/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

B01-P1-3-014

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0414**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0414-02**

Solids: **10-Sieve Fraction** Sampled: **01/08/19 11:50** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	1.75	%		1.5	1		D2,H1	EPA 600 3.2.13
PH	Paste pH J J J	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	7.18	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	10.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	341	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	33100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1710	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	2830	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.74	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	230	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/6/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

B01-P1-3-016

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0414**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0414-03**

Solids: **10-Sieve Fraction** Sampled: **01/08/19 13:30** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ UJ-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J J J	7.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.54	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.43	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	348	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	53400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1150	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	700	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	7.69	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	258	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/6/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

B01-P2-2-012

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0414**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X9A0414-04**
Solids: **10-Sieve Fraction** Sampled: **01/11/19 09:45** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.571	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J HT-I	6.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	4.87	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	10.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	627	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	48200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1600	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1930	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.43	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	625	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/16/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

ERA-29

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0414**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0414-05**

Solids: **10-Sieve Fraction** Sampled: **01/07/19 15:54** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J H1-I 1 1 1	1.70	%		1.5	1		D2,H1	EPA 600 3.2.13
PH	Paste pH	7.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	6.79	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	10.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	529	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	50100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2080	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	2630	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.55	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	280	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/16/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

RAN-01

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0414**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0414-06**

Solids: **10-Sieve Fraction** Sampled: **01/07/19 11:17** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HF-I	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J HET-I L	8.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	6.15	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	6.04	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	387	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	31700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1650	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	2260	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.25	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	137	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/6/20

KA 1/27/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

RAN-02

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0414**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0414-07**

Solids: **10-Sieve Fraction** Sampled: **01/07/19 11:27** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HF-I J J J	0.171	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	8.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	5.68	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	7.03	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	357	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	32500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1380	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	2290	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.03	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	169	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 1/6/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

U02-3200

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0414**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0414-08**

Solids: **10-Sieve Fraction** Sampled: **01/11/19 11:30** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.237	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J HTL	6.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	2.94	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	15.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1580	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	48200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1390	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1200	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.95	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	181	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/6/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

U02-3102

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0414**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0414-09**

Solids: **10-Sieve Fraction** Sampled: **01/08/19 14:08** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-I J LL	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH	7.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	3.59	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	7.73	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	400	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	47600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2080	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1370	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.62	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	166	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/6/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

U02-3104

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9A0414**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9A0414-10**
Sampled: **01/07/19 13:20** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J J H J F J	0.645	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	5.41	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	9.69	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	572	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	46100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1930	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	2070	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.72	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	143	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/16/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

B01-P1-2-021

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0414**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0414-11**

Solids: **10-Sieve Fraction** Sampled: **01/09/19 15:10** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600 3.2.13
PH	Paste pH J HT-I	7.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J 54L-I	1.63	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	7.73	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	285	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	45300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	952	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	756	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.46	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	210	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

2/6/19

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

B01-P1-3-013

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9A0414**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9A0414-12**
Sampled: **01/08/19 08:30** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HFI	9.18	%		1.5	1		D2,H1	EPA 600 3.2.13
PH	Paste pH	7.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	6.20	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	8.47	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	435	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	56700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2380	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	2310	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	7.04	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	356	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/6/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

B01-P1-3-024

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0414**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X9A0414-13**
Solids: **10-Sieve Fraction** Sampled: **01/09/19 15:45** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.161	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J HT-I	7.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J 50C-I	2.91	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	7.69	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	271	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	43300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1260	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1100	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.03	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	120	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/16/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

B01-P1-3-025

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0414**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X9A0414-14**
Solids: **10-Sieve Fraction** Sampled: **01/09/19 16:02** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.816	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J HT-I	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J 59C-I	2.66	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	7.50	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	378	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	33800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1110	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	955	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.86	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	505	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/16/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

B01-P2-2-004

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9A0414**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9A0414-15**
Sampled: **01/11/19 10:30** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.966	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J HT-I	6.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	2.42	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.89	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	486	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	53300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1660	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1100	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	7.22	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	365	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/6/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

U03-2200

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9A0414**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9A0414-16**
Sampled: **01/11/19 09:20** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.617	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J HT-I	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	4.16	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	13.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	800	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	41800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1290	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1550	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.47	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	207	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/6/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

U02-2102

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0414**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0414-17**

Solids: **10-Sieve Fraction** Sampled: **01/08/19 15:20** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600 3.2.13
PH	Paste pH J HT-I	7.6	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SR-I	3.49	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	7.53	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	488	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	40300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1310	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1300	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.93	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	184	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/16/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

U02-2100

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9A0414**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9A0414-18**
Sampled: **01/07/19 10:50** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J H1-I J J J	0.256	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	4.21	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	7.56	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	330	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	29700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1450	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1890	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.46	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	102	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/6/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

U02-10154

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9A0414**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9A0414-19**
Sampled: **01/08/19 11:05** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.17	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J HT-I	7.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	4.06	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	8.58	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	371	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	46000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1940	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1450	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.49	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	334	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 1/6/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

U03-3200M

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0414**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0414-20**

Solids: **10-Sieve Fraction** Sampled: **01/11/19 10:58** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.212	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J HT-I	6.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	11.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	3390	mg/kg	1.6	10	10		D2	EPA 6010D
7439-89-6	Iron	60200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	661	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	385	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.78	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	313	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/6/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

U02-3100

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9A0414**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9A0414-21**
Sampled: **01/07/19 13:35** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.318	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J HFI	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	12.0	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	8.52	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	432	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	38600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2730	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	4050	mg/kg	3.4	10	10		D2,B7	EPA 6010D
7440-38-2	Arsenic	3.80	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	263	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/6/20

SVL Analytical, Inc. 19-Feb-19 15:43

INORGANIC ANALYSIS DATA SHEET

U03-10202

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9A0414**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9A0414-22**
Sampled: **01/11/19 12:55** Recv'd: **01/23/19 13:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	3.52	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J HT-I	6.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	2.23	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	8.95	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	403	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	19800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1040	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	415	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	2.17	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	100	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

2/16/19

SVL Analytical, Inc. 19-Feb-19 15:44

INORGANIC ANALYSIS DATA SHEET

B01-P1-2-025

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0418**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0418-01**

Solids: **60-Sieve Fraction** Sampled: **01/08/19 10:15** Recv'd: **01/23/19 13:10**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HFI	1.24	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	18.3	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	10.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	646	mg/kg	1.6	10	10		B7,D1,M4	EPA 6010D
7439-89-6	Iron	60500	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	2940	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc	7320	mg/kg	3.4	10	10		B7,D2,M4	EPA 6010D
7440-38-2	Arsenic	15.9	mg/kg	0.132	0.3	2		D1,M4	EPA 6020B
7439-92-1	Lead	634	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/7/20

SVL Analytical, Inc. 19-Feb-19 15:44

INORGANIC ANALYSIS DATA SHEET

B01-P2-2-012

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9A0418**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9A0418-02**
Sampled: **01/11/19 09:45** Recv'd: **01/23/19 13:10**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.806	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	6.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	8.02	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	13.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1090	mg/kg	1.6	10	10		B7,D2	EPA 6010D
7439-89-6	Iron	75600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2280	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	2630	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	9.55	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	1310	mg/kg	0.091	0.2	10		D2	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

SVL Analytical, Inc. 19-Feb-19 15:44

INORGANIC ANALYSIS DATA SHEET

RAN-02

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0418**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0418-03**

Solids: **60-Sieve Fraction** Sampled: **01/07/19 11:27** Recv'd: **01/23/19 13:10**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.246	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.9	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	10.5	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	10.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	679	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	59100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1900	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	3500	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.59	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	198	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

SVL Analytical, Inc. 19-Feb-19 15:44

INORGANIC ANALYSIS DATA SHEET

U02-3104

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9A0418**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9A0418-04**
Sampled: **01/07/19 13:20** Recv'd: **01/23/19 13:10**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I L L L	0.447	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	7.13	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	11.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	747	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	62900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2310	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	2550	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.10	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	158	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

2/7/20

SVL Analytical, Inc. 19-Feb-19 15:44

INORGANIC ANALYSIS DATA SHEET

B01-P1-3-024

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0418**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0418-05**

Solids: **60-Sieve Fraction** Sampled: **01/09/19 15:45** Recv'd: **01/23/19 13:10**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HFJ	*0.150*	%		0.15	1	U	H1	EPA 600 3.2.13
PH	Paste pH J L L	7.7	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	4.79	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	12.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	503	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	70500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1970	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1880	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	3.54	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	152	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 2/7/20

INORGANIC ANALYSIS DATA SHEET

U03-2200

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0418**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0418-06**

Solids: **60-Sieve Fraction** Sampled: **01/11/19 09:20** Recv'd: **01/23/19 13:10**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HFI	0.625	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	7.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	8.14	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	20.9	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1600	mg/kg	1.6	10	10		B7,D2	EPA 6010D
7439-89-6	Iron	72400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2030	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	2800	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	8.43	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	295	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 1/7/20

SVL Analytical, Inc. 19-Feb-19 15:44

INORGANIC ANALYSIS DATA SHEET

U02-10154

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0418**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0418-07**

Solids: **60-Sieve Fraction** Sampled: **01/08/19 11:05** Recv'd: **01/23/19 13:10**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.06	%		0.15	1		H1	EPA 600 3.2.13
PH	Paste pH	7.3	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	5.42	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	9.45	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	417	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	56600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2230	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1720	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	5.73	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	347	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

SVL Analytical, Inc. 19-Feb-19 15:44

INORGANIC ANALYSIS DATA SHEET

U03-10202

Laboratory: **SVL Analytical, Inc.** SDG: **X9A0418**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9A0418-08**

Solids: **60-Sieve Fraction** Sampled: **01/11/19 12:55** Recv'd: **01/23/19 13:10**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J H7-I	2.89	%		1.5	1		H1	EPA 600 3.2.13
PH	Paste pH L L L	6.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J S0C-I	1.95	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.26	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	445	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	20800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	985	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	423	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	2.24	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	115	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AE 1/7/20

SVL Analytical, Inc. 25-Feb-19 14:54

INORGANIC ANALYSIS DATA SHEET

R09M-008F

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0036**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9B0036-01**

Solids: **60-Sieve Fraction** Sampled: **01/23/19 09:45** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.225	%		0.15	1			EPA 600 3.2.13
PH	Paste pH 5 HT-I	4.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	*4.00*	mg/kg	0.57	4	10	U	D1	EPA 6010D
7440-47-3	Chromium	27.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	632	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	90000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	361	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	321	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.82	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	173	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/7/19

SVL Analytical, Inc. 25-Feb-19 14:54

INORGANIC ANALYSIS DATA SHEET

R09M-011F

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0036**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9B0036-02**

Solids: **60-Sieve Fraction** Sampled: **01/24/19 09:33** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600 3.2.13
PH	Paste pH J HT-I	6.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	0.99	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	27.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	445	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	89000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1190	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	537	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.74	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	186	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AK 1/17/20

SVL Analytical, Inc. 25-Feb-19 14:54

INORGANIC ANALYSIS DATA SHEET

R09M-014F

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0036**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X9B0036-03**
Solids: **60-Sieve Fraction** Sampled: **01/24/19 10:06** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.179	%		0.15	1			EPA 600 3 2.13
PH	Paste pH J HT-I	6.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.20	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	19.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	402	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	65500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1060	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	540	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.93	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	202	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

SVL Analytical, Inc. 25-Feb-19 14:54

INORGANIC ANALYSIS DATA SHEET

R77M-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0036**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X9B0036-04**
Solids: **60-Sieve Fraction** Sampled: **01/23/19 10:50** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.514	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J HFI	4.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.86	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	21.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	956	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	55600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	732	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	877	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	7.30	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	291	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

2/7/20

SVL Analytical, Inc. 20-Mar-19 12:13

INORGANIC ANALYSIS DATA SHEET

R101-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0346**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9B0346-04**

Solids: **60-Sieve Fraction** Sampled: **02/12/19 11:00** Recv'd: **02/20/19 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600/2-78-054
PH	Paste pH J HT-I	6.9	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	1.43	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	16.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	464	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	71200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1080	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	553	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.25	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	171	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/7/20

SVL Analytical, Inc. 20-Mar-19 12:08

INORGANIC ANALYSIS DATA SHEET

R101-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0345**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9B0345-09**
Sampled: **02/12/19 11:00** Recv'd: **02/20/19 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600/2-78-054
PH	Paste pH J HT-I	6.8	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.38	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	14.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	445	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	53900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	830	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	518	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.04	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	151	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/20

SVL Analytical, Inc. 20-Mar-19 12:08

INORGANIC ANALYSIS DATA SHEET

R101-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0345**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9B0345-10**
Sampled: **02/12/19 11:05** Recv'd: **02/20/19 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600/2-78-054
PH	Paste pH J HT-I	6.8	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.19	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	14.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	395	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	55700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	940	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	511	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.27	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	120	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/4/20

SVL Analytical, Inc. 20-Mar-19 12:08

INORGANIC ANALYSIS DATA SHEET

R102-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0345**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9B0345-13**
Sampled: **02/12/19 10:15** Recv'd: **02/20/19 14:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.452	%		0.15	1			EPA 600/2-78-054
PH	Paste pH J HT-I	7.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	2.47	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	9.85	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	794	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	28800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1060	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	900	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	2.87	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	114	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/16/20

INORGANIC ANALYSIS DATA SHEET

R302-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0439-01**
Sampled: **03/11/19 11:50** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ 4T-I	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J 1 L	7.6	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.88	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	750	mg/kg	0.16	1	1		M3	EPA 6010D
7439-89-6	Iron	48900	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	1230	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	744	mg/kg	0.3	1	1		M3	EPA 6010D
7440-38-2	Arsenic	3.39	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	125	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/20

INORGANIC ANALYSIS DATA SHEET

R302-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0439-02**
Sampled: **03/11/19 11:58** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon uJ HT-I	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J 1 1	7.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.75	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	447	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	54900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1100	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	712	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.97	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	172	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 1/4/20

INORGANIC ANALYSIS DATA SHEET

R302-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0439-03**
Sampled: **03/11/19 12:05** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.583	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	7.6	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	2.08	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	496	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	36000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1170	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	803	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.06	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	185	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/4/20

INORGANIC ANALYSIS DATA SHEET

R302-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0439-04**
Sampled: **03/11/19 12:10** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HI	0.625	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J L L	7.0	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.98	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	462	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	43300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	807	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	474	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.60	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	133	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AE 1/14/20

INORGANIC ANALYSIS DATA SHEET

R302-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0439-05**
Sampled: **03/11/19 12:15** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.543	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH L L L	7.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	2.02	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	501	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	35300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1130	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	735	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.23	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	195	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 4/4/20

INORGANIC ANALYSIS DATA SHEET

R303-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0439**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9C0439-10**

Solids: **10-Sieve Fraction** Sampled: **03/12/19 08:55** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.676	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH I I I	7.9	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	3.59	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	10.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	905	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	26000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1350	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1090	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.27	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	153	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 1/8/20

INORGANIC ANALYSIS DATA SHEET

R303-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0439-11**
Sampled: **03/12/19 09:05** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J H1-I	0.150	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH L L L	6.6	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	2.74	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	9.92	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	741	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	26800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	2100	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	771	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.00	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	141	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AE 1/14/20

INORGANIC ANALYSIS DATA SHEET

R303-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0439-12**
Sampled: **03/12/19 09:07** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HFI 1 1 1	0.300	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	6.6	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.07	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	9.38	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	525	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	26300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1420	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	546	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.16	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	117	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/20

INORGANIC ANALYSIS DATA SHEET

R303-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0439-13**
Sampled: **03/12/19 09:12** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.531	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J J J	4.9	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.60	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	9.09	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	909	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	20100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	462	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	450	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.63	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	108	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	4.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AE 1/14/20

INORGANIC ANALYSIS DATA SHEET

R303-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0439-14**
Sampled: **03/12/19 09:17** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.695	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH I I I	4.9	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.59	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	9.29	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	799	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	21500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	662	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	469	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.45	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	107	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	4.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AP 4/14/20

INORGANIC ANALYSIS DATA SHEET

R304-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0439**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9C0439-15**

Solids: **10-Sieve Fraction** Sampled: **03/12/19 09:45** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I L L L	0.539	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	5.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	2.27	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1250	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	24900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1570	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1090	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.47	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	123	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AR 4/16/20

INORGANIC ANALYSIS DATA SHEET

R304-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0439-16**
Sampled: **03/12/19 09:50** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I J J J	0.829	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	7.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.90	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	21.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	533	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	69200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	977	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	678	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.95	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	226	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AC 1/16/20

INORGANIC ANALYSIS DATA SHEET

R304-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0439**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9C0439-17**

Solids: **10-Sieve Fraction** Sampled: **03/12/19 10:00** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HI-I	0.462	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J J J	4.9	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.25	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	676	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	38000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	938	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	732	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.18	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	333	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/16/20

INORGANIC ANALYSIS DATA SHEET

R304-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0439**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9C0439-18**

Solids: **10-Sieve Fraction** Sampled: **03/12/19 10:10** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J 4T-I	0.403	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J J J	6.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	4.51	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	736	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	35100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1400	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1560	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.00	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	329	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/16/20

INORGANIC ANALYSIS DATA SHEET

R304-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0439-19**
Sampled: **03/12/19 10:07** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.584	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J J J	4.8	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.33	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	699	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	38800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	899	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	754	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.14	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	356	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

JC 1/4/20

INORGANIC ANALYSIS DATA SHEET

R61-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0439**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0439-20**
Sampled: **03/12/19 10:45** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J H-I L L L	1.32	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	3.09	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	883	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	35600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1190	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1110	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.61	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	179	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 1/14/20

INORGANIC ANALYSIS DATA SHEET

R61-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0439**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9C0439-21**

Solids: **10-Sieve Fraction** Sampled: **03/12/19 10:50** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HEI	1.56	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J J J	7.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	5.02	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	23.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	809	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	55300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1260	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1620	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.00	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	178	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AE 1/4/20

SVL Analytical, Inc. 28-Feb-19 10:03

INORGANIC ANALYSIS DATA SHEET

R09M-008F

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0034**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9B0034-01**

Solids: **10-Sieve Fraction** Sampled: **01/23/19 09:45** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.244	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J HT-I	4.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	0.62	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	25.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	634	mg/kg	1.6	10	10		D1,M4	EPA 6010D
7439-89-6	Iron	88300	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	302	mg/kg	2.8	8	10		D1,M4	EPA 6010D
7440-66-6	Zinc	284	mg/kg	3.4	10	10		D2,M4	EPA 6010D
7440-38-2	Arsenic ~~J SQL-I~~	4.46	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	170	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AK 2/6/20

KA 2/6/20

SVL Analytical, Inc. 28-Feb-19 10:03

INORGANIC ANALYSIS DATA SHEET

R09M-009F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0034**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9B0034-02**
Sampled: **01/24/19 09:13** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600 3.2.13
PH	Paste pH	7.0	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium	1.05	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	14.5	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	375	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	51900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	869	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	500	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.14	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	155	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

