FREEPORT-McMoRan COPPER & GOLD
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May 23, 2014

Hand Delivered

Ms. Danielle Taber
Project Manager
Voluntary Remediation Program
Arizona Department of Environmental Quality
1110 W. Washington St.
Phoenix, AZ 85007

Re: Response to Comments, Voluntary Remediation Groundwater Investigation Report Freeport-McMoRan Sierrita Mine Green Valley, Arizona; Site Code: 100073-03

Dear Ms. Taber:

This letter is in response to the Arizona Department Environmental Quality's (ADEQ) April 11, 2014 letter (Letter) addressing Freeport-McMoRan Sierrita Inc. (Sierrita) Voluntary Remediation Groundwater Investigation Report (Report) dated December 2013. Sierrita appreciates ADEQ's review of the Report. This letter provides Sierrita's responses to comments provided by ADEQ on the Report.

General Comment:

The comment letter from ADEQ states *"The Report, at this stage of the groundwater investigation, cannot be approved in its entirety"*. Although Sierrita is willing to fulfill ADEQ requests for additional data collection, Sierrita requests ADEQ approval that the work presented in the Report was completed in accordance with the Voluntary Remediation Program (VRP) Investigation Work Plan (VRP Work Plan), and requests approval of the Report subject to Sierrita fulfilling obligations described in this response to comment letter.

Specific Comments:

Comments from ADEQ's April 11, 2014 letter are reproduced below in italics, followed by Sierrita's response to each comment.

1. **ADEQ Comment:** *VRP notes that Sierrita has not established remediation levels for this site as stated in Section 6 on page 63. Please note that pursuant to Arizona Revised Statutes (A.R.S.) § 49-175, remediation levels are selected pursuant to A.R.S. § 49-175(B) or A.R.S. § 49-175(B)(1-4). It is the Volunteer's responsibility to provide adequate and defensible data to illustrate the applicability of the selected remediation levels and/or controls.*

   Sierrita Response: Sierrita generally agrees with the statement above. At this stage of the investigation, and as indicated in the report, there is no indication that any source to be addressed in the VRP action will cause or contribute to an exceedance of an aquifer water quality standard beyond the boundary of the facility where the source is located. Consequently, Sierrita has not

identified any source for which remediation levels or controls may need to be established in order to meet the requirements of A.R.S. § 49-175(B)(4). During the course of the investigation, Sierrita will continue to evaluate whether any remediation levels or controls will need to be established to meet the requirements of A.R.S. § 49-175(B)(4) or whether the results of the investigation support a conclusion that no source will cause or contribute to an exceedance of an aquifer water quality standard beyond the boundary of the facility where the source is located, such that A.R.S. § 49-175(B)(4) will be satisfied without any need to establish any remediation levels or controls under the VRP program.

With respect to hazardous substances that are potential contaminants of concern at the site and for which there are no aquifer water quality standards (i.e., uranium), the investigation to date indicates that elevated uranium levels in groundwater may be affected by due to naturally occurring sources, and there is also no indication that any potential source will cause or contribute to levels of any concern (e.g., levels that exceed the primary drinking water standard for uranium) outside of the facility boundary. If the results of the completed investigation support a conclusion that elevated uranium levels in groundwater are due to naturally occurring sources or that no remediation is needed, e.g., that no remediation levels or controls are needed for any source to avoid drinking water standards being exceeded in groundwater outside the boundary of the facility, then Sierrita likely will be able to make a straightforward demonstration that the requirements of A.R.S. § 49-175(B) are satisfied. For example, Sierrita could propose that the primary maximum contaminant level (MCL) for uranium would be an appropriate risk level approved by ADEQ under A.A.C. R18-16-201(E) for areas outside the boundary of the facility and that a no further action determination could be made based on a showing that no source at the facility will cause or contribute to an exceedance of that risk level outside of the facility. Following the completion of the investigation and ADEQ's approval of the site characterization, Sierrita will be prepared to propose appropriate remediation levels or controls and to make the necessary demonstrations.

2. **ADEQ Comment:** *In a letter titled Review of February 2, 2012 Response to Comments, dated June 22, 2012, VRP stated that when the groundwater data was submitted for review, VRP would verify that the groundwater data was not skewed in the three quarters following the initial groundwater sampling event (refer to Comment 5b in the letter). VRP requests that Sierrita conduct this evaluation as part of the data review process.*

Sierrita Response: ALS Laboratories in Fort Collins, Colorado, (ALS) performed the analysis of the radiological constituents in rock core samples and groundwater. ALS received Arizona Department of Health and Safety (ADHS) certification on January 15, 2009 after the 1st quarter of data (Fall 2008) was received. However, the same methods were performed pre- as well as post-ADHS certification to determine gross alpha (EPA Method 9315), total radium (EPA Method 903.0), radium-226 (EPA Method 903.1), and radium-228 (EPA method 9320) Therefore, we expect that the accuracy of the results should be equivalent prior to and after certification. In order to evaluate whether certification had any effect on the method accuracy, we reviewed the laboratory quality control sample results ("lab control samples" or "LCS") prior to certification and after certification. The results of this evaluation are shown in Table 1. Note that the pre-certification samples were collected in October 2008 and analyses were performed prior to January 15, 2009 (the lab report number for this set of analyses is 0812097). The post-certification samples were collected in January 2009 and the lab report number for this set of analyses is 0902077.

Table 1. Comparison of the LCS results pre- and post-certification.

LCS Prep Date	LCS Analysis Date	Results +/- 2s TPU	Spike Added	% Recovery	Control Limits
Ra-226					
12/19/2008	1/9/2009	43.4 +/- 11.1	44.9	96.6	67-120
3/16/2009	3/31/2009	73.4 +/- 18.7	90.2	81.4	75-125
5/1/2009	5/18/2009	108 +/- 27.4	90.2	120	75-125
7/20/2009	8/4/2009	99.1 +/- 25.2	90.2	110	75-125
Ra-228					
1/7/2009	1/13/2009	14.8 +/- 4.8	15.8	94.1	70-130
4/7/2009	4/14/2009	19.1 +/- 5.74	15.3	125	70-130
5/6/2009	5/14/2009	14.5 +/- 4.36	15.2	95.4	70-130
7/20/2009	8/5/2009	16.5 +/- 4.97	14.7	112	70-130
Gross Alpha					
12/19/2008	12/29/2008	920 +/- 168	907	101	70-130
3/8/2009	3/12/2009	431 +/- 71.5	504	85.6	70-130
4/28/2009	5/2/2009	223 +/- 36.6	227	98.2	70-130
7/21/2009	7/26/2009	213 +/- 36.4	226	94.1	70-130

LCS = lab control sample

Table 1 shows that the radionuclide spikes that were added as part of the quality control check for the methods were of a similar order of magnitude pre- and post-certification and that the results of the LCS analysis were within the control limits pre- and post-certification. This indicates that the methods were properly performed both pre- and post-certification and therefore there should not be any difference in accuracy pre and post certification. Results where the LCS recovery was not within control limits resulted in J-flagged results in the data tables of the groundwater report; there were a few instances where this was the case but there was no correlation as to the frequency of J-flags pre- and post-certification.

3. **ADEQ Comment:** *VRP suggests that Sierrita include soil and sediment data into the site's conceptual site model and subsequent groundwater investigation.*

Sierrita Response: The soil and sediment data were reported separately to facilitate ease of data review. For reference, these reports are:

- Revised Final Voluntary Remediation Soil and Sediment Characterization Report (January 2013)
- Addendum to the Soil and Sediment Characterization Report (August 2013)

In these reports, the soil and sediment data were compared to available ADEQ groundwater protection levels (GPLs), which characterize the potential for constituents in soil to reach groundwater. In this regard, soil and sediment connection to groundwater was addressed in these reports, and comparisons showed a lack of potential connection between soil and groundwater,

with the exception of one location in which a site-specific GPL for antimony is needed to address antimony connection to groundwater. We will summarize these findings in the forthcoming Groundwater Data Gaps Work Plan (Groundwater Data Gaps Work Plan) to support Sierrita's rationale for proposed data collection.