SVL Analytical, Inc. 28-Feb-19 10:03

INORGANIC ANALYSIS DATA SHEET

R09M-010F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0034**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9B0034-03**
Sampled: **01/24/19 09:24** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600 3.2.13
PH	Paste pH J HT-I	6.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOL-I	1.03	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	20.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	415	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	71900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	822	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	526	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.26	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	123	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

2/14/20

SVL Analytical, Inc. 28-Feb-19 10:03

INORGANIC ANALYSIS DATA SHEET

R09M-011F

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0034**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9B0034-04**

Solids: **10-Sieve Fraction** Sampled: **01/24/19 09:33** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600 3.2.13
PH	Paste pH J 4T-I	5.8	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.44	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	16.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	374	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	51900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	802	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	390	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.19	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	110	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 1/16/20

SVL Analytical, Inc. 28-Feb-19 10:03

INORGANIC ANALYSIS DATA SHEET

R09M-012F

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0034**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X9B0034-05**
Solids: **10-Sieve Fraction** Sampled: **01/24/19 09:44** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600 3.2.13
PH	Paste pH J HT-I	6.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	1.16	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	16.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	412	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	51600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	782	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	542	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.73	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	146	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/14/20

SVL Analytical, Inc. 28-Feb-19 10:03

INORGANIC ANALYSIS DATA SHEET

R09M-013F

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0034**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X9B0034-06**
Solids: **10-Sieve Fraction** Sampled: **01/24/19 09:53** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.188	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J 47-I	6.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J 5QL-I	1.42	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	20.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	549	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	79200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1280	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	589	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.06	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	179	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

2/14/20

SVL Analytical, Inc. 28-Feb-19 10:03

INORGANIC ANALYSIS DATA SHEET

R09M-014F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0034**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9B0034-07**
Sampled: **01/24/19 10:06** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600 3.2.13
PH	Paste pH J HT-I	6.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J ~~HT~~ SQL-I	1.04	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	18.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	361	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	51500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1010	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	495	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.62	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	138	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 1/8/20

SVL Analytical, Inc. 28-Feb-19 10:03

INORGANIC ANALYSIS DATA SHEET

R75M-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0034**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X9B0034-08**
Solids: **10-Sieve Fraction** Sampled: **01/24/19 07:40** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.225	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J HTI	5.4	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	0.65	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	17.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	436	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	48300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	936	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	440	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	5.02	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	205	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/14/20

SVL Analytical, Inc. 28-Feb-19 10:03

INORGANIC ANALYSIS DATA SHEET

R77M-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0034**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9B0034-09**

Solids: **10-Sieve Fraction** Sampled: **01/23/19 10:35** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.245	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J HT-I	4.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-I	0.78	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	18.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	494	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	47800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	567	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	470	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.75	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	415	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

2/14/20

SVL Analytical, Inc. 28-Feb-19 10:03

INORGANIC ANALYSIS DATA SHEET

R77M-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0034**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X9B0034-10**
Solids: **10-Sieve Fraction** Sampled: **01/23/19 10:50** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.499	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J 4T-I	4.5	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SGL-I	1.83	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	16.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	781	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	45200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	702	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	769	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	6.61	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	246	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 1/14/20

SVL Analytical, Inc. 28-Feb-19 10:03

INORGANIC ANALYSIS DATA SHEET

R77M-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0034**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X9B0034-11**
Solids: **10-Sieve Fraction** Sampled: **01/23/19 12:11** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.470	%		0.15	1			EPA 600 3.2.13
PH	Paste pH J HT-I	7.2	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SGL-I	1.56	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	18.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	456	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	60400	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1040	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	644	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	4.03	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	148	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 1/14/20

SVL Analytical, Inc. 28-Feb-19 10:03

INORGANIC ANALYSIS DATA SHEET

R77M-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0034**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X9B0034-12**
Solids: **10-Sieve Fraction** Sampled: **01/23/19 12:18** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.394	%		0.15	1			EPA 600 3 2.13
PH	Paste pH J HFI	7.1	pH Units			1		H5	EPA 600/2-78-054
7440-43-9	Cadmium J SOW-E	1.53	mg/kg	0.57	4	10	J	D1	EPA 6010D
7440-47-3	Chromium	18.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	445	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	64000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	983	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	623	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	3.69	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	141	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/16/20

INORGANIC ANALYSIS DATA SHEET

TC East 001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0444**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9C0444-01**

Solids: **60-Sieve Fraction** Sampled: **02/20/19 15:15** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.518	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J J J	4.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.49	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper J SD-H	836	mg/kg	0.16	1	1		M3	EPA 6010D
7439-89-6	Iron	27400	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese J MS-H	294	mg/kg	0.28	0.8	1		M1	EPA 6010D
7440-66-6	Zinc J J J	241	mg/kg	0.3	1	1		M1	EPA 6010D
7440-38-2	Arsenic	2.76	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	60.2	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	3.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 1/9/20

INORGANIC ANALYSIS DATA SHEET

TC East 004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0444**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0444-02**
Sampled: **02/20/19 15:28** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	1.01	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH L L L	7.1	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.88	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1500	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	26900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	949	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	471	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.71	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	164	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

4/19/20

INORGANIC ANALYSIS DATA SHEET

TC West 001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0444**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0444-03**
Sampled: **02/20/19 16:17** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.214	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J J J	4.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.45	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	20.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	575	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	82800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	429	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	238	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	8.05	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	264	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	4.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 1/9/20

INORGANIC ANALYSIS DATA SHEET

TC West 004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0444**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0444-04**
Sampled: **02/20/19 16:34** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.154	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	4.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.57	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	18.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	536	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	87000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	604	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	283	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.48	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	229	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/20

KA 1/27/20

INORGANIC ANALYSIS DATA SHEET

R301-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0444**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0444-05**
Sampled: **03/11/19 10:33** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.320	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	2.40	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	465	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	43600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1300	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	950	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.43	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	210	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

INORGANIC ANALYSIS DATA SHEET

R302-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0444**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0444-06**
Sampled: **03/11/19 11:50** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.289	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	7.6	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	2.31	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	501	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	60500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1390	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	892	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.34	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	224	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

INORGANIC ANALYSIS DATA SHEET

R302-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0444**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0444-07**
Sampled: **03/11/19 12:10** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.409	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	7.1	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.21	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	496	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	60500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	825	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	538	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.70	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	145	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

R303-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0444**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0444-09**
Sampled: **03/12/19 08:55** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I ⊥ ⊥ ⊥	0.704	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	7.9	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	3.88	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1080	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	33400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1310	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1320	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.12	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	216	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

R303-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0444**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0444-10**
Sampled: **03/12/19 09:12** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HFI	0.595	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH L L L	4.8	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.64	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	8.98	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	851	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	23300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	410	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	412	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.93	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	112	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	6.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

R304-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0444**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0444-11**
Sampled: **03/12/19 09:50** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I J J J	0.861	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	7.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	2.74	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	21.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	539	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	61300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1250	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	949	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.31	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	273	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

R304-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0444**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0444-12**
Sampled: **03/12/19 10:07** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HI J	0.399	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH L L L	5.0	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.21	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	632	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	37000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	791	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	744	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.11	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	351	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

TC East 001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0434**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9C0434-01**

Solids: **10-Sieve Fraction** Sampled: **02/20/19 15:15** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.544	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH L L L	4.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.42	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper J SD-H	700	mg/kg	0.16	1	1		M3	EPA 6010D
7439-89-6	Iron SD-H	25600	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese MS,SD-H	278	mg/kg	0.28	0.8	1		M1	EPA 6010D
7440-66-6	Zinc MS-H	222	mg/kg	0.3	1	1		M1	EPA 6010D
7440-38-2	Arsenic	2.55	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	50.9	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	3.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

TC East 002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0434**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0434-02**
Sampled: **02/20/19 15:20** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J H1-I L L L	0.656	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	5.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	2.13	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1790	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	35900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1120	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	405	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.04	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	150	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

TC East 003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0434**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9C0434-03**

Solids: **10-Sieve Fraction** Sampled: **02/20/19 15:22** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HF-I	1.12	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH L L L	7.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.83	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1370	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	28800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	980	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	436	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.47	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	130	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

TC East 004F

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0434**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9C0434-04**

Solids: **10-Sieve Fraction** Sampled: **02/20/19 15:28** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	1.04	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J HT-I	7.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.82	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1430	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	27100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	945	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	441	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.51	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	133	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

TC East 005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0434**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0434-05**
Sampled: **02/20/19 15:30** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	1.01	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J J J	6.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	3.99	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	2440	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	30100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	2110	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	607	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.96	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	577	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

TC West 001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0434**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0434-07**
Sampled: **02/20/19 16:17** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.247	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH L L L	4.4	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.51	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	517	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	70600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	482	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	261	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.65	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	225	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

TC West 002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0434**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0434-08**
Sampled: **02/20/19 16:24** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.989	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH L L L	4.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.41	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	570	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	41200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	557	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	284	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.51	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	305	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 1/9/20

INORGANIC ANALYSIS DATA SHEET

TC West 003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0434**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9C0434-09**

Solids: **10-Sieve Fraction** Sampled: **02/20/19 16:26** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.160	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J HT-I	6.0	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.55	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	466	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	53000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	590	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	327	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.63	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	186	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/20
KA 1/27/20

INORGANIC ANALYSIS DATA SHEET

TC West 004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0434**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0434-10**
Sampled: **02/20/19 16:34** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-I	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HT-I	5.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.84	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	444	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	61600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	591	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	390	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.94	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	163	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

KA. 1/27/20

INORGANIC ANALYSIS DATA SHEET

R301-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0434**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0434-12**
Sampled: **03/11/19 10:26** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HFJ	0.263	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH L L L	7.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.85	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	392	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	60800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	930	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	418	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	*0.300*	mg/kg	0.132	0.3	2	U	D1	EPA 6020B
7439-92-1	Lead J SOL-I	0.048	mg/kg	0.018	0.1	2	J	D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

AL 1/9/20

INORGANIC ANALYSIS DATA SHEET

R301-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0434**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0434-13**
Sampled: **03/11/19 10:33** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HF-I L LL	0.317	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	2.18	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	468	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	42500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1120	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	852	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.71	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	442	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

4/19/20

INORGANIC ANALYSIS DATA SHEET

R301-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0434**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0434-14**
Sampled: **03/11/19 10:39** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-I	0.179	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH L L L	6.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.58	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	21.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	411	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	73900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	681	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	305	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.88	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	177	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

4/19/20

INORGANIC ANALYSIS DATA SHEET

R301-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0434**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0434-15**
Sampled: **03/11/19 10:45** Recv'd: **03/21/19 15:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon U J HFI	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HTZI	7.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.79	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	19.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	472	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	67400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	867	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	401	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.08	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	194	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/19/20

KA 1/27/20

SVL Analytical, Inc. 28-Feb-19 11:46

INORGANIC ANALYSIS DATA SHEET

U03-1202M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0037**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0037-01**
Sampled: **01/17/19 09:15** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.274	%		0.15	1			EPA 600 3.2.13
PH	Paste pH	6.1	pH Units			1	J	H5	EPA 600/2-78-054 HT-1
7440-43-9	Cadmium	7.63	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	12.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	787	mg/kg	1.6	10	10		B7,D2,M4	EPA 6010D
7439-89-6	Iron	50400	mg/kg	66	200	10		D2,M4	EPA 6010D
7439-96-5	Manganese	2280	mg/kg	2.8	8	10		D2,M4	EPA 6010D
7440-66-6	Zinc	2970	mg/kg	3.4	10	10		B7,D2,M4	EPA 6010D
7440-38-2	Arsenic	10.7	mg/kg	0.132	0.3	2	J	D1,M4	EPA 6020B ~~SD-1~~
7439-92-1	Lead	354	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

KA 2/6/20

12/23/2019

SVL Analytical, Inc. 28-Feb-19 11:46

INORGANIC ANALYSIS DATA SHEET

U03-1200M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0037**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0037-02**
Sampled: **01/17/19 09:25** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.480	%		0.15	1			EPA 600 3.2.13
PH	Paste pH	6.9	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	12.4	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	9.34	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	864	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	41100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2680	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	4450	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	7.28	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	376	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/23/2019

SVL Analytical, Inc. 28-Feb-19 11:46

INORGANIC ANALYSIS DATA SHEET

U03-7302M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0037**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0037-03**
Sampled: **01/17/19 14:45** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	3.41	%		0.15	1			EPA 600 3 2.13
PH	Paste pH	7.4	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	4.05	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	15.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	695	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	44100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1280	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1390	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	6.03	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	230	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/23/2019

SVL Analytical, Inc. 28-Feb-19 11:46

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-012

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0037**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0037-04**
Sampled: **01/17/19 15:20** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.275	%		0.15	1			EPA 600 3.2.13
PH	Paste pH	7.4	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.16	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	15.8	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	384	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	38900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	824	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	425	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	3.87	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	132	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/23/2019

SVL Analytical, Inc. 28-Feb-19 11:46

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-010

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0037**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0037-05**
Sampled: **01/17/19 13:50** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.959	%		0.15	1			EPA 600 3.2.13
PH	Paste pH	7.9	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.41	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	13.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	378	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	32000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	960	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	454	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	3.24	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	114	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Ming 12/23/2019

SVL Analytical, Inc. 28-Feb-19 11:46

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-075

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0037**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0037-06**
Sampled: **01/17/19 15:10** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.562	%		0.15	1			EPA 600 3.2.13
PH	Paste pH	6.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.70	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	14.2	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	658	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	50300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	899	mg/kg	2.8	8	10		D1	EPA 6010D
7440-66-6	Zinc	790	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	6.27	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	246	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/23/2019

SVL Analytical, Inc. 28-Feb-19 11:46

INORGANIC ANALYSIS DATA SHEET

RAN-03

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0037**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0037-07**
Sampled: **01/23/19 13:55** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.150	%		0.15	1			EPA 600 3.2.13
PH	Paste pH	8.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	4.83	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	9.44	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	461	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	37800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1630	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	2040	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	3.49	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	111	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/23/2019

SVL Analytical, Inc. 28-Feb-19 11:46

INORGANIC ANALYSIS DATA SHEET

RAN-04

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0037**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0037-08**
Sampled: **01/23/19 14:14** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.235	%		0.15	1			EPA 600 3.2.13
PH	Paste pH	7.9	pH Units			1	J	H5	EPA 600/2-78-054 HT-J
7440-43-9	Cadmium	5.52	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	10.3	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	583	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	55900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1490	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	2230	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	3.47	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	145	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/23/2019

SVL Analytical, Inc. 28-Feb-19 11:46

INORGANIC ANALYSIS DATA SHEET

RAN-05

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0037**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0037-09**
Sampled: **01/23/19 15:00** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.395	%		0.15	1			EPA 600 3.2.13
PH	Paste pH	7.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-J
7440-43-9	Cadmium	5.12	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	9.09	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	537	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	42800	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1760	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	2140	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	4.12	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	152	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/23/2019

SVL Analytical, Inc. 28-Feb-19 11:46

INORGANIC ANALYSIS DATA SHEET

RAN-06

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0037**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9B0037-10**

Solids: **10-Sieve Fraction** Sampled: **01/23/19 14:50** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.591	%		0.15	1			EPA 600 3 2.13
PH	Paste pH	5.6	pH Units			1	J	H5	EPA 600/2-78-054 HT-J
7440-43-9	Cadmium	4.34	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	16.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1040	mg/kg	1.6	10	10		B7,D2	EPA 6010D
7439-89-6	Iron	53000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1650	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1840	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	15.2	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	1660	mg/kg	0.091	0.2	10		D2	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/23/2019

SVL Analytical, Inc. 28-Feb-19 11:46

INORGANIC ANALYSIS DATA SHEET

RAN-07

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0037**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0037-11**
Sampled: **01/24/19 14:35** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600 3.2.13
PH	Paste pH	8.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.87	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	9.49	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	363	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	42100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1580	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1600	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	3.26	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	128	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/23/2019

SVL Analytical, Inc. 28-Feb-19 11:46

INORGANIC ANALYSIS DATA SHEET

RAN-08

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0037**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9B0037-12**
Solids: **10-Sieve Fraction** Sampled: **01/24/19 14:28** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.488	%		0.15	1			EPA 600 3.2.13
PH	Paste pH	6.0	pH Units			1		H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.09	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	9.26	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	583	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	40700	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2230	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1660	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	3.90	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	156	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/23/2019

SVL Analytical, Inc. 28-Feb-19 13:12

INORGANIC ANALYSIS DATA SHEET

U03-1202M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9B0038**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0038-01**
Sampled: **01/17/19 09:15** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.285	%		0.15	1			EPA 600 3.2.13
PH	Paste pH	5.8	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	9.00	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	14.1	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	947	mg/kg	1.6	10	10		B7,D2	EPA 6010D
7439-89-6	Iron	67900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2570	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	3350	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	15.0	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	431	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/30/2019

SVL Analytical, Inc. 28-Feb-19 13:12

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-012

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9B0038**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0038-02**
Sampled: **01/17/19 15:20** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.439	%		0.15	1			EPA 600 3.2.13
PH	Paste pH	7.4	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.33	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	18.4	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	448	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	48300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1010	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	580	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	5.16	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	187	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/30/2019

SVL Analytical, Inc. 28-Feb-19 13:12

INORGANIC ANALYSIS DATA SHEET

RAN-03

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9B0038**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0038-03**
Sampled: **01/23/19 13:55** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.235	%		0.15	1			EPA 600 3.2.13
PH	Paste pH	8.0	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	4.97	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	11.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	748	mg/kg	1.6	10	10		B7,D1	EPA 6010D
7439-89-6	Iron	60200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1710	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	2030	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	3.53	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	132	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/30/2019

SVL Analytical, Inc. 28-Feb-19 13:12

INORGANIC ANALYSIS DATA SHEET

RAN-06

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9B0038**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0038-04**
Sampled: **01/23/19 14:50** Recv'd: **02/04/19 14:05**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.291	%		0.15	1			EPA 600 3.2.13
PH	Paste pH	5.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.75	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	13.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	1020	mg/kg	1.6	10	10		B7,D2	EPA 6010D
7439-89-6	Iron	55200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1820	mg/kg	2.8	8	10		D2	EPA 6010D
7440-66-6	Zinc	1830	mg/kg	3.4	10	10		B7,D2	EPA 6010D
7440-38-2	Arsenic	13.3	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	1230	mg/kg	0.091	0.2	10		D2	EPA 6020B
NA	% Moisture (air dried)	0.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/30/2019

SVL Analytical, Inc. 12-Mar-19 10:06

INORGANIC ANALYSIS DATA SHEET

RAN-09

Laboratory: **SVL Analytical, Inc.** SDG: **X9B0206**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9B0206-01**

Solids: **10-Sieve Fraction** Sampled: **01/29/19 13:37** Recv'd: **02/12/19 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600/2-78-054
PH	Paste pH	7.8	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.16	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	8.07	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	309	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	35100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1420	mg/kg	2.8	8	10		B7,D2	EPA 6010D
7440-66-6	Zinc	1330	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.73	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	97.9	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greenwood 12/30/2019

INORGANIC ANALYSIS DATA SHEET

RAN-10

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0206**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0206-02**
Sampled: **01/29/19 13:53** Recv'd: **02/12/19 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600/2-78-054
PH	Paste pH	7.7	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.98	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	9.77	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	355	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	43200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	2140	mg/kg	2.8	8	10		B7,D2	EPA 6010D
7440-66-6	Zinc	1640	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.84	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	92.5	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/30/2019

SVL Analytical, Inc. 12-Mar-19 10:06

INORGANIC ANALYSIS DATA SHEET

RAN-11

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0206**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0206-03**
Sampled: **01/29/19 14:38** Recv'd: **02/12/19 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600/2-78-054
PH	Paste pH	7.8	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.82	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	8.29	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	436	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	35000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1570	mg/kg	2.8	8	10		B7,D2	EPA 6010D
7440-66-6	Zinc	1530	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.94	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	110	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/30/2019

SVL Analytical, Inc. 12-Mar-19 10:06

INORGANIC ANALYSIS DATA SHEET

RAN-12

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0206**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0206-04**
Sampled: **01/30/19 09:20** Recv'd: **02/12/19 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.248	%		0.15	1			EPA 600/2-78-054
PH	Paste pH	7.8	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	5.47	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	12.7	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	510	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	36300	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1990	mg/kg	2.8	8	10		B7,D2	EPA 6010D
7440-66-6	Zinc	2040	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	2.90	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	122	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/30/2019

SVL Analytical, Inc. 12-Mar-19 10:06

INORGANIC ANALYSIS DATA SHEET

RAN-13

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9B0206**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0206-05**
Sampled: **01/30/19 09:25** Recv'd: **02/12/19 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.248	%		0.15	1			EPA 600/2-78-054
PH	Paste pH	7.8	pH Units			1	J	H5	EPA 600/2-78-054 HT-1
7440-43-9	Cadmium	4.80	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	9.76	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	471	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	38000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1840	mg/kg	2.8	8	10		B7,D2	EPA 6010D
7440-66-6	Zinc	2000	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	3.30	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	188	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/30/2019

SVL Analytical, Inc. 12-Mar-19 10:07

INORGANIC ANALYSIS DATA SHEET

RAN-09

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9B0207**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0207-01**
Sampled: **01/29/19 13:37** Recv'd: **02/12/19 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600/2-78-054
PH	Paste pH	7.8	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.87	mg/kg	0.57	4	10	J	D1	EPA 6010D SQL-I
7440-47-3	Chromium	11.0	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	431	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	51600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1600	mg/kg	2.8	8	10		B7,D2	EPA 6010D
7440-66-6	Zinc	1600	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	3.42	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	143	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/30/2019

INORGANIC ANALYSIS DATA SHEET

RAN-12

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9B0207**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9B0207-02**
Sampled: **01/30/19 09:20** Recv'd: **02/12/19 14:30**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.190	%		0.15	1			EPA 600/2-78-054
PH	Paste pH	7.8	pH Units			1	J	H5	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	5.14	mg/kg	0.57	4	10		D1	EPA 6010D
7440-47-3	Chromium	10.6	mg/kg	2	6	10		D1	EPA 6010D
7440-50-8	Copper	523	mg/kg	1.6	10	10		D1	EPA 6010D
7439-89-6	Iron	46900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1750	mg/kg	2.8	8	10		B7,D2	EPA 6010D
7440-66-6	Zinc	2100	mg/kg	3.4	10	10		D1	EPA 6010D
7440-38-2	Arsenic	3.62	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	146	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/30/2019

INORGANIC ANALYSIS DATA SHEET

U03-1301

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0533**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0533-01**
Sampled: **03/14/19 12:03** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.232	%		0.15	1		H1,R2B	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.79	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	10.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	270	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	29000	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	1350	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	1130	mg/kg	0.3	1	1		M3	EPA 6010D
7440-38-2	Arsenic	2.56	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	155	mg/kg	0.018	0.1	2		B7,D1,M4	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Munoz 12/31/2019

INORGANIC ANALYSIS DATA SHEET

U03-2305M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0533**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0533-02**
Sampled: **03/15/19 13:33** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.394	%		0.15	1	44	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.22	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	375	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	39300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1180	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	982	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.59	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	188	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

U03-2302

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0533**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0533-03**
Sampled: **03/14/19 15:05** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.285	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.51	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	421	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	41300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1280	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	986	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.55	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	170	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 12/31/19

INORGANIC ANALYSIS DATA SHEET

U03-3302

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0533**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0533-04**
Sampled: **03/14/19 15:35** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.465	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.0	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.11	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	635	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	49500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1080	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	601	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.59	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	385	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

U03-3300M

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0533**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9C0533-05**

Solids: **10-Sieve Fraction** Sampled: **02/21/19 13:22** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	6.49	%		1.5	1	J	D2,H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.1	pH Units			1	J	A7,H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	18.3	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	8.91	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	973	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	32700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	3150	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	6750	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	13.0	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	4360	mg/kg	0.455	1	50		B7,D2	EPA 6020B
NA	% Moisture (air dried)	3.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

U03-7303M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0533**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0533-06**
Sampled: ~~02/14/19~~ **13:44** JSM 3/14/19
Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.25	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.04	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	198	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	20900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	818	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	367	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.60	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	85.2	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/31/19

INORGANIC ANALYSIS DATA SHEET

U03-7304M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0533**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0533-07**
Sampled: ~~**02/14/19**~~ **12:35** JSM 03/14/19 Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.29	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.7	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.51	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	382	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	32800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	847	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	538	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.85	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	2700	mg/kg	0.091	0.2	10	J	B7,D2	EPA 6020B FD-I
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

U04-7304M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0533**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0533-08**
Sampled: ~~**02/14/19**~~ **12:45** JSM 03/14/19
Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.27	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.7	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.62	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	391	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	33900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	862	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	546	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.89	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	184	mg/kg	0.018	0.1	2	J	B7,D1	EPA 6020B FD-I
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Zimmerman 12/31/19

INORGANIC ANALYSIS DATA SHEET

U03-7305M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0533**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0533-09**
Sampled: ~~02/14/19~~ 13:05 JSM 03/14/19
Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.41	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.76	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	469	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	32400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1220	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	696	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.04	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	138	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Ernst 12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-001

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0533**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0533-10**
Sampled: **02/21/19 12:42** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.279	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.7	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.98	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	421	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	39600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1490	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1220	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.82	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	206	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-010

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0533**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0533-11**
Sampled: **03/14/19 14:40** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.244	%		0.15	1		H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.72	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	335	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	32900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1250	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1120	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.65	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	159	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

B02-P3-2-010

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0533**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0533-12**
Sampled: **03/14/19 14:50** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.179	%		0.15	1	44	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.9	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.61	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	343	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	33000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1250	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1100	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.79	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	178	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-012

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0533**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0533-13**
Sampled: **03/14/19 16:00** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	2.93	%		1.5	1	J	D2,H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.9	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.80	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	705	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	44200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	982	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	969	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.21	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	209	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Zimmerman 12/31/19

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INORGANIC ANALYSIS DATA SHEET

B01-P3-2-052

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0533**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0533-14**
Sampled: ~~**03/21/19**~~ **14:12** JSM 02/21/19
Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.64	%		1.5	1		D2,H1	EPA 600/2-78-054 NT-I
PH	Paste pH	7.5	pH Units			1		H1	EPA 600/2-78-054 NT-I
7440-43-9	Cadmium	3.59	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	539	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	40900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1450	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1250	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.86	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	229	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-001

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0536**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9C0536-01**
Solids: **10-Sieve Fraction** Sampled: **02/21/19 14:00** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.432	%		0.15	1	J	H3	EPA 600/2-78-054
PH	Paste pH	7.7	pH Units			1	J	H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.49	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	159	mg/kg	0.16	1	1	J	M1	EPA 6010D
7439-89-6	Iron	27300	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	860	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	637	mg/kg	0.3	1	1		M3	EPA 6010D
7440-38-2	Arsenic ~~5 SOL~~	5.83	mg/kg	0.132	0.3	2	J	D1	EPA 6020B
7439-92-1	Lead	276	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-005M

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0536**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9C0536-02**
Solids: **10-Sieve Fraction** Sampled: **03/14/19 11:02** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.877	%		0.15	1	J	H3	EPA 600/2-78-054HT-I
PH	Paste pH	7.9	pH Units			1	J	H1	EPA 600/2-78-054HT-I
7440-43-9	Cadmium	0.20	mg/kg	0.06	0.4	1	J		EPA 6010DSQL
7440-47-3	Chromium	15.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	46.4	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	21300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	512	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	71.8	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.11	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	14.5	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	4.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-021

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0536**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9C0536-03**

Solids: **10-Sieve Fraction** Sampled: **03/15/19 12:50** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.13	%		0.15	1	44	H3	EPA 600/2-78-054 HT-I
PH	Paste pH	8.1	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.97	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	8.42	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	339	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	22000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	886	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	588	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.29	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	331	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-077

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0536**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9C0536-04**

Solids: **10-Sieve Fraction** Sampled: **03/15/19 13:20** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.600	%		0.15	1	J	H3	EPA 600/2-78-054 HT-I
PH	Paste pH	7.9	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.09	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	500	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	24200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	924	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	411	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.56	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	81.9	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-007

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0536**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9C0536-05**

Solids: **10-Sieve Fraction** Sampled: **03/14/19 10:10** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.908	%		0.15	1	J	H3	EPA 600/2-78-054 HT-J
PH	Paste pH	7.4	pH Units			1	J	H1	EPA 600/2-78-054 HT-J
7440-43-9	Cadmium	3.82	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	564	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	38100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1530	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1390	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.31	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	227	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Munoz 12/31/19

INORGANIC ANALYSIS DATA SHEET

B02-P3-2-007

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0536**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0536-06**
Sampled: **03/14/19 10:00** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.890	%		0.15	1	LJ	H3	EPA 600/2-78-054 HT-I
PH	Paste pH	7.4	pH Units			1	LJ	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.92	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	583	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	37400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1590	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1460	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.23	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	219	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

B01-P3-2-008

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0536**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0536-07**
Sampled: **03/14/19 11:35** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.08	%		0.15	1	C14	H3	EPA 600/2-78-054 HT-J
PH	Paste pH	7.1	pH Units			1		H1	EPA 600/2-78-054 HT-J
7440-43-9	Cadmium	0.96	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	470	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	42600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	701	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	423	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.32	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	141	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

B02-P3-2-008

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0536**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0536-08**
Sampled: **03/14/19 11:45** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.16	%		0.15	1	J	H3	EPA 600/2-78-054 Mod
PH	Paste pH	7.1	pH Units			1	J	H1	EPA 600/2-78-054 Mod
7440-43-9	Cadmium	1.11	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	18.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	489	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	47800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	882	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	500	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.93	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	164	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-055

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0536**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9C0536-09**

Solids: **10-Sieve Fraction** Sampled: **03/15/19 13:55** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.344	%		0.15	1	47	H3	EPA 600/2-78-054 HT-1
PH	Paste pH	7.3	pH Units			1		H1	EPA 600/2-78-054 HT-2
7440-43-9	Cadmium	1.79	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	998	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	50100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1550	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	905	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	9.28	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	332	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

B02-P3-2-055

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0536**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9C0536-10**

Solids: **10-Sieve Fraction** Sampled: **03/15/19 14:05** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.219	%		0.15	1		H3	EPA 600/2-78-054
PH	Paste pH	7.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.12	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	759	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	45500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1420	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	684	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	9.54	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	326	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-004

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0536**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0536-11**
Sampled: **03/14/19 10:35** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.22	%		0.15	1	J	H3	EPA 600/2-78-054 HT-I
PH	Paste pH	7.5	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.90	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	519	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	33900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1460	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1400	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.83	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	178	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

B02-P3-3-004

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0536**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0536-12**
Sampled: **03/14/19 10:45** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.883	%		0.15	1	J	H1	EPA 600/2-78-054 HT-1
PH	Paste pH	7.5	pH Units			1	J	H1	EPA 600/2-78-054 HT-1
7440-43-9	Cadmium	3.76	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	531	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	34700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1500	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1390	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.98	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	186	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-017M

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0536**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9C0536-13**

Solids: **10-Sieve Fraction** Sampled: **03/14/19 14:10** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.969	%		0.15	1	4 4	H3	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 HT-T
7440-43-9	Cadmium	3.64	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	448	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	36200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1430	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1320	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.95	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	189	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

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INORGANIC ANALYSIS DATA SHEET

B01-P3-3-020

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0536**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0536-14**
Sampled: **03/14/19 15:45** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.397	%		0.15	1	4	H3	EPA 600/2-78-054 HT-3
PH	Paste pH	7.1	pH Units			1	4	H1	EPA 600/2-78-054 HT-2
7440-43-9	Cadmium	2.12	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1030	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	47000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1170	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	818	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.98	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	216	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-004

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0536**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0536-15**
Sampled: **02/21/19 14:25** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.05	%		0.15	1	J	H3	EPA 600/2-78-054 HT-1
PH	Paste pH	7.7	pH Units			1	J	H1	EPA 600/2-78-054 HT-1
7440-43-9	Cadmium	3.39	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	423	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	30600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1400	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1260	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.70	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	210	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

U03-1301

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0538**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0538-01**
Sampled: **03/14/19 12:03** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.425	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.9	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.86	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	326	mg/kg	0.16	1	1	J		EPA 6010D MS-H
7439-89-6	Iron	42200	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	1450	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	1140	mg/kg	0.3	1	1		M3	EPA 6010D
7440-38-2	Arsenic	4.20	mg/kg	0.132	0.3	2	J	D1,M4	EPA 6020B MS-L
7439-92-1	Lead	220	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

U03-3302

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0538**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0538-02**
Sampled: **03/14/19 15:35** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.475	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.8	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.01	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	641	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	57000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	968	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	594	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	9.69	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	526	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Gruning 12/31/19

INORGANIC ANALYSIS DATA SHEET

U03-7304M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0538**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0538-03**
Sampled: ~~**02/14/19**~~ **12:35** Recv'd: **03/25/19 10:00**

JSM 03/14/19

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.93	%		1.5	1	J-J	D2,H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.47	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	19.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	430	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	36200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	892	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	512	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.86	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	194	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-001

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0538**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0538-04**
Sampled: **02/21/19 12:42** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.346	%		0.15	1		H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.65	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	572	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	73000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1700	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1320	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.17	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	222	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-012

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0538**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0538-05**
Sampled: **03/14/19 16:00** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	3.11	%		1.5	1	CLJ	D2,H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.0	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	4.00	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	837	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	59100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1430	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1320	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.19	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	275	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-005M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0538**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0538-06**
Sampled: **03/14/19 11:02** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.26	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1	J	A7,H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.18	mg/kg	0.06	0.4	1	J		EPA 6010D SQL-I
7440-47-3	Chromium	19.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	57.8	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	24900	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	500	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	83.0	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	1.97	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	15.3	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	4.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-007

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0538**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0538-07**
Sampled: **03/14/19 10:10** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.522	%		0.15	1	LT	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.4	pH Units			1	LT	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.72	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	586	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	50500	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1690	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1440	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.84	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	228	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

B02-P3-2-008

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0538**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0538-08**
Sampled: **03/14/19 11:45** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.18	%		0.15	1	LT	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.1	pH Units			1	LT	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.14	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	429	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	43000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	908	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	473	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.17	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	149	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-004

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0538**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0538-09**
Sampled: **03/14/19 10:35** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.795	%		0.15	1	4 4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.72	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	507	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	41200	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1490	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1410	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.09	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	188	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/31/19

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-020

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0538**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9C0538-10**
Sampled: **03/14/19 15:45** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.852	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.0	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.07	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1150	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	59100	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1240	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	848	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.66	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	245	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 12/31/19

INORGANIC ANALYSIS DATA SHEET

U03-1302M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0093**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0093-01**
Sampled: **03/25/19 11:52** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.12	%		0.15	1	L7 L1	H1	EPA 600/2-78-054 H1-I
PH	Paste pH	7.7	pH Units			1	L1	H1	EPA 600/2-78-054 H1-I
7440-43-9	Cadmium	0.80	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	267	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	19700	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	802	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	244	mg/kg	0.3	1	1	L1	M1	EPA 6010D MS-H
7440-38-2	Arsenic	2.08	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	40.5	mg/kg	0.022	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	3.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-3305M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0093**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0093-02**
Sampled: **03/27/19 10:42** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.549	%		0.15	1	4 4	H1	EPA 600/2-78-054 HT-1
PH	Paste pH	7.6	pH Units			1		H1	EPA 600/2-78-054 HT-2
7440-43-9	Cadmium	2.66	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	418	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	37100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1190	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	941	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.57	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	198	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U04-3305M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0093**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0093-03**
Sampled: **03/27/19 10:47** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.421	%		0.15	1	44	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.62	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	410	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	38900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1250	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	997	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.56	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	173	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-3303M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0093**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0093-04**
Sampled: **03/26/19 10:58** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.714	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.3	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.71	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	623	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	29300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1360	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1210	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.37	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	132	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-7300M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0093**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0093-05**
Sampled: **03/25/19 11:30** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.56	%		0.15	1		H1	EPA 600/2-78-054 HT-T
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 HT-T
7440-43-9	Cadmium	1.77	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	345	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	27100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	888	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	669	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.82	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	126	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-7301M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0093**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0093-06**
Sampled: **03/26/19 09:27** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.431	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.06	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	400	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	37400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1450	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1220	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.43	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	172	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

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INORGANIC ANALYSIS DATA SHEET

B01-P3-3-022

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0093**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0093-07**
Sampled: **03/25/19 10:45** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.573	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.9	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.49	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	21.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	722	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	69100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1160	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	910	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.43	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	253	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 1/2/2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-025M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0093**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0093-08**
Sampled: **03/26/19 10:25** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.568	%		0.15	1	J	H1	EPA 600/2-78-054 H7-I
PH	Paste pH	7.6	pH Units			1	J	H1	EPA 600/2-78-054 H7-I
7440-43-9	Cadmium	3.17	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	407	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	42500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1490	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1180	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.36	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	186	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Zimmerman 1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-9302M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0093**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0093-09**
Sampled: **03/26/19 09:10** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.625	%		0.15	1	J	H1	EPA 600/2-78-054 HT-J
PH	Paste pH	7.5	pH Units			1	J	H1	EPA 600/2-78-054 HT-J
7440-43-9	Cadmium	2.93	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	431	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	42900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1380	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1150	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.49	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	190	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greenwood 1/2/2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-015M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0093**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0093-10**
Sampled: **03/25/19 11:00** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.570	%		0.15	1	LT	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1	LT	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.10	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	417	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	50500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1530	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1170	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.96	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	179	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 1/2/2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-017M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0093**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0093-11**
Sampled: **03/27/19 14:55** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.613	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.07	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	599	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	39900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1350	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1040	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.94	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	190	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-1306

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0093**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0093-12**
Sampled: **04/02/19 08:58** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.42	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	403	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	43900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1220	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	902	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.23	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	140	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greenwood 1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-1304