4. **ADEQ Comment:** *VRP observed that the groundwater data presented in the Report was limited to that outlined in the VRP Investigation Work Plan (Work Plan), dated April 2008. Since 2009, the end of the Work Plan investigation period, Sierrita has conducted additional work that could provide valuable information for the groundwater investigation. Thus, VRP requests that Sierrita provide an all-inclusive data set for any and all groundwater wells installed before, during, and after the Work Plan period.*

Sierrita Response: Sierrita will consider and include monitoring data collected at the Site since 2009 to assist with further development of the VRP CSM and data gaps collection. To clarify, additional groundwater monitoring was conducted at existing monitoring wells since 2009 for the Aquifer Protection Permit (APP), and several new wells were installed east of the Sierrita tailing impoundment and monitoring conducted for sulfate and limited general chemistry parameters in support of the Mitigation Order on Consent. No other wells have been installed since 2009. Sierrita does not propose to necessarily include all APP or Mitigation Order on Consent data in future VRP reports, as the data is already reported elsewhere under the respective regulatory programs, and not all of this data may be relevant to support development of the VRP CSM. Additionally, wells installed and groundwater data collected prior to the VRP would be of little to no relevance to the VRP CSM, as site management is a dynamic process. Data collected prior to the VRP was considered and used as appropriate in preparation for VRP sampling, and those data are presented in the VRP Work Plan. Further, the quality assurance on such data, if it exists, is unknown and may not meet QAPP standards. Therefore, Sierrita will not include groundwater data collected prior to the VRP.

5. **ADEQ Comment:** *VRP recommends that a well inventory of the Green Valley area be conducted and provided to VRP to determine the location of any private domestic, agricultural wells and/or public supply wells. In addition, if present, sentinel, monitoring, and point of compliance wells should be included on the figures and the respective data should be submitted.*

Sierrita Response: Please see attached the well inventory report completed in support of the Mitigation Order on Consent (Attachment 1). Sierrita notes that groundwater-related impacts as characterized for the VRP are all on Site, such that further off-Site well inventory is not relevant for the VRP.

6. **ADEQ Comment:** *VRP requests that additional site-wide groundwater monitoring be conducted to provide a more complete data set of current groundwater conditions. VRP suggests that the monitoring events be conducted semi-annually in January and July, coinciding with the site's wet season.*

    a. *With the additional monitoring data, VRP suggests contouring the groundwater elevations for the alluvial and basin fill aquifers in addition to the bedrock aquifer.*

b. *VRP also suggests that Sierrita utilize the additional data collected to re-assess aquifer characteristics calculated by URS such as: hydraulic conductivity and horizontal and vertical hydraulic gradients.*

Sierrita Response: Sierrita will propose groundwater data collection as part of the forthcoming Groundwater Data Gaps Work Plan, and incorporate these data collection requests at that time. The proposed groundwater data collection will be within the VRP-defined Site boundaries as described in the VRP application.

7. **ADEQ Comment:** *Page 18, Section 2.6.2.8 "Sump and Interceptor Trench System":*

a. Please clarify if the 160 gallons per minute recovered by the LCRS is thought to be the entire volume of leakage from Raffinate Pond No. 2. If so, what is the evidence that supports that conclusion?

b. Please explain the nature of the "underflow" that is captured by such engineering controls as SX-Sump 1, SX-Sump 2, SX-Sump 3, Amargosa East Sump, Amargosa West Sump, and the interceptor trenches.

Sierrita Response: (a) The description of the LCRS will be revised, removing the reference as to the rate of recovery, which was incorrectly stated. The LCRS is designed to prevent leakage rates that exceed facility-specific Action Leakage Rates (ALRs) or Rapid and Large Leakage Rates (RLLs), which vary between 28 and 35,932 gallons per day depending on the type of facility. In addition, the last sentence in paragraph four, Page 18, Section 2.6.2.8 will be removed. Please see the attached replacement page (Attachment 2) for Page 18 of the Report.

(b) The “underflow” that is captured by the sump and interceptor trench systems is subsurface flow and potential seepage from Headwall 1 and Bailey Lake, unlined active permitted APP pregnant leach solution impoundments, and potentially from Raffinate Pond No. 2, a double-lined active permitted APP leach solution impoundment with LCRS. For clarification, APP descriptions of the components of the sump and interceptor trench system include:

- Bailey Lake is an active, APP-permitted PLS Impoundment. The facility is designed to contain overflow and subsurface flow from Headwall No. 1 and excess fluid from the Moly Decant Tanks. It is an unlined impoundment behind an earthen dam. Bailey Sump is located immediately downstream of Bailey Lake. Subsurface flow captured at Bailey Sump is pumped downstream to Raffinate Pond No. 2.
- Amargosa West Sump is located immediately downstream of Raffinate Pond No. 2 and upstream of Amargosa Pond. Amargosa West Sump collects subsurface flow that may pass Bailey Sump or that may come from Raffinate Pond No. 2. Subsurface flow captured by Amargosa West Sump is pumped back to Raffinate Pond No. 2.
- Amargosa East Sump is located immediately downstream of Amargosa Pond and intercepts subsurface flows that pass Bailey Sump or Amargosa West Sump.

- SX-Sump 1, SX-Sump 2, and SX-Sump 3 are monitoring sumps that can also be used to assist in subsurface flow capture.

8. **ADEQ Comment:** *Page 49, Section 3.8.5 "Radionuclides" - Uranium:*

Please provide specific documentation of the "previous investigations" discussed in this paragraph.

Sierrita Response: This comment pertains to the statement on page 49, section 3.8.5 as follows: "Previous investigations have shown that uranium occurs naturally in bedrock at levels as high as 10 mg/kg, specifically in the Ruby Star Granodiorite." The reference for these "previous investigations" is as follows: Jacobs, D.C., 1979. Rock Geochemistry in Mineral Exploration: 1. Sierrita Batholith, Pima County, Arizona, Progress Report 1. Continental Oil Company (Conoco) Research Report No. 1240-3-1-79. Exploration Research Division, Ponca City, Oklahoma. 94 pp.

9. **ADEQ Comment:** *Page 58, Section 4.3.4 "Active Facilities in the Central Investigation Area", 1st paragraph: VRP suggests installing groundwater monitoring wells alongside Amargosa Wash.*

Sierrita Response: Sierrita will propose groundwater well installation and data collection as part of the forthcoming Groundwater Data Gaps Work Plan, and will incorporate the data collection requests in these ADEQ comments at that time. However, Sierrita notes that wells have already been installed along Amargosa Wash. Any further well installation will coincide with specific areas identified for further investigation in the Groundwater Data Gaps Work Plan.

10. **ADEQ Comment:** *Page 67, Section 6.5 "Data Gaps and Recommendations for Further Data Collection":*

VRP concurs with the recommendations and data gaps presented here. However, VRP requests that Sierrita also include the following:

- *Monitoring wells south of the Sierrita Tailings Impoundment.*
- *Monitoring wells within, or adjacent to, the major washes.*
- *Install well pairs in alluvium and bedrock in areas where alluvium is present at the surface.*
- *Continue the investigation/analysis of background water quality:*

VRP notes that Sierrita's background water quality analysis is the basis for most of the data analysis, preliminary conclusions, and proposed data gaps. With the data set currently presented in the Report, VRP does not concur with the proposed background water quality. VRP requests that Sierrita collect additional alluvial (if applicable), basin fill, bedrock, and groundwater samples from several areas that are not down-gradient or cross-gradient of current or historical mining operations and/or disturbed land areas. VRP suggests that Sierrita utilize analysis methods such as Piper and Stiff diagrams to aid in the background water quality investigation.

Sierrita Response: Sierrita will propose groundwater data collection as part of the forthcoming Groundwater Data Gaps Work Plan, and will incorporate the data collection requests in these ADEQ comments at that time. Data collection and well installation will coincide with specific areas identified for further investigation in the Groundwater Data Gaps Work Plan.

Tables:

11. **ADEQ Comment:** *Tables 6 and 7: VRP requests that Sierrita provide an example for calculating vertical gradients and slug test results. This will assist VRP in confirming the method used and the outcome of the calculations.*

Sierrita Response: Vertical gradients were calculated using field measurements of groundwater elevations and screen intervals for shallow alluvial and deeper bedrock well pairs, located in close proximity to one another. In each case the calculation was performed initially by obtaining: 1. the difference in groundwater elevation between the well pair and; 2. the difference in elevation of the midpoint of each of the screen intervals for the well pair. Then the difference in groundwater elevation was divided by the difference in screen midpoint between the well pair, which gives the gradient in feet per feet (ft/ft) between the shallow and deep water bearing units. A positive gradient indicates a downward movement of water and a negative gradient indicates an upward groundwater flow.