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0093**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0093-13**
Sampled: **04/02/19 08:34** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.55	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	498	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	60600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1410	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	925	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.82	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	169	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-3311

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0093**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0093-14**
Sampled: **04/02/19 13:27** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.968	%		0.15	1	J	H1	EPA 600/2-78-054 HT
PH	Paste pH	6.9	pH Units			1	J	H1	EPA 600/2-78-054 HT
7440-43-9	Cadmium	0.51	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	7.16	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	149	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	12900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	606	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	124	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	1.27	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	18.9	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-3309

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0093**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0093-15**
Sampled: **04/02/19 13:04** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.517	%		0.15	1	J	H1	EPA 600/2-78-054 HT-J
PH	Paste pH	7.5	pH Units			1	J	H1	EPA 600/2-78-054 HT-J
7440-43-9	Cadmium	0.35	mg/kg	0.06	0.4	1	J		EPA 6010D SQL-J
7440-47-3	Chromium	9.36	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	109	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	15200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	570	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	126	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	1.48	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	24.1	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

4/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-3308

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0093**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0093-16**
Sampled: **04/02/19 09:28** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.945	%		0.15	1	J	H1	EPA 600/2-78-054 HT-J
PH	Paste pH	7.6	pH Units			1	J	H1	EPA 600/2-78-054 HT-J
7440-43-9	Cadmium	1.08	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	10.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	539	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	18400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	786	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	311	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	1.97	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	52.1	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-3306

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0097**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0097-01**
Sampled: **04/02/19 08:48** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.08	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.4	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.84	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	949	mg/kg	0.52	1	1		M3	EPA 6010D
7439-89-6	Iron	32100	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	1200	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	1270	mg/kg	0.3	1	1		M3	EPA 6010D
7440-38-2	Arsenic	4.47	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	229	mg/kg	0.022	0.1	2		B7,D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-10357

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0097**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0097-02**
Sampled: **04/01/19 15:50** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.408	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.4	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.40	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	10.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	768	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	28600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1120	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1210	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.80	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	309	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-3324

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0097**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0097-03**
Sampled: **04/01/19 14:19** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.896	%		0.15	1		H1	EPA 600/2-78-054 HTJ
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 HTJ
7440-43-9	Cadmium	1.71	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	687	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	25100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	984	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	530	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.49	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	106	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-022

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0097**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9E0097-04**

Solids: **10-Sieve Fraction** Sampled: **04/02/19 15:12** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.387	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.7	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.72	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	586	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	43900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1250	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1040	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.16	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	237	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-023

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0097**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0097-05**
Sampled: **04/04/19 13:50** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.306	%		0.15	1	4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.5	pH Units			1	4	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.02	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	534	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	48300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1500	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	463	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	9.85	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	351	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-032

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0097**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0097-06**
Sampled: **04/01/19 10:07** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.516	%		0.15	1	J	H1	EPA 600/2-78-054 HT-J
PH	Paste pH	7.6	pH Units			1	J	H1	EPA 600/2-78-054 HTJ
7440-43-9	Cadmium	1.98	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	540	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	29100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	994	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	716	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.35	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	224	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 1/2/2020

10

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-034M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0097**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0097-07**
Sampled: **04/01/19 16:14** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.659	%		0.15	1	J	H1	EPA 600/2-78-054 HT-J
PH	Paste pH	7.7	pH Units			1	J	H1	EPA 600/2-78-054 HT-J
7440-43-9	Cadmium	3.49	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	747	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	27600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1160	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1240	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.86	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	237	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Ennis 1/2/2020

INORGANIC ANALYSIS DATA SHEET

ERA-28M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0097**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0097-08**
Sampled: **04/05/19 09:26** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	~~U~~ J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.7	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.63	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	332	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	48200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	781	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	281	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.85	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	121	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-1307M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0097**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0097-09**
Sampled: **04/09/19 12:53** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.628	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.5	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.50	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	450	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	34200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1310	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	891	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.61	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	149	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Grimm
1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-10319

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0097**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0097-10**
Sampled: **04/09/19 15:07** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.548	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	8.0	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.10	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	729	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	23400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	857	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	398	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.63	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	94.0	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-10308

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0097**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0097-11**
Sampled: **04/09/19 15:00** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.492	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	8.0	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.38	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	718	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	27000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	915	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	490	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.68	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	95.2	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-10340

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0097**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0097-12**
Sampled: **04/09/19 10:43** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.03	%		0.15	1	J	H1	EPA 600/2-78-054 H1-I
PH	Paste pH	7.8	pH Units			1	J	H1	EPA 600/2-78-054 H1-I
7440-43-9	Cadmium	1.02	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	9.97	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	336	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	20500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	849	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	277	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.10	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	48.4	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greiner 1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-3314

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0097**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0097-13**
Sampled: **04/09/19 14:52** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.414	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.9	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.14	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	665	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	28000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	942	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	406	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.51	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	81.2	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-3312

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0097**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0097-14**
Sampled: **04/09/19 14:40** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.507	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.24	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	905	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	24400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	871	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	430	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.43	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	118	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U04-3312

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0097**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0097-15**
Sampled: **04/09/19 14:45** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.435	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.9	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.05	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	894	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	26100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	836	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	406	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.58	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	102	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-10345

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0097**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0097-16**
Sampled: **04/09/19 12:13** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.447	%		0.15	1	D7	H1	EPA 600/2-78-054 H7·I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 H7·I
7440-43-9	Cadmium	3.93	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1060	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	31800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1250	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1290	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.66	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	188	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

INORGANIC ANALYSIS DATA SHEET

U03-1302M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0099**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0099-01**
Sampled: **03/25/19 11:52** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.19	%		0.15	1	4 4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.9	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.79	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	276	mg/kg	0.52	1	1	4	M1	EPA 6010D MS-H
7439-89-6	Iron	19400	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	816	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	247	mg/kg	0.3	1	1	4	M1	EPA 6010D MS-H
7440-38-2	Arsenic	1.93	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	40.3	mg/kg	0.022	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Grant 1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-3303M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0099**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0099-02**
Sampled: **03/26/19 10:58** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.776	%		0.15	1	44	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.4	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.99	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	679	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	31600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1490	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1320	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.36	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	144	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-022

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0099**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0099-03**
Sampled: **03/25/19 10:45** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.480	%		0.15	1	44	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.1	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.54	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	21.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	776	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	69500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1190	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1000	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.07	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	280	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-015M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0099**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0099-04**
Sampled: **03/25/19 11:00** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.445	%		0.15	1	4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1	4	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.15	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	464	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	47700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1530	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1240	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.26	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	193	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-1304

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0099**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0099-05**
Sampled: **04/02/19 08:34** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.258	%		0.15	1		H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.9	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.91	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	504	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	49300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1520	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1120	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.70	mg/kg	0.118	0.3	2			EPA 6020B
7439-92-1	Lead	179	mg/kg	0.022	0.1	2			EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-3308

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0099**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0099-06**
Sampled: **04/02/19 09:28** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.992	%		0.15	1		H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.17	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	668	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	20500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	879	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	377	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.03	mg/kg	0.118	0.3	2			EPA 6020B
7439-92-1	Lead	56.9	mg/kg	0.022	0.1	2			EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-3324

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0099**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0099-07**
Sampled: **04/01/19 14:19** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.06	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.88	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	848	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	28800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1030	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	618	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.96	mg/kg	0.118	0.3	2			EPA 6020B
7439-92-1	Lead	116	mg/kg	0.022	0.1	2			EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-032

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0099**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0099-08**
Sampled: **04/01/19 10:07** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.695	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.5	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.72	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	811	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	34400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1200	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	968	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.19	mg/kg	0.118	0.3	2			EPA 6020B
7439-92-1	Lead	286	mg/kg	0.022	0.1	2			EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-1307M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0099**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0099-09**
Sampled: **04/09/19 12:53** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.431	%		0.15	1	J	H1	EPA 600/2-78-054
PH	Paste pH	7.6	pH Units			1	J	H1	EPA 600/2-78-054
7440-43-9	Cadmium	2.48	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	461	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	37100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1370	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1000	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.52	mg/kg	0.118	0.3	2			EPA 6020B
7439-92-1	Lead	164	mg/kg	0.022	0.1	2			EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/2/2020

INORGANIC ANALYSIS DATA SHEET

U03-10340

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0099**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0099-10**
Sampled: **04/09/19 10:43** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.37	%		0.15	1		H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.12	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	440	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	23600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	967	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	313	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.21	mg/kg	0.118	0.3	2			EPA 6020B
7439-92-1	Lead	58.2	mg/kg	0.022	0.1	2			EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Greiner 1/2/2020

INORGANIC ANALYSIS DATA SHEET

U04-3312

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0099**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0099-11**
Sampled: **04/09/19 14:45** Recv'd: **05/03/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.624	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.9	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.21	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1230	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	30500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	946	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	492	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.65	mg/kg	0.118	0.3	2			EPA 6020B
7439-92-1	Lead	113	mg/kg	0.022	0.1	2			EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [illegible] 1/2/2020

INORGANIC ANALYSIS DATA SHEET

R12-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0514**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0514-11**
Sampled: **02/22/19 09:42** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.303	%		0.15	1	4	H1	EPA 600/2-78-054 HT-1
PH	Paste pH	5.4	pH Units			1	4	H1	EPA 600/2-78-054 HT-2
7440-43-9	Cadmium	1.45	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	438	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	54500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	813	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	629	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.21	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	238	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 1/7/2020

INORGANIC ANALYSIS DATA SHEET

R12-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0514**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9C0514-12**

Solids: **10-Sieve Fraction** Sampled: **02/22/19 09:53** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.381	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	5.4	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.42	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	18.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	608	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	56900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1050	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	727	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.04	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	191	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/7/2020

INORGANIC ANALYSIS DATA SHEET

R12-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0514**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0514-13**
Sampled: **02/22/19 09:56** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.467	%		0.15	1	4.4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.4	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.18	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	455	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	34000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1510	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	998	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.92	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	126	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/7/2020

INORGANIC ANALYSIS DATA SHEET

R84-007F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0519**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0519-01**
Sampled: **03/06/19 14:31** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.2	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.16	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	427	mg/kg	0.16	1	1		M3	EPA 6010D
7439-89-6	Iron	60000	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	983	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	576	mg/kg	0.3	1	1		M3	EPA 6010D
7440-38-2	Arsenic	4.06	mg/kg	0.132	0.3	2	J	D1,M4	EPA 6020B MS-L
7439-92-1	Lead	127	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 1/7/2020

INORGANIC ANALYSIS DATA SHEET

R84-008F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0519**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0519-02**
Sampled: **03/06/19 14:43** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	5.2	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.44	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	454	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	49200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	604	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	352	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.42	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	195	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 1/7/2020

INORGANIC ANALYSIS DATA SHEET

R84-009F

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0519**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9C0519-03**

Solids: **10-Sieve Fraction** Sampled: **03/06/19 14:55** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	4.9	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.41	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	10.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	410	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	30800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	2280	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	409	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.97	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	148	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 1/7/2020

INORGANIC ANALYSIS DATA SHEET

R84-010F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0519**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0519-04**
Sampled: **03/06/19 14:57** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600/2-78-054 HT-3
PH	Paste pH	4.9	pH Units			1	J	H1	EPA 600/2-78-054 HT-3
7440-43-9	Cadmium	0.40	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	10.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	402	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	30700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	2270	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	439	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.97	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	160	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 1/7/2020

INORGANIC ANALYSIS DATA SHEET

R87-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0519**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9C0519-09**

Solids: **10-Sieve Fraction** Sampled: **03/07/19 09:26** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600/2-78-054 HT-J
PH	Paste pH	6.7	pH Units			1	J	H1	EPA 600/2-78-054 HT-J
7440-43-9	Cadmium	0.96	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	18.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	506	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	57500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	899	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	513	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.75	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	191	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/7/2020

INORGANIC ANALYSIS DATA SHEET

R87-006F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0519**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0519-10**
Sampled: **03/07/19 10:17** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.202	%		0.15	1	47	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.32	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	721	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	55500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1120	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	954	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.79	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	236	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/7/2020

INORGANIC ANALYSIS DATA SHEET

R89A-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0519**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9C0519-13**

Solids: **10-Sieve Fraction** Sampled: **02/22/19 12:50** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.691	%		0.15	1	J+	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.5	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.09	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	777	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	42900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	985	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	728	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.21	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	224	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/7/2020

INORGANIC ANALYSIS DATA SHEET

R89A-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0519**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0519-14**
Sampled: **02/22/19 12:55** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.944	%		0.15	1	J	H1	EPA 600/2-78-054 HT-J
PH	Paste pH	5.1	pH Units			1	J	H1	EPA 600/2-78-054 HT-J
7440-43-9	Cadmium	1.34	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	700	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	45300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	650	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	602	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.28	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	283	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/7/2020

INORGANIC ANALYSIS DATA SHEET

R89A-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0519**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9C0519-15**

Solids: **10-Sieve Fraction** Sampled: **02/22/19 13:00** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.0	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.71	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	18.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	487	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	57100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	709	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	383	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.99	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	195	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/7/2020

INORGANIC ANALYSIS DATA SHEET

R89A-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X9C0519**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9C0519-16**

Solids: **10-Sieve Fraction** Sampled: **02/22/19 13:05** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.783	%		0.15	1	44	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.43	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	584	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	40000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	834	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	455	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.05	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	151	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/7/2020

INORGANIC ANALYSIS DATA SHEET

R89A-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9C0519**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0519-17**
Sampled: **02/22/19 13:10** Recv'd: **03/25/19 10:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.788	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.47	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	602	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	40600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	857	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	478	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.20	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	148	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/7/2020

INORGANIC ANALYSIS DATA SHEET

R12-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0522**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0522-05**
Sampled: **02/22/19 09:56** Recv'd: **03/25/19 10:41**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.434	%		0.15	1	LJ	H1	EPA 600/2-78-054 HT-2
PH	Paste pH	6.9	pH Units			1	LJ	H1	EPA 600/2-78-054 HT-2
7440-43-9	Cadmium	2.75	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	500	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	42600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1200	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	945	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.21	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	184	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/2020

INORGANIC ANALYSIS DATA SHEET

R84-009F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0522**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0522-09**
Sampled: **03/06/19 14:55** Recv'd: **03/25/19 10:41**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	4.9	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.45	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	483	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	40200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	2090	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	494	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.69	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	181	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/2020

INORGANIC ANALYSIS DATA SHEET

R87-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0522**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0522-11**
Sampled: **03/07/19 09:26** Recv'd: **03/25/19 10:41**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.175	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.5	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.11	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	18.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	563	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	61900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1100	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	559	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.13	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	257	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/2020

INORGANIC ANALYSIS DATA SHEET

R89A-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9C0522**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9C0522-13**
Sampled: **02/22/19 13:00** Recv'd: **03/25/19 10:41**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.3	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.86	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	18.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	516	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	58000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	811	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	426	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.81	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	233	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/2020

INORGANIC ANALYSIS DATA SHEET

R59-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0024**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0024-01**
Sampled: **03/25/19 12:15** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.302	%		0.15	1	4 4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 HT-2
7440-43-9	Cadmium	2.83	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	548	mg/kg	0.16	1	1		M3	EPA 6010D
7439-89-6	Iron	38200	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	2350	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	1240	mg/kg	0.3	1	1		M3	EPA 6010D
7440-38-2	Arsenic	3.63	mg/kg	0.132	0.3	2	4 4	D1,M4	EPA 6020B MS-H
7439-92-1	Lead	144	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B ~~D-H~~
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/2020

INORGANIC ANALYSIS DATA SHEET

R59-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0024**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0024-02**
Sampled: **03/25/19 12:22** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.584	%		0.15	1	44	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.5	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	6.73	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1040	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	33500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1570	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	2160	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.81	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	267	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/2020

INORGANIC ANALYSIS DATA SHEET

R59-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0024**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0024-03**

Solids: **10-Sieve Fraction** Sampled: **03/25/19 12:27** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.731	%		0.15	1	U4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.5	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.36	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	575	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	38700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1370	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1290	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.22	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	226	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/2020

INORGANIC ANALYSIS DATA SHEET

R59-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0024**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0024-04**
Sampled: **03/25/19 12:33** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.62	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	363	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	34700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1240	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1170	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.44	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	149	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/2020

INORGANIC ANALYSIS DATA SHEET

R64-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0024**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0024-07**
Sampled: **03/20/19 11:38** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.318	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.1	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.12	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	418	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	38700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1100	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	900	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.95	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	182	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/2020

INORGANIC ANALYSIS DATA SHEET

R65-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0024**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0024-09**
Sampled: **03/20/19 11:00** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.202	%		0.15	1	47	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1	47	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.53	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	405	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	37800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1250	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	931	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.33	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	137	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/2020

INORGANIC ANALYSIS DATA SHEET

R65-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0024**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0024-10**
Sampled: **03/20/19 11:08** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.785	%		0.15	1	44	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.87	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	433	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	37700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1460	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1060	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.04	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	182	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/2020

INORGANIC ANALYSIS DATA SHEET

R65-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0024**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0024-11**
Sampled: **03/20/19 11:15** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.312	%		0.15	1	44	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.16	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	388	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	38000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1110	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	926	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.69	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	178	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/2020

INORGANIC ANALYSIS DATA SHEET

R67-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0024**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0024-12**
Sampled: **03/18/19 09:08** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.460	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.6	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.42	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	609	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	39700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1280	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	904	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.97	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	200	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/2020

INORGANIC ANALYSIS DATA SHEET

R68-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0024**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0024-14**
Sampled: **03/18/19 09:28** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.463	%		0.15	1		H1	EPA 600/2-78-054 HT-I
PH	Paste pH	4.5	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.08	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	736	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	44300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1200	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	841	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.61	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	342	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/2020

INORGANIC ANALYSIS DATA SHEET

R68-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0024**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0024-15**
Sampled: **03/18/19 09:35** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.651	%		0.15	1		H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.9	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.56	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	755	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	49300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	922	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	861	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	9.24	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	455	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/8/2020

INORGANIC ANALYSIS DATA SHEET

R68-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0029**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0029-01**
Sampled: **03/18/19 09:50** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	6.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.76	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	19.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	487	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	60600	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	1090	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	473	mg/kg	0.3	1	1		M3	EPA 6010D
7440-38-2	Arsenic	5.21	mg/kg	0.132	0.3	2		D1,M4	EPA 6020B
7439-92-1	Lead	209	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

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INORGANIC ANALYSIS DATA SHEET

R69-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0029**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0029-03**
Sampled: **03/18/19 10:53** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	5.3	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.54	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	21.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	565	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	74600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	739	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	442	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.64	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	252	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R69-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0029**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0029-04**
Sampled: **03/18/19 10:37** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.357	%		0.15	1	4 4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.2	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.45	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	933	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	47500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1360	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1070	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.81	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	184	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R69-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0029**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0029-05**

Solids: **10-Sieve Fraction** Sampled: **03/18/19 10:12** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.1	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.96	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	392	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	64400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	844	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	481	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.86	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	126	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Monroe 1/9/2020

INORGANIC ANALYSIS DATA SHEET

R6/71-008F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0029**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0029-08**
Sampled: **03/12/19 12:57** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.585	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.1	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.84	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	745	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	53000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1050	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	775	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.89	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	245	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R6/71-009F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0029**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0029-09**

Solids: **10-Sieve Fraction** Sampled: **03/12/19 13:04** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.166	%		0.15	1		H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.05	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	494	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	42000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1070	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	835	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.50	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	194	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R81-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0029**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0029-10**
Sampled: **03/25/19 13:20** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.989	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.4	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.28	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	481	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	41000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1400	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1220	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.21	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	181	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R81-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0029**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0029-11**

Solids: **10-Sieve Fraction** Sampled: **03/25/19 13:24** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.21	%		0.15	1		H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.6	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	4.63	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	828	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	46100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1480	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1590	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.55	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	283	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R81-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0029**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0029-12**

Solids: **10-Sieve Fraction** Sampled: **03/25/19 13:30** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.394	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	4.3	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.48	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	502	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	50300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	877	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	539	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.63	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	281	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R81-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0029**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0029-13**

Solids: **10-Sieve Fraction** Sampled: **03/25/19 13:35** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.511	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.84	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	452	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	38300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1450	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1070	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.97	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	178	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel 1/9/2020

INORGANIC ANALYSIS DATA SHEET

R81-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0029**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0029-14**

Solids: **10-Sieve Fraction** Sampled: **03/25/19 13:26** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.585	%		0.15	1	414	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.5	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.28	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	513	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	39900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1440	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1210	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.19	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	169	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R82-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0029**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0029-15**

Solids: **10-Sieve Fraction** Sampled: **03/20/19 09:50** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.12	%		0.15	1	H7	H1	EPA 600/2-78-054 H7-1
PH	Paste pH	7.6	pH Units			1	H7	H1	EPA 600/2-78-054 H7-2
7440-43-9	Cadmium	2.07	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	446	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	33400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	947	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	733	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.02	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	113	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R82-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0029**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0029-16**

Solids: **As Received** Sampled: **03/20/19 09:55** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.880	%		0.15	1		H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.12	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	746	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	36900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1590	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1110	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.46	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	167	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R82-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0029**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0029-17**

Solids: **10-Sieve Fraction** Sampled: **03/20/19 10:00** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.761	%		0.15	1	LJ	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.1	pH Units			1	LJ	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.35	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	626	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	45700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1150	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	959	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.99	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	357	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

4

INORGANIC ANALYSIS DATA SHEET

R59-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0033**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0033-01**
Sampled: **03/25/19 12:15** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.661	%		0.15	1	J	H1	EPA 600/2-78-054HT-I
PH	Paste pH	7.8	pH Units			1	J	H1	EPA 600/2-78-054HT-I
7440-43-9	Cadmium	3.26	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	519	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	46600	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	1470	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	1210	mg/kg	0.3	1	1		M3	EPA 6010D
7440-38-2	Arsenic	4.80	mg/kg	0.132	0.3	2	J	D1,M4	EPA 6020BMS-L
7439-92-1	Lead	215	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R59-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0033**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0033-02**

Solids: **60-Sieve Fraction** Sampled: **03/25/19 12:33** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.513	%		0.15	1	47	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.9	pH Units			1	47	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.79	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	447	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	48500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1450	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1050	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.04	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	218	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R64-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0033**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0033-03**
Sampled: **03/20/19 11:38** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.246	%		0.15	1	44	H1	EPA 600/2-78-054HT-I
PH	Paste pH	7.3	pH Units			1		H1	EPA 600/2-78-054HT-I
7440-43-9	Cadmium	2.26	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	463	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	49400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1270	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	981	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.14	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	228	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R65-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0033**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0033-04**
Sampled: **03/20/19 11:08** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.789	%		0.15	1	LT	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.9	pH Units			1	LT	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.89	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	432	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	47800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1480	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1090	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.21	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	215	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Ingram 1/10/2020

INORGANIC ANALYSIS DATA SHEET

R68-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0033**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0033-06**
Sampled: **03/18/19 09:50** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.321	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.3	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.10	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	21.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	540	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	77600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1140	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	562	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.41	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	278	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R69-002F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0033**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0033-07**

Solids: **60-Sieve Fraction** Sampled: **03/18/19 10:37** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.614	%		0.15	1	HT	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.2	pH Units			1	HT	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.21	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1100	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	59200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1450	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1150	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.41	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	277	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R81-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0033**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0033-09**
Sampled: **03/25/19 13:20** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.724	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.4	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.47	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	480	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	48900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1500	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1290	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.73	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	199	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R81-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0033**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0033-10**
Sampled: **03/25/19 13:35** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.720	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.5	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.42	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	528	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	46100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1500	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1230	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.80	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	238	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Ennis 1/10/2020

INORGANIC ANALYSIS DATA SHEET

R82-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0033**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0033-11**
Sampled: **03/20/19 09:55** Recv'd: **04/02/19 11:00**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.18	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.5	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.13	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	797	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	42200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1290	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1170	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.80	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	205	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R01-006F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0226**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0226-08**
Sampled: **03/30/19 13:32** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.406	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.7	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.26	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	414	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	34700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1490	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1360	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.55	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	167	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R01-007F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0226**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0226-09**
Sampled: **03/30/19 13:40** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.28	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.2	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.76	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	27.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	684	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	44200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1230	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1170	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.10	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	350	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Smith 1/10/2020

INORGANIC ANALYSIS DATA SHEET

R01-008F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0226**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0226-10**
Sampled: **03/30/19 13:48** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.620	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.4	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.74	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	581	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	43100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1560	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1520	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.89	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	165	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Thing 1/10/2020

INORGANIC ANALYSIS DATA SHEET

R01-009F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0226**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0226-11**
Sampled: **03/30/19 13:55** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.696	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.5	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.53	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	533	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	41200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1510	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1510	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.79	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	163	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 1/10/2020

INORGANIC ANALYSIS DATA SHEET

R01-010F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0226**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0226-12**

Solids: **10-Sieve Fraction** Sampled: **03/30/19 14:05** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.9	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.93	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	318	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	46700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1590	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1240	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.32	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	189	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R01-011F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0226**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0226-13**

Solids: **10-Sieve Fraction** Sampled: **03/30/19 14:08** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.522	%		0.15	1	4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1	4	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.07	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	578	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	44300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1330	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1190	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.65	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	206	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R01-012F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0226**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0226-14**

Solids: **10-Sieve Fraction** Sampled: **03/30/19 14:20** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.338	%		0.15	1		H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.0	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.62	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	373	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	30900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	748	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	326	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	1.68	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	78.5	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R01-013F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0226**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0226-15**
Sampled: **03/30/19 14:28** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.45	%		0.15	1	42	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	5.3	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.33	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	667	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	36100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1420	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	988	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.86	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	310	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R18-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0229**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0229-01**
Sampled: **03/30/19 08:27** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.844	%		0.15	1	4 4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.85	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	441	mg/kg	0.16	1	1		M3	EPA 6010D
7439-89-6	Iron	57400	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	1150	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	485	mg/kg	0.3	1	1		M3	EPA 6010D
7440-38-2	Arsenic	3.85	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	189	mg/kg	0.018	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	0.5	%		0.1	1		R2B	Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R18-008F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0229**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0229-02**
Sampled: **03/30/19 09:05** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.378	%		0.15	1	4-4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.9	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	4.16	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1260	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	37700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1490	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1680	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.16	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	252	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Smith 1/10/2020

INORGANIC ANALYSIS DATA SHEET

R18-009F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0229**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0229-03**
Sampled: **03/30/19 09:15** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.467	%		0.15	1	47	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.65	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	20.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	547	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	72300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	722	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	476	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.50	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	274	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R18-010F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0229**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0229-04**
Sampled: **03/30/19 09:27** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.320	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.44	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	838	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	45800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1330	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	985	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.14	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	208	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel [signature] 1/10/2020

INORGANIC ANALYSIS DATA SHEET

R50-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0229**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0229-05**
Sampled: **03/30/19 17:33** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.329	%		0.15	1	4 4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.9	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.97	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	401	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	70700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	983	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	505	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.46	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	149	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

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INORGANIC ANALYSIS DATA SHEET

R52A-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0229**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0229-06**

Solids: **10-Sieve Fraction** Sampled: **03/30/19 16:30** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.296	%		0.15	1	4 4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.0	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.37	mg/kg	0.06	0.4	1	4		EPA 6010D FD-I
7440-47-3	Chromium	15.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	577	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	56100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1040	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	673	mg/kg	0.3	1	1	4		EPA 6010D FD-I
7440-38-2	Arsenic	4.79	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	205	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R52A-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0229**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0229-07**
Sampled: **03/30/19 16:38** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.434	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.17	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	547	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	55300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1280	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	706	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.39	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	163	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R52A-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0229**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0229-08**

Solids: **10-Sieve Fraction** Sampled: **03/30/19 16:47** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.456	%		0.15	1	J	H1	EPA 600/2-78-054 MT-I
PH	Paste pH	6.8	pH Units			1	J	H1	EPA 600/2-78-054 MT-I
7440-43-9	Cadmium	1.80	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	717	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	51400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1040	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	791	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.97	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	229	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R52A-004F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0229**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0229-09**

Solids: **10-Sieve Fraction** Sampled: **03/30/19 17:05** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.262	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	5.1	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.18	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	512	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	45200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1200	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	923	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.52	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	192	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R52A-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0229**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0229-10**
Sampled: **03/30/19 16:45** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.488	%		0.15	1	H	H1	EPA 600/2-78-054 H7-I
PH	Paste pH	7.4	pH Units			1	H	H1	EPA 600/2-78-054 H7-I
7440-43-9	Cadmium	3.25	mg/kg	0.06	0.4	1	H		EPA 6010D FD-I
7440-47-3	Chromium	14.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	484	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	43200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1440	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1240	mg/kg	0.3	1	1	H		EPA 6010D FD-I
7440-38-2	Arsenic	4.24	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	195	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R55M-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0229**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0229-11**
Sampled: **03/29/19 14:45** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.815	%		0.15	1	CH	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.5	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	4.28	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	778	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	50400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1450	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1650	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	8.42	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	288	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R55M-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0229**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0229-12**
Sampled: **03/29/19 15:07** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.599	%		0.15	1	4	H1	EPA 600/2-78-054 HT-J
PH	Paste pH	7.3	pH Units			1	4	H1	EPA 600/2-78-054 HT-J
7440-43-9	Cadmium	0.50	mg/kg	0.06	0.4	1	4		EPA 6010D FD-J
7440-47-3	Chromium	12.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	498	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	52600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	779	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	565	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	8.19	mg/kg	0.132	0.3	2	4	D1	EPA 6020B FD-J
7439-92-1	Lead	287	mg/kg	0.018	0.1	2	4	D1	EPA 6020B FD-J
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R55M-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0229**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0229-13**
Sampled: **03/29/19 15:19** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.696	%		0.15	1	J	H1	EPA 600/2-78-054 H7-I
PH	Paste pH	7.9	pH Units			1	J	H1	EPA 600/2-78-054 H7-I
7440-43-9	Cadmium	2.87	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	471	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	43800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1410	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1130	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.50	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	181	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R55M-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0229**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0229-14**
Sampled: **03/29/19 15:27** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.04	%		0.15	1	H7	H1	EPA 600/2-78-054 HT-3
PH	Paste pH	7.3	pH Units			1		H1	EPA 600/2-78-054 HT-3
7440-43-9	Cadmium	3.07	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	455	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	44600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1500	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1230	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.23	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	176	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R55M-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0229**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0229-15**
Sampled: **03/29/19 15:12** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.706	%		0.15	1	4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.4	pH Units			1	4	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.86	mg/kg	0.06	0.4	1	4		EPA 6010D FD-I
7440-47-3	Chromium	14.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	405	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	34400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	970	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	761	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.00	mg/kg	0.132	0.3	2	4	D1	EPA 6020B FD-I
7439-92-1	Lead	115	mg/kg	0.018	0.1	2	4	D1	EPA 6020B FD-I
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R01-008F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0232**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0232-04**
Sampled: **03/30/19 13:48** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.570	%		0.15	1	HT	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.5	pH Units			1	HT	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	4.00	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	583	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	44500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1600	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1610	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.23	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	176	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/13/2020

INORGANIC ANALYSIS DATA SHEET

R01-011F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0232**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0232-05**
Sampled: **03/30/19 14:08** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.333	%		0.15	1	4 4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.01	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	604	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	50900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1360	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1250	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.40	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	227	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Gunning 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R18-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0232**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0232-06**

Solids: **60-Sieve Fraction** Sampled: **03/30/19 08:27** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.15	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.7	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.73	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	21.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	962	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	57100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1560	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1550	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	9.35	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	417	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

R18-010F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0232**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0232-07**
Sampled: **03/30/19 09:27** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.595	%		0.15	1	LJ	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.5	pH Units			1	LJ	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.16	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	23.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	868	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	50100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1600	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1270	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.45	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	324	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

R52A-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0232**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0232-08**
Sampled: **03/30/19 16:38** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.372	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.4	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.67	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	638	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	56400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1650	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1430	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.39	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	231	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Manning 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R52A-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0232**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0232-09**

Solids: **60-Sieve Fraction** Sampled: **03/30/19 16:45** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.374	%		0.15	1	LT	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.5	pH Units			1	LT	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.68	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	624	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	51800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1630	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1420	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.87	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	231	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/13/2020

INORGANIC ANALYSIS DATA SHEET

R55M-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0232**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0232-10**

Solids: **60-Sieve Fraction** Sampled: **03/29/19 15:19** Recv'd: **04/09/19 12:44**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.22	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.04	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	320	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	34100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	830	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	404	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.32	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	130	mg/kg	0.018	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Manning 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R80-007F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0341**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0341-01**
Sampled: **03/29/19 10:15** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.08	%		0.15	1	4 4	H1	EPA 600/2-78-054 HT-T
PH	Paste pH	6.8	pH Units			1	4	H1	EPA 600/2-78-054 HT-T
7440-43-9	Cadmium	1.74	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	693	mg/kg	0.16	1	1		M3	EPA 6010D
7439-89-6	Iron	41900	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	1500	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	939	mg/kg	0.3	1	1		M3	EPA 6010D
7440-38-2	Arsenic	6.00	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	263	mg/kg	0.018	0.1	2		B7,D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/13/2020

INORGANIC ANALYSIS DATA SHEET

R80-008F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0341**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0341-02**
Sampled: **03/29/19 10:25** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.173	%		0.15	1	4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.7	pH Units			1	4	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.79	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	439	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	45700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1650	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1200	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.09	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	182	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/13/2020

INORGANIC ANALYSIS DATA SHEET

R80-009F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0341**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0341-03**
Sampled: **03/29/19 10:40** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.7	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.75	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	376	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	43000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1320	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1110	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.23	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	151	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Macias 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R80-010F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0341**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0341-04**
Sampled: **03/29/19 10:50** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.267	%		0.15	1	44	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.7	pH Units			1	44	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.48	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	411	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	57700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1300	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1070	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.87	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	155	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Manning 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R80-011F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0341**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0341-05**
Sampled: **03/29/19 11:00** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.224	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.04	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	454	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	59600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1540	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1270	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.90	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	188	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Fleming 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R80-012F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0341**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0341-06**
Sampled: **03/29/19 11:08** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.421	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.1	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.98	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	589	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	57300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1270	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	931	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.97	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	271	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Isaacs 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R80-013F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0341**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0341-07**
Sampled: **03/29/19 11:17** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.155	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.2	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.93	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1250	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	52400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1460	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1340	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.69	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	312	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Ironing 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R80-014F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0341**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0341-08**
Sampled: **03/29/19 11:33** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.250	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.9	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.73	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	673	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	56700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1870	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	882	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.65	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	263	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/13/2020

INORGANIC ANALYSIS DATA SHEET

R80-015F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0341**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0341-09**
Sampled: **03/29/19 11:40** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.285	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.9	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.40	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	645	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	51300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1270	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	817	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.94	mg/kg	0.132	0.3	2		D1	EPA 6020B
7439-92-1	Lead	387	mg/kg	0.018	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/13/2020

INORGANIC ANALYSIS DATA SHEET

R305-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0345**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0345-03**
Sampled: **03/26/19 13:13** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.600	%		0.15	1	4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.9	pH Units			1	4	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.10	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	736	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	38800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1170	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1250	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.56	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	207	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/13/2020

INORGANIC ANALYSIS DATA SHEET

R305-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0345**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0345-04**
Sampled: **03/26/19 13:17** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.191	%		0.15	1	LY	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.8	pH Units			1	LY	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.97	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	418	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	47800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1150	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	917	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.76	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	151	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/13/2020

INORGANIC ANALYSIS DATA SHEET

R305-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0345**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0345-05**
Sampled: **03/26/19 13:21** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.717	%		0.15	1	4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	5.7	pH Units			1	4	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	5.18	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1160	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	46200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1510	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1970	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	8.15	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	371	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Machin 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R305-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0345**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0345-06**
Sampled: **03/26/19 13:25** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.472	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	5.6	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.65	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	845	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	48300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1140	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1190	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.66	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	317	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Manning 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R306-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0345**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0345-08**
Sampled: **03/28/19 09:00** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.419	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	4.5	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.63	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	887	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	22600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1710	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	454	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.51	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	53.8	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	5.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Mann 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R306-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0345**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0345-09**
Sampled: **03/28/19 09:07** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	UJ	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	5.9	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.79	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	10.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	466	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	25600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	2350	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	635	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.14	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	47.1	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Manning 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R306-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0345**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0345-10**
Sampled: **03/28/19 09:12** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.693	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	5.9	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	4.11	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	759	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	41700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1060	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1440	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.92	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	170	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Manning 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R306-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0345**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0345-11**
Sampled: **03/28/19 09:20** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.753	%		0.15	1	J-	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.0	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.54	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	639	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	36400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1170	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	972	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.05	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	156	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Manning 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R307-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0345**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0345-12**
Sampled: **03/29/19 12:47** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.264	%		0.15	1	44	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.5	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.46	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	721	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	57300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1430	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1160	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	8.03	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	304	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Wadsworth 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R307-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0345**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0345-13**
Sampled: **03/29/19 12:53** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.276	%		0.15	1	4 4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.4	pH Units			1	4	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.70	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	504	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	63100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	847	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	479	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.98	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	266	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Manuf 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R307-003F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0345**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0345-14**
Sampled: **03/29/19 13:04** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.188	%		0.15	1	H4	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.6	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.54	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	745	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	64500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1690	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1480	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.02	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	258	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/13/2020

INORGANIC ANALYSIS DATA SHEET

R307-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0345**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0345-15**
Sampled: **03/29/19 13:12** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.231	%		0.15	1	H	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.4	pH Units			1	H	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.86	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	588	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	60400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1280	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	883	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.16	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	251	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Mann 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R310-001F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0345**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0345-16**

Solids: **10-Sieve Fraction** Sampled: **03/30/19 14:40** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.477	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.6	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.33	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	290	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	37800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	2220	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1260	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.58	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	340	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/13/2020