Example for two well pair calculations:

Well ID	GW Elevation (ft amsl)	Difference in Head (ft)	Screen Midpoint Elevation (ft amsl)	Screen Mid Point Elevation (ft)	Gradient - Difference in Groundwater Elevation/Difference Screen Mid Point (ft/ft)
TW-2008-12	3523.21	11.37	3522.92	11.48	0.99
BW-04	3511.84		3511.44		
TW-2008-13	3559.08	12.04	3552.06	27.22	0.44
MW-2008-13	3547.04		3524.84		

Each well was tested twice with slug-in (falling head test) and out (rising head test), so that a comparison of hydraulic results could be made. The slug test data were analyzed using AQTESOLV for Windows® (Duffield, 2007). In AQTESOLV, the data were plotted and a corresponding matching line was fitted to the data using the Bouwer-Rice Solution (Bouwer and Rice 1976). Curve matching was initially performed automatically and was then manually adjusted for optimum curve fit to the data set, providing hydraulic parameter estimation results.

Each well was tested twice with slug-in (falling head test) and out (rising head test), so that a comparison of hydraulic results could be made. The slug test data were analyzed using AQTESOLV for Windows® (Duffield, 2007). In AQTESOLV, the data are plotted and a corresponding matching line is fitted to the data using the Bouwer-Rice Solution (Bouwer and Rice 1976). This method is based on Butler (1998). Curve matching was initially performed automatically and was then manually adjusted for optimum curve fit to the data set, providing hydraulic parameter estimation results.

The Bouwer-Rice solution is an empirical relationship describing the water-level response in an unconfined aquifer due to the instantaneous injection or withdrawal of water from a well and is presented as the following equation:

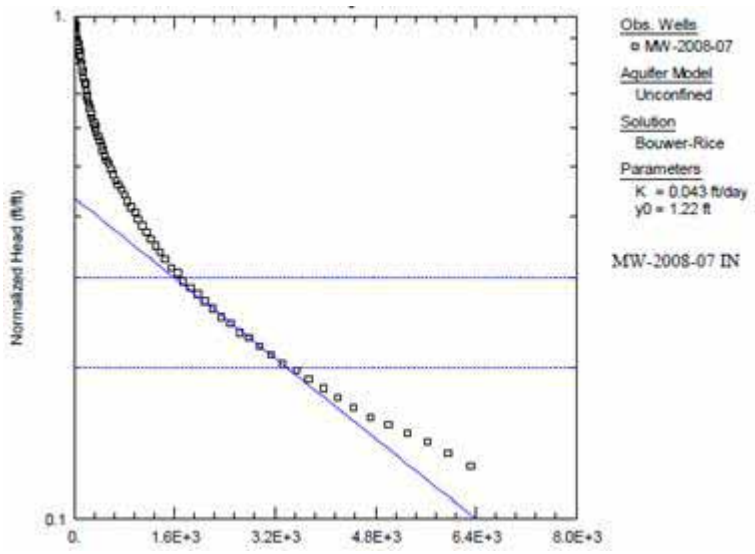
$$\ln(H_0) - \ln(h) = \frac{2KLf}{r_{ce}^2 \ln(r_e / r_{we})}$$

$$r_{we} = r_w \sqrt{K_z / K_r}$$

Where:

- h is displacement at time t [L]
- H_0 is initial displacement [L]
- K, K_r is radial hydraulic conductivity [L/T]
- K_z is vertical hydraulic conductivity [L/T]
- L is screen length [L]
- n_e is filter pack effective porosity [dimensionless]
- r_c is nominal casing radius [L]
- r_{ce} is effective casing radius (= rc when well screen is fully submerged) [L]
- r_e is external radius [L]
- r_w is well radius [L]
- r_{we} is equivalent well radius [L]
- t is time [T]

An example of the calculation process is presented in the graph below for MW-2008-07. In this example, the data were plotted (open circles) and a corresponding matching line (solid blue line) was fitted to the data. The data was matched within the recommended head range (Butler, 1998), as shown by the two horizontal blue dotted lines.



References:
Bouwer, H. and R.C. Rice, 1976. A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, Water Resources Research, vol. 12, no. 3, pp. 423-428.

Butler, J.J., Jr., 1998. The Design, Performance, and Analysis of Slug Tests, Lewis Publishers, Boca Raton, 252p.

Duffield, G. 2007. AQTESOLV® Professional Version 4.5. Hydrosolve, Inc.