INORGANIC ANALYSIS DATA SHEET

R310-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9D0345**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0345-17**
Sampled: **03/30/19 14:50** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	4.26	%		1.5	1	J	D2,H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.1	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	4.74	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	604	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	34400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1970	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1300	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.97	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	264	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

R310-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0345**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0345-18**

Solids: **10-Sieve Fraction** Sampled: **03/30/19 14:58** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.252	%		0.15	1	J	H1	EPA 600/2-78-054 NT-I
PH	Paste pH	6.3	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	1.27	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	344	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	49700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1260	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	761	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.61	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	442	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Ewing 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R310-004

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0345**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0345-19**

Solids: **10-Sieve Fraction** Sampled: **03/30/19 15:08** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.220	%		0.15	1	4 4	H1	EPA 600/2-78-054 HT-J
PH	Paste pH	7.0	pH Units			1	4	H1	EPA 600/2-78-054 HT-J
7440-43-9	Cadmium	1.77	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	288	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	38700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1280	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1530	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.17	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	499	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Ennis 1/13/2020

INORGANIC ANALYSIS DATA SHEET

R80-007F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0346**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0346-01**
Sampled: **03/29/19 10:15** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.971	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.9	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.00	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	756	mg/kg	0.16	1	1		M3	EPA 6010D
7439-89-6	Iron	55800	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	1560	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	1030	mg/kg	0.3	1	1		M3	EPA 6010D
7440-38-2	Arsenic	10.2	mg/kg	0.118	0.3	2		D1,M4	EPA 6020B
7439-92-1	Lead	331	mg/kg	0.022	0.1	2		B7,D1,M4	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/14/2020

INORGANIC ANALYSIS DATA SHEET

R80-010F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0346**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0346-02**
Sampled: **03/29/19 10:50** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.515	%		0.15	1	414	H1	EPA 600/2-78-054 HT-1
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 HT-2
7440-43-9	Cadmium	3.28	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	519	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	47700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1590	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1320	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.29	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	203	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/14/2020

INORGANIC ANALYSIS DATA SHEET

R80-013F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0346**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0346-03**
Sampled: **03/29/19 11:17** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.414	%		0.15	1	4 J	H1,R2B	EPA 600/2-78-054 HT-I
PH	Paste pH	7.2	pH Units			1		H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.85	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1520	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	64200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1570	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1530	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	10.6	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	344	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Kramer 1/14/2020

INORGANIC ANALYSIS DATA SHEET

R305-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0346**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0346-07**
Sampled: **03/26/19 13:17** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.328	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	7.7	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.45	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	453	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	57200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1420	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1040	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.17	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	215	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/14/2020

INORGANIC ANALYSIS DATA SHEET

R306-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9D0346**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9D0346-09**

Solids: **60-Sieve Fraction** Sampled: **03/28/19 09:12** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.508	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	5.9	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	3.55	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	722	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	41700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	874	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1350	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.77	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	209	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	3.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Manning 1/14/2020

INORGANIC ANALYSIS DATA SHEET

R307-002F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0346**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0346-10**
Sampled: **03/29/19 12:53** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.309	%		0.15	1	J	H1	EPA 600/2-78-054 HT-I
PH	Paste pH	6.4	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	0.74	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	19.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	552	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	74600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	886	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	522	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	8.92	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	317	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/14/2020

INORGANIC ANALYSIS DATA SHEET

R310-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0346**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0346-11**
Sampled: **03/30/19 14:40** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.485	%		0.15	1	H7	H1	EPA 600/2-78-054 HT-1
PH	Paste pH	6.6	pH Units			1		H1	EPA 600/2-78-054 HT-1
7440-43-9	Cadmium	3.20	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	358	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	40300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1600	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1180	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.46	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	355	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Joel Marino 1/14/2020

INORGANIC ANALYSIS DATA SHEET

R310-004F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9D0346**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9D0346-12**
Sampled: **03/30/19 15:08** Recv'd: **04/11/19 15:15**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.422	%		0.15	1	J	H1	EPA 600/2-78-054 HT-J
PH	Paste pH	6.6	pH Units			1	J	H1	EPA 600/2-78-054 HT-I
7440-43-9	Cadmium	2.25	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	469	mg/kg	0.16	1	1			EPA 6010D
7439-89-6	Iron	51300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1450	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1140	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	9.01	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	766	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/14/2020

INORGANIC ANALYSIS DATA SHEET

U03-1309M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0133**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0133-01**
Sampled: **04/11/19 16:54** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.858	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	0.90	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	546	mg/kg	0.52	1	1		M3	EPA 6010D
7439-89-6	Iron	19700	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	860	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	323	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.25	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	76.9	mg/kg	0.022	0.1	2		B7,D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-3317M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0133**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0133-02**
Sampled: **04/11/19 15:09** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.895	%		0.15	1		H1	EPA 600/2-78-054 J HT:2
PH	Paste pH	6.7	pH Units			1		H1	EPA 600/2-78-054 J HT:I
7440-43-9	Cadmium	0.60	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	7.31	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	320	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	11700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	473	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	106	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	1.52	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	28.0	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

18-2020

INORGANIC ANALYSIS DATA SHEET

U03-3316

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0133**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0133-03**
Sampled: **04/11/19 14:58** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.690	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	0.93	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	482	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	21800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	861	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	286	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.23	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	68.0	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U04-10345

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0133**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0133-04**
Solids: **10-Sieve Fraction** Sampled: **04/09/19 12:20** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.505	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	3.86	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1050	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	34200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1230	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1290	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.50	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	246	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-3325

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0133**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9E0133-05**

Solids: **10-Sieve Fraction** Sampled: **04/09/19 12:27** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.190	%		0.15	1		H1	EPA 600/2-78-054 J HT
PH	Paste pH	7.5	pH Units			1		H1	EPA 600/2-78-054 J HT
7440-43-9	Cadmium	4.12	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1190	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	50400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1280	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1350	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	8.68	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	270	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-027

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0133**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0133-06**
Solids: **10-Sieve Fraction** Sampled: **04/09/19 12:00** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054 J HT
PH	Paste pH	7.3	pH Units			1		H1	EPA 600/2-78-054 J HT
7440-43-9	Cadmium	1.15	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	514	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	44700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	812	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	509	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.19	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	172	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

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INORGANIC ANALYSIS DATA SHEET

B01-P3-2-029

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0133**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0133-07**
Solids: **10-Sieve Fraction** Sampled: **04/11/19 16:15** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.348	%		0.15	1		H1	EPA 600/2-78-054 J HT
PH	Paste pH	7.2	pH Units			1		H1	EPA 600/2-78-054 J HT
7440-43-9	Cadmium	1.78	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	527	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	49200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	990	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	699	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.31	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	273	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-035M

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0133**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0133-08**
Solids: **10-Sieve Fraction** Sampled: **04/12/19 09:53** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.283	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	5.7	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.05	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	613	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	38700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	3470	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	434	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.16	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	148	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-037M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0133**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0133-09**
Sampled: **04/12/19 10:35** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.226	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	5.8	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.44	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	514	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	52300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	895	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	617	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.76	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	232	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

J HT-I
J HT-I

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-038M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0133**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0133-10**
Sampled: **04/05/19 10:57** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.906	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.63	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	551	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	23300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1000	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	544	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.40	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	95.5	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

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INORGANIC ANALYSIS DATA SHEET

B01-P3-3-041

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0133**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0133-11**
Sampled: **04/09/19 10:55** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.03	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.34	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	595	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	21700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	994	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	435	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.50	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	95.8	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-028M

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0133**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9E0133-12**

Solids: **10-Sieve Fraction** Sampled: **04/11/19 15:51** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.471	%		0.15	1		H1	EPA 600/2-78-054 J HT=J
PH	Paste pH	7.9	pH Units			1		H1	EPA 600/2-78-054 J HT=J
7440-43-9	Cadmium	1.55	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1130	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	22700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	859	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	543	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.26	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	103	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-032M

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0133**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0133-13**
Solids: **10-Sieve Fraction** Sampled: **04/12/19 08:55** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.71	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	464	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	42900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1000	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	672	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.42	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	187	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

UJ J HT-I
J HT-I

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1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-034

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0133**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0133-14**
Sampled: **04/12/19 09:12** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.901	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.9	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	2.90	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	764	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	24000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1020	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	979	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.95	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	121	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-043

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0133**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0133-15**
Sampled: **04/09/19 13:06** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.492	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	3.39	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	964	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	34000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1150	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1120	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.55	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	174	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-045

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0133**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0133-16**
Sampled: **04/09/19 14:23** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.21	%		0.15	1		H1	EPA 600/2-78-054 J HT=I
PH	Paste pH	6.0	pH Units			1		H1	EPA 600/2-78-054 J HT=I
7440-43-9	Cadmium	1.58	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	10.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	714	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	20200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1010	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	345	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.46	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	77.9	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-046

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0137**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0137-01**
Sampled: **04/11/19 16:30** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.20	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.9	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.87	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	741	mg/kg	0.52	1	1		M3	EPA 6010D
7439-89-6	Iron	25500	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	876	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	564	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.81	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	173	mg/kg	0.022	0.1	2		B7,D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-050

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0137**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0137-02**
Sampled: **04/18/19 16:35** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.493	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	2.21	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	10.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	825	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	25000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1030	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	752	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.92	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	141	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B02-P3-3-050

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0137**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9E0137-03**

Solids: **10-Sieve Fraction** Sampled: **04/18/19 16:40** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.461	%		0.15	1		H1	EPA 600/2-78-054 J HT:I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 J HT:I
7440-43-9	Cadmium	2.42	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	929	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	28600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1010	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	826	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.72	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	172	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-2316

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0137**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0137-04**
Sampled: **04/18/19 13:42** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.205	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	5.1	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	0.68	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	747	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	47200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	763	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	349	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.32	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	197	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-2315

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0137**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0137-05**
Sampled: **04/18/19 13:30** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.201	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	5.5	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	0.72	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	583	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	46000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	673	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	347	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.32	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	165	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

18-2020

INORGANIC ANALYSIS DATA SHEET

U04-2315

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0137**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9E0137-06**

Solids: **10-Sieve Fraction** Sampled: **04/18/19 13:35** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054 UJ HT-I
PH	Paste pH	5.5	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	0.53	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	581	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	44600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	701	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	331	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.12	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	269	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

VA 1/23/20

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-2312

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0137**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0137-07**
Sampled: **04/18/19 13:00** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.266	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.3	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.62	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	467	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	46900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	963	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	677	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.39	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	168	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-D-2020

INORGANIC ANALYSIS DATA SHEET

U03-10346M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0137**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0137-08**
Sampled: **04/18/19 15:22** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.515	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	7.9	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.37	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	998	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	20300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	570	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	262	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.70	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	69.8	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

J HT2
J HT2

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-3326M

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0137**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9E0137-09**

Solids: **10-Sieve Fraction** Sampled: **04/18/19 15:27** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.36	%		0.15	1		H1	EPA 600/2-78-054 J HT:I
PH	Paste pH	7.9	pH Units			1		H1	EPA 600/2-78-054 J HT:I
7440-43-9	Cadmium	1.31	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	829	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	21500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	863	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	305	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.62	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	67.8	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-078

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0137**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0137-10**
Sampled: **04/18/19 12:25** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.443	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	7.75	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	905	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	27500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1340	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	3310	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.76	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	173	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-049

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0137**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0137-11**
Sampled: **04/18/19 12:47** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.191	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	5.9	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	0.73	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	678	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	36400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	708	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	334	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.34	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	123	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-080

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0137**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0137-12**
Solids: **10-Sieve Fraction** Sampled: **04/18/19 17:30** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.423	%		0.15	1		H1	EPA 600/2-78-054 J-HT-I
PH	Paste pH	3.6	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.09	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	48.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	845	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	135000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	461	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	569	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.83	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	469	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	4.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-1311M

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0137**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9E0137-13**

Solids: **10-Sieve Fraction** Sampled: **04/18/19 14:15** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	7.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.27	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	419	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	56300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	852	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	526	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.58	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	132	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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1-8-2020

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INORGANIC ANALYSIS DATA SHEET

ERA-22M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0137**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0137-14**
Sampled: **04/19/19 11:40** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.869	%		0.15	1		H1	EPA 600/2-78-054 J HT=
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 J HT=]
7440-43-9	Cadmium	1.34	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	7.67	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1310	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	11600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	542	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	148	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.77	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	44.8	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	4.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

ERA2-22M

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0137**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9E0137-15**

Solids: **10-Sieve Fraction** Sampled: **04/19/19 11:47** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.933	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.31	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	7.78	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1250	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	12400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	558	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	157	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.58	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	43.6	mg/kg	0.022	0.1	2		D1,B7	EPA 6020B
NA	% Moisture (air dried)	4.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-1309M

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0140**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0140-01**
Solids: **60-Sieve Fraction** Sampled: **04/11/19 16:54** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method	
	Organic Carbon	1.02	%		0.15	1		H1	EPA 600/2-78-054	J HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054	J HT-I
7440-43-9	Cadmium	1.09	mg/kg	0.06	0.4	1			EPA 6010D	
7440-47-3	Chromium	13.8	mg/kg	0.2	0.6	1			EPA 6010D	
7440-50-8	Copper	660	mg/kg	0.52	1	1		M3	EPA 6010D	
7439-89-6	Iron	22000	mg/kg	6.6	20	1		M3	EPA 6010D	
7439-96-5	Manganese	928	mg/kg	0.28	0.8	1		M3	EPA 6010D	
7440-66-6	Zinc	367	mg/kg	0.3	1	1		M3	EPA 6010D	J MS-H
7440-38-2	Arsenic	2.57	mg/kg	0.118	0.3	2		D1	EPA 6020B	
7439-92-1	Lead	83.1	mg/kg	0.022	0.1	2		D1,M3	EPA 6020B	
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids	

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U04-10345

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0140**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0140-02**
Solids: **60-Sieve Fraction** Sampled: **04/09/19 12:20** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.621	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	5.14	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1400	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	40200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1490	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1660	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.86	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	248	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-029

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0140**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0140-03**
Sampled: **04/11/19 16:15** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.399	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.4	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.93	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	560	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	52100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1190	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	776	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.77	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	281	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-038M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0140**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0140-04**
Sampled: **04/05/19 10:57** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.928	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.90	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	661	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	29000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1140	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	633	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.30	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	108	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-032M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0140**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0140-05**
Sampled: **04/12/19 08:55** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.282	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.95	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	548	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	49400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1220	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	801	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.14	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	212	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-045

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0140**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0140-06**
Sampled: **04/09/19 14:23** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.29	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	5.9	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.88	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	989	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	24200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	956	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	385	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.91	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	90.0	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B02-P3-3-050

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0140**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0140-07**
Sampled: **04/18/19 16:40** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.661	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	3.26	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1250	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	38100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1180	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1050	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.29	mg/kg	0.118	0.3	2		D1	EPA 6020B J IS-I
7439-92-1	Lead	190	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U04-2315

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0140**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0140-08**
Sampled: **04/18/19 13:35** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.298	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	5.2	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	0.68	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	19.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	736	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	53500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	878	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	391	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.72	mg/kg	0.118	0.3	2		D1	EPA 6020B J IS-I
7439-92-1	Lead	214	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-3326M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0140**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0140-09**
Sampled: **04/18/19 15:27** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.41	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.36	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	885	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	22600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	851	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	326	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.64	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	64.0	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-080

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0140**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0140-10**
Sampled: **04/18/19 17:30** Recv'd: **05/06/19 09:42**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.306	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	3.6	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	0.93	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	36.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	611	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	95000	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	456	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	487	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.57	mg/kg	0.118	0.3	2		D1	EPA 6020B J IS-I
7439-92-1	Lead	355	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-1400

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0289**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0289-01**
Sampled: **04/19/19 14:48** Recv'd: **05/13/19 10:31**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.44	%		0.15	1		H1	EPA 600/2-78-054 J H
PH	Paste pH	7.6	pH Units			1		H1	EPA 600/2-78-054 J H
7440-43-9	Cadmium	1.82	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	593	mg/kg	0.52	1	1		M3	EPA 6010D
7439-89-6	Iron	37800	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	1140	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	677	mg/kg	0.3	1	1		M3	EPA 6010D
7440-38-2	Arsenic	3.86	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	127	mg/kg	0.022	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	3.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U04-1400

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0289**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0289-02**
Solids: **10-Sieve Fraction** Sampled: **04/19/19 14:55** Recv'd: **05/13/19 10:31**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.57	%		0.15	1		H1	EPA 600/2-78-054 J H
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 J H
7440-43-9	Cadmium	1.87	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	609	mg/kg	0.52	1	1			EPA 6010D J-SI
7439-89-6	Iron	38300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1150	mg/kg	0.28	0.8	1			EPA 6010D J-SI
7440-66-6	Zinc	664	mg/kg	0.3	1	1			EPA 6010D J-SI
7440-38-2	Arsenic	3.88	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	136	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-1317M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0289**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0289-03**
Sampled: **04/19/19 12:52** Recv'd: **05/13/19 10:31**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.467	%		0.15	1		H1	EPA 600/2-78-054 J H
PH	Paste pH	7.6	pH Units			1		H1	EPA 600/2-78-054 J H
7440-43-9	Cadmium	1.50	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	485	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	45100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1070	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	658	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.42	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	148	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-1316M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0289**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0289-04**
Sampled: **04/19/19 12:58** Recv'd: **05/13/19 10:31**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.00	%		0.15	1		H1	EPA 600/2-78-054 J H
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 J H
7440-43-9	Cadmium	2.24	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	18.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	583	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	45400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1290	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	890	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.69	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	168	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

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INORGANIC ANALYSIS DATA SHEET

U03-1313

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0289**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0289-05**
Solids: **10-Sieve Fraction** Sampled: **04/19/19 08:10** Recv'd: **05/13/19 10:31**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.446	%		0.15	1		H1	EPA 600/2-78-054 J H
PH	Paste pH	8.0	pH Units			1		H1	EPA 600/2-78-054 J H
7440-43-9	Cadmium	1.78	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	756	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	34100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	874	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	629	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.60	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	85.2	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U02-1105M

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0289**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0289-06**
Solids: **10-Sieve Fraction** Sampled: **04/26/19 09:10** Recv'd: **05/13/19 10:31**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.411	%		0.15	1		H1	EPA 600/2-78-054 J H
PH	Paste pH	7.5	pH Units			1		H1	EPA 600/2-78-054 J H
7440-43-9	Cadmium	4.69	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	475	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	73300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	2670	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1730	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.35	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	259	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

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INORGANIC ANALYSIS DATA SHEET

U02-1103

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0289**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0289-07**
Sampled: **04/26/19 09:00** Recv'd: **05/13/19 10:31**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	4.64	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	671	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	71600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1900	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1870	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.83	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	141	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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1-8-2020

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INORGANIC ANALYSIS DATA SHEET

U02-1102M

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0289**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0289-08**
Solids: **10-Sieve Fraction** Sampled: **04/26/19 08:27** Recv'd: **05/13/19 10:31**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.607	%		0.15	1		H1	EPA 600/2-78-054 J H
PH	Paste pH	7.9	pH Units			1		H1	EPA 600/2-78-054 J H
7440-43-9	Cadmium	5.15	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	736	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	63300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1620	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	2100	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.02	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	104	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U02-1100M

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0289**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0289-09**
Solids: **10-Sieve Fraction** Sampled: **04/26/19 08:16** Recv'd: **05/13/19 10:31**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.404	%		0.15	1		H1	EPA 600/2-78-054 J H
PH	Paste pH	7.9	pH Units			1		H1	EPA 600/2-78-054 J H
7440-43-9	Cadmium	6.78	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	685	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	61100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	2330	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	2630	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.95	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	200	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-2323

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0289**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0289-10**
Solids: **10-Sieve Fraction** Sampled: **04/19/19 11:09** Recv'd: **05/13/19 10:31**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	7.4	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.80	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	19.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	378	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	49900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	790	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	406	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.81	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	130	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

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INORGANIC ANALYSIS DATA SHEET

U04-2323

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0289**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0289-11**
Solids: **10-Sieve Fraction** Sampled: **04/19/19 11:15** Recv'd: **05/13/19 10:31**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	7.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.83	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	23.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	401	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	55400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	850	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	407	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.03	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	127	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

US J H
J H

KA 1/23/20

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-2320

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0289**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0289-12**
Solids: **10-Sieve Fraction** Sampled: **04/19/19 11:00** Recv'd: **05/13/19 10:31**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.160	%		0.15	1		H1	EPA 600/2-78-054 J H
PH	Paste pH	7.9	pH Units			1		H1	EPA 600/2-78-054 J H
7440-43-9	Cadmium	0.55	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	18.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	347	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	24700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	656	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	124	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.71	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	27.0	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-2318M

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0289**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0289-13**
Solids: **10-Sieve Fraction** Sampled: **04/19/19 10:20** Recv'd: **05/13/19 10:31**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	7.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.90	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	402	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	49100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	762	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	499	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.32	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	137	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/23/20

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U04-2318M

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0289**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0289-14**
Solids: **10-Sieve Fraction** Sampled: **04/19/19 10:27** Recv'd: **05/13/19 10:31**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	7.4	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.97	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	18.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	424	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	60200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	977	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	514	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.40	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	164	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

YS J H
J H

YA 1/23/20
1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-10324

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0289**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**
Matrix: **Soil** Laboratory ID: **X9E0289-15**
Solids: **10-Sieve Fraction** Sampled: **04/19/19 09:53** Recv'd: **05/13/19 10:31**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.759	%		0.15	1		H1	EPA 600/2-78-054 J H
PH	Paste pH	8.1	pH Units			1		H1	EPA 600/2-78-054 J H
7440-43-9	Cadmium	1.08	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	657	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	25900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	873	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	369	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.72	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	66.0	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-10335

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0289**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0289-16**
Sampled: **04/19/19 08:20** Recv'd: **05/13/19 10:31**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.707	%		0.15	1		H1	EPA 600/2-78-054 J H
PH	Paste pH	8.1	pH Units			1		H1	EPA 600/2-78-054 J HT
7440-43-9	Cadmium	0.93	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	380	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	24100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	856	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	318	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.05	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	57.2	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-3400

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0299**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0299-01**
Sampled: **04/19/19 15:10** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.53	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	3.14	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	18.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	738	mg/kg	0.52	1	1		M3	EPA 6010D
7439-89-6	Iron	32900	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	1370	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1020	mg/kg	0.3	1	1		M3	EPA 6010D
7440-38-2	Arsenic	4.30	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	156	mg/kg	0.022	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	3.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

18-2020

INORGANIC ANALYSIS DATA SHEET

U03-3322

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0299**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0299-02**
Sampled: **04/19/19 13:25** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.585	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	2.02	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1040	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	32600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	980	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	591	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.85	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	129	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-3321

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0299**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0299-03**
Sampled: **04/19/19 12:09** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.13	%		0.15	1		H1	EPA 600/2-78-054 J HT:I
PH	Paste pH	8.0	pH Units			1		H1	EPA 600/2-78-054 J HT:I
7440-43-9	Cadmium	1.17	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	915	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	19800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	818	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	321	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.75	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	58.5	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-3320

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0299**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0299-04**
Sampled: **04/19/19 12:00** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.504	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	3.24	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1110	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	52700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1120	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1090	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.45	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	162	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-3318

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0299**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9E0299-05**

Solids: **10-Sieve Fraction** Sampled: **04/19/19 09:45** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.483	%		0.15	1		H1	EPA 600/2-78-054 J HTI
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 J HTI
7440-43-9	Cadmium	2.69	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	985	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	32600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	939	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	851	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.46	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	126	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-044M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0299**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0299-06**
Sampled: **04/19/19 10:12** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.219	%		0.15	1		H1	EPA 600/2-78-054 J HTI
PH	Paste pH	8.0	pH Units			1		H1	EPA 600/2-78-054 J HTI
7440-43-9	Cadmium	0.43	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	290	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	18500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	775	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	77.2	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.38	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	22.6	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-047

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0299**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9E0299-07**

Solids: **10-Sieve Fraction** Sampled: **04/19/19 11:19** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.190	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.5	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.32	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	18.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	438	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	56100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	893	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	561	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.75	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	130	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-061

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0299**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0299-08**
Sampled: **04/19/19 10:53** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.498	%		0.15	1		H1	EPA 600/2-78-054 J HTT
PH	Paste pH	8.1	pH Units			1		H1	EPA 600/2-78-054 J HTT
7440-43-9	Cadmium	0.66	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	438	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	25200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	629	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	148	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.91	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	44.4	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-042M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0299**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0299-09**
Sampled: **04/19/19 09:11** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.789	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.5	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	3.96	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1120	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	42700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1260	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1180	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.35	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	177	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-043M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0299**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0299-10**
Sampled: **04/19/19 09:33** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.925	%		0.15	1		H1	EPA 600/2-78-054 J HTI
PH	Paste pH	8.1	pH Units			1		H1	EPA 600/2-78-054 J HTI
7440-43-9	Cadmium	1.95	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1210	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	37000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1230	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	516	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.61	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	103	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-045M

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0299**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9E0299-11**

Solids: **10-Sieve Fraction** Sampled: **04/19/19 10:00** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.582	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	8.0	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	2.35	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1050	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	32600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	904	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	725	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.78	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	112	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-048M

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0299**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9E0299-12**

Solids: **10-Sieve Fraction** Sampled: **04/19/19 11:27** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.184	%		0.15	1		H1	EPA 600/2-78-054 J HTI
PH	Paste pH	7.3	pH Units			1		H1	EPA 600/2-78-054 J HTI
7440-43-9	Cadmium	1.23	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	18.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	443	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	60200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	967	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	533	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.34	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	193	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-053

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0299**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9E0299-13**

Solids: **10-Sieve Fraction** Sampled: **04/19/19 07:57** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.635	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	6.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	4.70	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1030	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	42700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1310	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1680	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	9.53	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	318	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

J HTE

J HTE

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B02-P3-3-053

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0299**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0299-14**
Sampled: **04/19/19 08:03** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.464	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	6.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	5.50	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1080	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	43500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1380	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1920	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	8.99	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	304	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

J HT-I
J HT-I

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-056

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0299**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0299-15**
Sampled: **04/19/19 09:04** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.566	%		0.15	1		H1	EPA 600/2-78-054 J HT:I
PH	Paste pH	6.7	pH Units			1		H1	EPA 600/2-78-054 J HT:I
7440-43-9	Cadmium	3.56	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1120	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	44500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1250	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1050	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.12	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	190	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-057

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0299**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9E0299-16**

Solids: **10-Sieve Fraction** Sampled: **04/19/19 09:22** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.576	%		0.15	1		H1	EPA 600/2-78-054 J HT=I
PH	Paste pH	7.9	pH Units			1		H1	EPA 600/2-78-054 J HT=I
7440-43-9	Cadmium	5.05	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1140	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	33400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1310	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1890	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.72	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	166	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B02-P3-3-057

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0299**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0299-17**
Sampled: **04/19/19 09:28** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.317	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.9	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	5.88	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1170	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	31700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1560	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	2090	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.26	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	140	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-059

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0299**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0299-18**
Sampled: **04/19/19 13:10** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.689	%		0.15	1		H1	EPA 600/2-78-054 J HT:I
PH	Paste pH	7.9	pH Units			1		H1	EPA 600/2-78-054 J HT:I
7440-43-9	Cadmium	2.25	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1380	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	31200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	900	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	591	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.52	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	97.1	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B02-P3-3-059

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0299**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9E0299-19**

Solids: **10-Sieve Fraction** Sampled: **04/19/19 13:15** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.646	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	8.2	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	2.31	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1340	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	36300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1110	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	628	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.73	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	110	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-1400

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0309**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0309-01**
Sampled: **04/19/19 14:48** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.714	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.67	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	552	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	37600	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	1080	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	605	mg/kg	0.3	1	1		M3	EPA 6010D
7440-38-2	Arsenic	3.35	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	143	mg/kg	0.022	0.1	2		D1,M3	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-1316M

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0309**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Supplemental Level 3**

Matrix: **Soil** Laboratory ID: **X9E0309-02**

Solids: **60-Sieve Fraction** Sampled: **04/19/19 12:58** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.597	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.6	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	2.28	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	558	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	45400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1230	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	833	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.33	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	190	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U02-1103

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0309**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0309-03**
Sampled: **04/26/19 09:00** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.209	%		0.15	1		H1	EPA 600/2-78-054 J HEI
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 J HEI
7440-43-9	Cadmium	6.40	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	897	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	87400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	2080	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	2020	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.89	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	246	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

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INORGANIC ANALYSIS DATA SHEET

U03-2323

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0309**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0309-04**
Sampled: **04/19/19 11:09** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.213	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.5	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	1.12	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	32.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	489	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	77500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1110	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	432	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.98	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	160	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-2318M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0309**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0309-05**
Sampled: **04/19/19 10:20** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.155	%		0.15	1		H1	EPA 600/2-78-054 J HT:I
PH	Paste pH	7.3	pH Units			1		H1	EPA 600/2-78-054 J HT:I
7440-43-9	Cadmium	1.27	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	22.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	465	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	88600	mg/kg	66	200	10		D2	EPA 6010D
7439-96-5	Manganese	1230	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	552	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.00	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	199	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-10335

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0309**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0309-06**
Sampled: **04/19/19 08:20** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.664	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	8.1	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.04	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	429	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	25900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	869	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	337	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.27	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	62.8	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

J HT-I

J HT-I

1-8-2020

INORGANIC ANALYSIS DATA SHEET

U03-3321

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0309**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0309-07**
Sampled: **04/19/19 12:09** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.10	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	7.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.30	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1120	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	22300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	931	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	369	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.85	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	71.2	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.7	%		0.1	1			Percent Solids

J HT-I
J HT-I

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1.8.2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-044M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0309**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0309-08**
Sampled: **04/19/19 10:12** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.460	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	0.66	mg/kg	0.06	0.4	1			EPA 6010D U MB-I
7440-47-3	Chromium	27.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	564	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	26300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	609	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	117	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.31	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	31.9	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-042M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0309**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0309-09**
Sampled: **04/19/19 09:11** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.809	%		0.15	1		H1	EPA 600/2-78-054 J-HT-I
PH	Paste pH	7.1	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	4.15	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1380	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	48200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1220	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1300	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.96	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	259	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-2-048M

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0309**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0309-10**
Sampled: **04/19/19 11:27** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.204	%		0.15	1		H1	EPA 600/2-78-054 J HT:I
PH	Paste pH	7.3	pH Units			1		H1	EPA 600/2-78-054 J HT:I
7440-43-9	Cadmium	1.44	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	20.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	468	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	63000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1130	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	612	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.12	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	188	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-056

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0309**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0309-11**
Sampled: **04/19/19 09:04** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.558	%		0.15	1		H1	EPA 600/2-78-054 J HT:I
PH	Paste pH	6.7	pH Units			1		H1	EPA 600/2-78-054 J HT:I
7440-43-9	Cadmium	3.59	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1280	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	42500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1210	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1110	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.93	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	206	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

B01-P3-3-059

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0309**
Project: **HWCIU Supplemental Level 3**
Laboratory ID: **X9E0309-12**
Sampled: **04/19/19 13:10** Recv'd: **05/13/19 11:21**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.844	%		0.15	1		H1	EPA 600/2-78-054 J HT-I
PH	Paste pH	7.8	pH Units			1		H1	EPA 600/2-78-054 J HT-I
7440-43-9	Cadmium	2.81	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1920	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	38100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1120	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	770	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.29	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	143	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1-8-2020

INORGANIC ANALYSIS DATA SHEET

R59-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0337**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0337-02**
Sampled: **05/02/19 11:48** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HT-1	5.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	0.15	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium	18.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	304	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	45800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	379	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	239	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.18	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	117	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R80-016F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0337**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0337-04**
Sampled: **04/23/19 15:00** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon dJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HT-1	5.9	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.56	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	20.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	601	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	69200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	795	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	600	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.28	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	292	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R80-017F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0337**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0337-05**
Sampled: **04/23/19 15:07** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HT-1	5.6	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	0.26	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium	22.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	454	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	77900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	489	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	297	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.68	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	199	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R80-018F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0337**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0337-06**
Sampled: **04/23/19 15:14** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ- HT-1 J HT-1 J SQL-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	5.8	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.27	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium	14.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	368	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	68000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	459	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	324	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.44	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	185	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R80-019F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0337**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0337-07**
Sampled: **04/24/19 10:42** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HT-1	5.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	0.16	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium	11.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	227	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	53700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	386	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	249	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.82	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	133	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R80-020F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0337**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0337-08**
Sampled: **04/24/19 10:49** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	5.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.13	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium		12.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		420	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		67900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		629	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		270	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		3.83	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		278	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R80-021F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0337**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0337-09**
Sampled: **04/24/19 15:20** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1 J HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	6.9	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	3.07	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	18.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1050	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	62900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1630	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1340	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	9.76	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	351	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R80-022F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0337**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0337-10**
Sampled: **04/24/19 15:55** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HT-1	6.1	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.75	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	19.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	795	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	59200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1380	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1090	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	8.11	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	307	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R80-023F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0337**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0337-11**

Solids: **10-Sieve Fraction** Sampled: **04/25/19 09:10** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1 J HT1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	5.8	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.77	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	17.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	694	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	70700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1140	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	526	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	13.3	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	607	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R80-024F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0337**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0337-12**
Sampled: **04/25/19 13:45** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1 J HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	6.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.58	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	767	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	64800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1130	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	819	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.69	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	293	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R80-025F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0337**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0337-13**
Sampled: **04/25/19 13:52** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HT-1	6.6	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	2.02	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	839	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	58500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1450	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	998	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.07	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	296	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R80-026F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0337**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0337-14**

Solids: **10-Sieve Fraction** Sampled: **04/26/19 07:18** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1 J HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	7.4	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	10.0	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	3010	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	55900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	4610	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	2330	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.40	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	246	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	0.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R83-006F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0342**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0342-02**
Sampled: **04/02/19 16:47** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HT-1	7.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.97	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	14.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1100	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	51500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1160	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	765	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.30	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	194	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R83-007F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0342**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0342-03**
Sampled: **04/02/19 16:53** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1 J HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	7.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.16	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	10.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1240	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	34400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1470	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	519	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.72	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	88.1	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R83-008F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0342**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0342-04**

Solids: **10-Sieve Fraction** Sampled: **04/03/19 10:30** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon (UJ HT-1)	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH (J HT-1)	7.0	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.51	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1410	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	28600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1390	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	597	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.69	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	124	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R83-009F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0342**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0342-05**

Solids: **10-Sieve Fraction** Sampled: **04/03/19 10:41** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1 J HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH		5.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		0.88	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		13.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		878	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		71200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		1170	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		421	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		3.75	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		285	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R83-010F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0342**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0342-06**
Sampled: **04/03/19 10:53** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1 J HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	5.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.68	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	623	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	71700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	796	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	372	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.17	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	232	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R83-011F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0342**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0342-07**
Sampled: **04/03/19 11:12** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	4.8	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.25	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium		11.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		208	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		51600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		296	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		163	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		2.55	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		121	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R93-007F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0342**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0342-09**

Solids: **10-Sieve Fraction** Sampled: **04/18/19 09:10** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	5.0	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		0.75	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		19.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		515	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		54600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		827	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		445	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		5.44	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		186	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R95-003F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0342**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0342-10**

Solids: **10-Sieve Fraction** Sampled: **04/17/19 08:23** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1 J HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	4.8	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.72	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	309	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	51900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	690	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	305	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.66	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	103	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R97-011F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0342**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0342-14**

Solids: **10-Sieve Fraction** Sampled: **04/08/19 13:45** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HT-1	5.1	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	0.38	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium	14.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	204	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	50900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	475	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	239	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.61	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	94.1	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R97-012F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0342**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0342-15**
Sampled: **04/08/19 13:54** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	5.4	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		0.62	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		14.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		300	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		43600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		605	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		323	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		3.27	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		127	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R97-013F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0342**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0342-16**
Sampled: **04/09/19 11:23** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	4.9	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.37	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium		14.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		289	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		54300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		591	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		293	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		3.90	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		203	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		0.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R97-014F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0342**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0342-17**
Sampled: **04/10/19 09:00** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	4.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		0.41	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		12.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		298	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		35800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		751	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		277	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		2.51	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		144	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R97-015F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0342**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0342-18**

Solids: **10-Sieve Fraction** Sampled: **04/10/19 09:10** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	4.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.37	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium		18.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		401	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		63300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		574	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		253	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		2.47	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		105	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R97-016F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0342**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0342-19**

Solids: **10-Sieve Fraction** Sampled: **04/10/19 09:16** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.150	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	4.4	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.29	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium	14.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	283	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	48100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	436	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	206	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.59	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	154	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

Corr UJ & HT-1
J HT-1
J SQL-1

11/9/2020

INORGANIC ANALYSIS DATA SHEET

R97-017F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0342**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0342-20**

Solids: **10-Sieve Fraction** Sampled: **04/10/19 13:28** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HT-1	4.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.42	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	285	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	59700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	451	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	265	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.36	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	156	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R306-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0342**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0342-22**
Sampled: **04/18/19 14:24** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.328	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J HT-1	6.6	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.36	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	577	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	39700	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese	885	mg/kg	0.28	0.8	1		B7	EPA 6010D
7440-66-6	Zinc	483	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.48	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	103	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	2.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R80-016F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0351**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0351-02**

Solids: **60-Sieve Fraction** Sampled: **04/23/19 15:00** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1 J HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH		6.0	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		2.49	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		22.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		992	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		81900	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese		1630	mg/kg	0.28	0.8	1		B7	EPA 6010D
7440-66-6	Zinc		1180	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		8.46	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		417	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		2.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R80-019F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0351**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0351-03**

Solids: **60-Sieve Fraction** Sampled: **04/24/19 10:42** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HT-1	5.1	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	3.15	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	19.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1080	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	86200	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese	1600	mg/kg	0.28	0.8	1		B7	EPA 6010D
7440-66-6	Zinc	1220	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.49	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	174	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R80-022F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0351**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0351-04**

Solids: **60-Sieve Fraction** Sampled: **04/24/19 15:55** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	6.0	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		2.28	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		19.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		1200	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		64900	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese		1500	mg/kg	0.28	0.8	1		B7	EPA 6010D
7440-66-6	Zinc		981	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		9.55	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		399	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.1	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R80-025F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0351**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0351-05**
Sampled: **04/25/19 13:52** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1 J HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	6.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	3.15	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	19.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1080	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	86200	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese	1600	mg/kg	0.28	0.8	1		B7	EPA 6010D
7440-66-6	Zinc	1220	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	9.39	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	381	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R83-006F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0351**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0351-06**
Sampled: **04/02/19 16:47** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.231	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	7.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		2.28	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		19.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		1200	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		64900	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese		1500	mg/kg	0.28	0.8	1		B7	EPA 6010D
7440-66-6	Zinc		981	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		4.69	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		296	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		0.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R83-009F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0351**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0351-07**
Sampled: **04/03/19 10:41** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	5.6	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		1.26	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		19.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		1300	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		116000	mg/kg	66	200	10		B7,D2	EPA 6010D
7439-96-5	Manganese		2010	mg/kg	0.28	0.8	1		B7	EPA 6010D
7440-66-6	Zinc		584	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		4.83	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		373	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

11/9/2020

INORGANIC ANALYSIS DATA SHEET

R97-011F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0351**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0351-10**

Solids: **60-Sieve Fraction** Sampled: **04/08/19 13:45** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	4.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.37	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium		26.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		285	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		86000	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese		513	mg/kg	0.28	0.8	1		B7	EPA 6010D
7440-66-6	Zinc		218	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		3.21	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		232	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R97-014F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0351**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0351-11**

Solids: **60-Sieve Fraction** Sampled: **04/10/19 09:00** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	4.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.38	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium		18.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		442	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		56400	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese		619	mg/kg	0.28	0.8	1		B7	EPA 6010D
7440-66-6	Zinc		276	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		3.34	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		263	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R97-017F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0351**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0351-12**
Sampled: **04/10/19 13:28** Recv'd: **05/14/19 10:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	4.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		0.41	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		23.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		446	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		103000	mg/kg	66	200	10		B7,D2	EPA 6010D
7439-96-5	Manganese		562	mg/kg	0.28	0.8	1		B7	EPA 6010D
7440-66-6	Zinc		287	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		3.78	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		283	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R307-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0523**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0523-01**
Sampled: **05/01/19 14:21** Recv'd: **05/22/19 12:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HT-1	5.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.99	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	12.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	848	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	64800	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	945	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	531	mg/kg	0.3	1	1		M3	EPA 6010D
7440-38-2	Arsenic J MS-L	5.52	mg/kg	0.118	0.3	2		D1,M4	EPA 6020B
7439-92-1	Lead	273	mg/kg	0.022	0.1	2		D1,M4	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

11/5/2020

INORGANIC ANALYSIS DATA SHEET

R303-006F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0523**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0523-04**
Sampled: **04/04/19 11:35** Recv'd: **05/22/19 12:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.390	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	4.4	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.34	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium		12.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		384	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		28300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		633	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		314	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		2.14	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		59.1	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		2.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R116-006F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0523**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0523-07**
Sampled: **05/03/19 14:30** Recv'd: **05/22/19 12:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	6.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		1.49	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		16.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		581	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		66700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		1230	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		736	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		6.43	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		301	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R93A-001F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0523**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0523-08**
Sampled: **04/18/19 11:30** Recv'd: **05/22/19 12:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.269	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	4.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		1.06	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		25.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		566	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		67700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		827	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		556	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		5.78	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		218	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		3.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R47-007F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0523**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0523-10**
Sampled: **05/08/19 10:55** Recv'd: **05/22/19 12:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1 J HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	5.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.91	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	19.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	583	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	80900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1140	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	540	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.85	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	264	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R50-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0523**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0523-12**

Solids: **10-Sieve Fraction** Sampled: **05/06/19 16:15** Recv'd: **05/22/19 12:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	4.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		0.78	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		10.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		128	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		31100	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		1170	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		539	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		1.51	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		199	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		4.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

INORGANIC ANALYSIS DATA SHEET

R51-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0523**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0523-13**

Solids: **10-Sieve Fraction** Sampled: **05/06/19 16:25** Recv'd: **05/22/19 12:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	5.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		0.75	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		31.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		453	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		93500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		918	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		418	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		6.65	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		360	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)		1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/9/2020

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INORGANIC ANALYSIS DATA SHEET

R01-014F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0524**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0524-01**
Sampled: **05/13/19 15:04** Recv'd: **05/22/19 12:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	5.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.31	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium		19.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		350	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	J SD-L	48200	mg/kg	6.6	20	1		B7,M3	EPA 6010D
7439-96-5	Manganese	J MS-H	375	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	J MS-H	292	mg/kg	0.3	1	1		M1	EPA 6010D
7440-38-2	Arsenic		2.13	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	~~J LD-1~~	175	mg/kg	0.022	0.1	2		B7,D1,M4	EPA 6020B
NA	% Moisture (air dried)		1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

KA 2/6/20
KA 1/28/20
1/10/2020

INORGANIC ANALYSIS DATA SHEET

R01-015F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0524**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0524-02**
Sampled: **05/13/19 14:58** Recv'd: **05/22/19 12:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HT-1	7.1	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.46	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	21.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	481	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	67000	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese	416	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	315	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.41	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	158	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R01-016F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0524**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0524-03**
Sampled: **05/13/19 14:53** Recv'd: **05/22/19 12:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HT-1	6.8	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium J SQL-1	0.34	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium	18.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	423	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	64800	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese	338	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	390	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.23	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	142	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

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INORGANIC ANALYSIS DATA SHEET

R01-017F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0524**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0524-04**
Sampled: **05/13/19 14:47** Recv'd: **05/22/19 12:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.420	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J HT-1	6.0	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.90	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	26.0	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	969	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	49100	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese	801	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	459	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.94	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	219	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

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INORGANIC ANALYSIS DATA SHEET

R301-005F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0524**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0524-07**

Solids: **10-Sieve Fraction** Sampled: **04/05/19 13:28** Recv'd: **05/22/19 12:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1 J HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	6.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.61	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	16.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	331	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	53100	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese	728	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	393	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.35	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	156	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R302-006F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0524**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0524-08**
Sampled: **04/05/19 15:07** Recv'd: **05/22/19 12:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	5.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.25	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium	12.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	318	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	66800	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese	424	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	212	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	2.28	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	89.6	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.2	%		0.1	1			Percent Solids

UJ HT-1
J HT-1
J SQL-1

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

11/10/2020

INORGANIC ANALYSIS DATA SHEET

R118-010F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0524**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0524-10**
Sampled: **04/17/19 11:20** Recv'd: **05/22/19 12:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon 4J HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HT-1	4.1	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.76	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	30.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	550	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	63700	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese	679	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	515	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.27	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	323	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/20

INORGANIC ANALYSIS DATA SHEET

R118-011F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0524**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0524-11**
Sampled: **04/17/19 11:28** Recv'd: **05/22/19 12:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH J HT-1	5.4	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.83	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	11.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	722	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	33900	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese	950	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	392	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.14	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	127	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R118-012F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0524**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0524-12**

Solids: **10-Sieve Fraction** Sampled: **04/17/19 15:04** Recv'd: **05/22/19 12:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	5.0	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		0.51	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		17.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		513	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		60400	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese		631	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		370	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		6.41	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		359	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R118-013F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0524**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0524-13**
Sampled: **04/17/19 15:08** Recv'd: **05/22/19 12:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	UJ HT-1 J HT-1 J SQL-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH		4.6	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		0.28	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium		13.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		666	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		75200	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese		493	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		264	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		3.05	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		182	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.4	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

11/10/2020

INORGANIC ANALYSIS DATA SHEET

R118-014F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0524**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0524-14**
Sampled: **04/17/19 15:15** Recv'd: **05/22/19 12:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.178	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	4.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	J SQL-1	0.36	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium		37.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		498	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		70500	mg/kg	6.6	20	1		B7	EPA 6010D
7439-96-5	Manganese		622	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		348	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		5.89	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		238	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		2.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R307-005F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0526**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0526-01**
Sampled: **05/01/19 14:21** Recv'd: **05/22/19 12:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.208	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	5.8	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		1.61	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		18.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		1270	mg/kg	0.52	1	1		M3	EPA 6010D
7439-89-6	Iron	J SD-L	99500	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese	J SD-L	1410	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc		706	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	~~J SD-1~~	7.83	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		476	mg/kg	0.022	0.1	2		B7,D1,M4	EPA 6020B
NA	% Moisture (air dried)		1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

YA 2/6/20

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R303-006F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0526**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0526-02**
Sampled: **04/04/19 11:35** Recv'd: **05/22/19 12:36**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	JHT-1	0.434	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	JHT-1	4.4	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	JSQL-1	0.32	mg/kg	0.06	0.4	1	J		EPA 6010D
7440-47-3	Chromium		13.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		427	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		32800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		603	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		334	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		2.06	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		56.5	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R116-006F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0526**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0526-03**
Sampled: **05/03/19 14:30** Recv'd: **05/22/19 12:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.327	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J HT-1	6.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.96	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	19.1	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	721	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	75400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1430	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	928	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	8.25	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	356	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

11/10/2020

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INORGANIC ANALYSIS DATA SHEET

R50-006F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0526**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0526-05**

Solids: **60-Sieve Fraction** Sampled: **05/06/19 16:15** Recv'd: **05/22/19 12:36**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1 J HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	4.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.81	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	10.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	160	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	27700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1190	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	534	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	1.59	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	201	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	5.3	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R01-014F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0527**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0527-01**

Solids: **60-Sieve Fraction** Sampled: **05/13/19 15:04** Recv'd: **05/22/19 12:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.195	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J HT-1	5.4	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.49	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	35.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	526	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	75100	mg/kg	6.6	20	1		M3	EPA 6010D
7439-96-5	Manganese J MS-H	360	mg/kg	0.28	0.8	1		M3	EPA 6010D
7440-66-6	Zinc	352	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic ~~J SD-1~~	2.70	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	284	mg/kg	0.022	0.1	2		B7,D1,M4	EPA 6020B
NA	% Moisture (air dried)	2.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

KA 2/6/20

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R01-017F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0527**
Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**
Matrix: **Soil** Laboratory ID: **X9E0527-02**
Solids: **60-Sieve Fraction** Sampled: **05/13/19 14:47** Recv'd: **05/22/19 12:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.611	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	6.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		0.90	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		29.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		995	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		52600	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		772	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		459	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		3.84	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		249	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R302-006F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0527**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0527-03**
Sampled: **04/05/19 15:07** Recv'd: **05/22/19 12:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon J HT-1	0.159	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J HT-1	4.9	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.49	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	22.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	538	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	256000	mg/kg	66	200	10			EPA 6010D
7439-96-5	Manganese	623	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	240	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.04	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	162	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.0	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10 2020

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INORGANIC ANALYSIS DATA SHEET

R118-011F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0527**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0527-04**

Solids: **60-Sieve Fraction** Sampled: **04/17/19 11:28** Recv'd: **05/22/19 12:20**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	J HT-1	0.359	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	J HT-1	5.4	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		0.83	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		20.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		891	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		52400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		645	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		465	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		4.06	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		164	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		1.9	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R118-014F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0527**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0527-05**

Solids: **60-Sieve Fraction** Sampled: **04/17/19 15:15** Recv'd: **05/22/19 12:20**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon UJ HT-1 J HT-1	*0.150*	%		0.15	1	U	H1	EPA 600/2-78-054
PH	Paste pH	4.6	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.43	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	31.2	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	411	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	68900	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	717	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	341	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.01	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	249	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R56-006F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0700**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0700-03**
Sampled: **05/21/19 11:50** Recv'd: **05/29/19 10:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.165	%		0.15	1			EPA 600/2-78-054
PH	Paste pH	5.1	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.69	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	23.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	462	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	70800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1080	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	499	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.26	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	265	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.5	%		0.1	1			Percent Solids

J HT-1

J FD-1

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

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INORGANIC ANALYSIS DATA SHEET

R56-007F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0700**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0700-04**
Sampled: **05/21/19 12:00** Recv'd: **05/29/19 10:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	*0.150*	%		0.15	1	U		EPA 600/2-78-054
PH	Paste pH	4.9	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.96	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	21.6	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	475	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	64200	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1950	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	534	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	5.99	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	254	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	1.4	%		0.1	1			Percent Solids

J HT-1

J FD-1

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

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INORGANIC ANALYSIS DATA SHEET

R19-008F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0700**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0700-05**

Solids: **10-Sieve Fraction** Sampled: **05/16/19 15:40** Recv'd: **05/29/19 10:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.06	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J HT-1	7.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	4.24	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	35.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	2720	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	73800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1490	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1440	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	6.19	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	365	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	4.2	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R19-009F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0700**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0700-06**

Solids: **10-Sieve Fraction** Sampled: **05/16/19 15:45** Recv'd: **05/29/19 10:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.612	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J HT-1	7.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	4.96	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	40.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	3250	mg/kg	5.2	10	10		D2	EPA 6010D
7439-89-6	Iron	90500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1440	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	1730	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	7.48	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	368	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.5	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/16/2020

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INORGANIC ANALYSIS DATA SHEET

R19-010F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0700**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0700-07**
Sampled: **05/16/19 15:50** Recv'd: **05/29/19 10:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.39	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH J HT-1	6.1	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.62	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	23.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	1170	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	42800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	916	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	584	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	4.71	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	155	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	4.8	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R19-011F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0700**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0700-08**
Sampled: **05/16/19 15:55** Recv'd: **05/29/19 10:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.29	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	5.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.23	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	20.4	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	964	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	37300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	766	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	475	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	3.87	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	132	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	5.2	%		0.1	1			Percent Solids

JHT-1

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R19-012F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0700**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0700-09**
Sampled: **05/16/19 16:00** Recv'd: **05/29/19 10:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.96	%		1.5	1		D2,H1	EPA 600/2-78-054
PH	Paste pH	6.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	1.97	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	45.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	6370	mg/kg	5.2	10	10		D2	EPA 6010D
7439-89-6	Iron	75000	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1010	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	925	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	12.1	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	654	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.5	%		0.1	1			Percent Solids

J HT-1

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R19-013F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0700**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0700-10**
Sampled: **05/16/19 16:05** Recv'd: **05/29/19 10:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	1.67	%		1.5	1		D2,H1	EPA 600/2-78-054
PH	Paste pH	6.3	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	2.11	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	48.8	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	7050	mg/kg	5.2	10	10		D2	EPA 6010D
7439-89-6	Iron	68800	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	1180	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	974	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	10.7	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	718	mg/kg	0.022	0.1	2		D1	EPA 6020B
NA	% Moisture (air dried)	3.5	%		0.1	1			Percent Solids

JHT-1

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R19-014F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **10-Sieve Fraction**

SDG: **X9E0700**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0700-11**
Sampled: **05/16/19 16:10** Recv'd: **05/29/19 10:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.748	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	6.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	26.4	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	13.7	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	2330	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	61700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	4010	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	9960	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	11.1	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	1670	mg/kg	0.11	0.2	10		D2	EPA 6020B
NA	% Moisture (air dried)	1.8	%		0.1	1			Percent Solids

J HT-1

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R19-015F

Laboratory: **SVL Analytical, Inc.** SDG: **X9E0700**

Client: **Freeport McMoRan - Chino Mines** Project: **HWCIU Post-excavation Level 3**

Matrix: **Soil** Laboratory ID: **X9E0700-12**

Solids: **10-Sieve Fraction** Sampled: **05/16/19 16:15** Recv'd: **05/29/19 10:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.959	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	6.5	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	23.7	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	15.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	2130	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	63500	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	3550	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	8770	mg/kg	3.4	10	10		D2	EPA 6010D
7440-38-2	Arsenic	10.6	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	1120	mg/kg	0.11	0.2	10		D2	EPA 6020B
NA	% Moisture (air dried)	2.0	%		0.1	1			Percent Solids

J HT-1

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/6/2020

INORGANIC ANALYSIS DATA SHEET

R56-007F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0703**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0703-02**
Sampled: **05/21/19 12:00** Recv'd: **05/29/19 10:35**

CAS NO.	Analyte	Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	0.263	%		0.15	1			EPA 600/2-78-054
PH	Paste pH	4.7	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium	0.78	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium	26.3	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper	561	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron	77400	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese	794	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc	573	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic	8.30	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead	351	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)	2.5	%		0.1	1			Percent Solids

J HT-1

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

INORGANIC ANALYSIS DATA SHEET

R19-010F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0703**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0703-03**
Sampled: **05/16/19 15:50** Recv'd: **05/29/19 10:35**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	JHT-1	1.22	%		0.15	1		H1	EPA 600/2-78-054
PH	Paste pH	JHT-1	5.2	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		1.17	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		16.9	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		906	mg/kg	0.52	1	1			EPA 6010D
7439-89-6	Iron		30700	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		853	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		409	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		3.61	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		132	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		4.7	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020

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INORGANIC ANALYSIS DATA SHEET

R19-013F

Laboratory: **SVL Analytical, Inc.**
Client: **Freeport McMoRan - Chino Mines**
Matrix: **Soil**
Solids: **60-Sieve Fraction**

SDG: **X9E0703**
Project: **HWCIU Post-excavation Level 3**
Laboratory ID: **X9E0703-04**
Sampled: **05/16/19 16:05** Recv'd: **05/29/19 10:35**

CAS NO.	Analyte		Conc	Units	MDL	MRL	Dil'n Factor	C	Q	Method
	Organic Carbon	JHT-1	3.85	%		1.5	1		D2,H1	EPA 600/2-78-054
PH	Paste pH	JHT-1	6.1	pH Units			1		H1	EPA 600/2-78-054
7440-43-9	Cadmium		2.21	mg/kg	0.06	0.4	1			EPA 6010D
7440-47-3	Chromium		44.5	mg/kg	0.2	0.6	1			EPA 6010D
7440-50-8	Copper		6050	mg/kg	5.2	10	10		D2	EPA 6010D
7439-89-6	Iron		75300	mg/kg	6.6	20	1			EPA 6010D
7439-96-5	Manganese		1270	mg/kg	0.28	0.8	1			EPA 6010D
7440-66-6	Zinc		1140	mg/kg	0.3	1	1			EPA 6010D
7440-38-2	Arsenic		12.2	mg/kg	0.118	0.3	2		D1	EPA 6020B
7439-92-1	Lead		759	mg/kg	0.022	0.1	2		B7,D1	EPA 6020B
NA	% Moisture (air dried)		3.6	%		0.1	1			Percent Solids

Non-Detects are reported at the MRL and qualified with a "U" per EPA SOW ILM05 and later. Detects less than the MRL are qualified with a "J".

1/10/2020