12. **ADEQ Comment:** *Table 17: VRP suggests that this table include a preliminary outcome/conclusion and recommendations column.*

Sierrita Response: Table 17 shows only basic Site information associated with each well: lithology, associated wash, and type of feature. This table also restates the rationale as to why each well was included as a monitoring point for the VRP. The significance of a conclusions statement for each well is therefore unclear, as conclusions would be generally be that each well was installed and/or sampled in accordance with the VRP Work Plan. Recommendations for further monitoring of each well would be best addressed in the forthcoming Groundwater Data Gaps Work Plan, when the rationale for additional well sampling can be comprehensively described. Therefore, Sierrita proposes to not modify this table, but instead include a table with rationale and recommendations for well monitoring in the forthcoming Groundwater Data Gaps Work Plan.

Figures:

13. **ADEQ Comment:** *Figure 2: VRP requests that Figure 2 be updated to include current Sierrita property boundaries, an outline of each wash, delineation of each investigation area and respective operations, and an outline of lined canals, trenches, and washes.*

Sierrita Response: Please see attached replacement Figures 1 and 2 (Attachment 2). Figure 1 shows the Sierrita property and VRP Site boundaries (these could not be fit in their entirety into Figure 2, so Figure 1 was revised accordingly). Figure 2 now includes outlines of each wash, delineation of each investigation area, and portions of the VRP Site boundary and property boundary as can be seen at this resolution. Major and minor operating components of the mine were identified in Figure 2 and some labels have been revised to more clearly label each feature. Outlines of lined canals and channels have been provided in Figure 8 and 9, respectively. The interceptor sump and trench systems at the Site is small relative to the scale of other features; hence these features are labeled but not outlined in the figures, and are described in the text of the report.

14. **ADEQ Comment:** *Figure 3: VRP suggests providing an updated surficial geology map such as the one contained in the slide deck from the March 19, 2014 meeting. For context, it would be useful to have the site features overlaid along with an updated legend.*

Sierrita Response: Figure 3 will be updated with the surficial geology map shown in the slide deck from March 19, 2014 and major Site features will be overlaid onto the map.

15. **ADEQ Comment:** *Figures 5 and 6: VRP would like to remind Sierrita of the commitment made in their February 22, 2012 letter titled Voluntary Remediation Program - Soil and Sediment Characterization Report in regards to developing "updated geologic cross-sections" based upon new information obtained during any soil and groundwater work. As such, VRP recommends including at least two updated cross-sections (north-south and east-west, or best-fit based on well locations) for each of the investigation areas (background, west, central, and east). Please include applicable wells and respective information such as: total depth, screening interval, groundwater elevation, known faults, and a legend that matches the formations discussed in the report.*

Sierrita Response: Additional cross sections will be provided in the forthcoming Groundwater Data Gaps Work Plan.

16. **ADEQ Comment:** *Figures 11 through 14: VRP notes that the groundwater contours depicted on the potentiometric maps refer to wells MH-21, MW-2008-12, MW-2008-13, MH-17, MW-2008-14, MW-2008-15, and PZ-01 as "background wells". VRP does not completely agree that these wells are adequate to provide a true representation of background water quality. Only MW-2008-12 is shown to be upgradient of Sierrita mining operations and/or disturbed ground. However, VRP notes that MW-2008-12 could be hydraulically downgradient of the Twin Buttes mine site and therefore may not actually represent true background..*

Sierrita Response: Each of the wells mentioned in ADEQ's comment are representative of background groundwater. These wells were originally identified as background wells in the VRP Work Plan, which was approved by ADEQ. Both the hydrogeological understanding of the Site, and the geochemical data collected from the wells supports determination that all the wells in the Background Areas are representative of background.

The hydrology of the Site indicates a southeasterly groundwater flow direction. This is shown by both by the groundwater level data presented in the Report (see Figures 11 through 14 in the Report) and the Sierrita and Twin Buttes Mines Passive Containment Capture Zone Analysis (PCCZ Report), which includes additional monitoring well data both regionally and at the Site. Both hydrogeologic interpretations of well data support the assertion that the wells in the North and West Background Areas are hydrogeologically upgradient of mine activity and disturbances. Additionally, as the PCCZ report indicates, active dewatering of the Sierrita Pit also draws water into the pit itself: as shown, some of the groundwater underneath the West Waste Rock Piles actually flows towards the open pit rather than south-southeast. Figures 13, 14 and 18 from the PCCZ Report are included for reference (see Attachment 3).

Monitoring wells MW-2008-12, MW-2008-13, and MH-21 are located north of the Central Investigation area and north of mine disturbances. These wells define the North Background Area and background groundwater quality for the Ruby Star Granodiorite. Measured water levels from the wells are shown on Figure 11 in the Report and are the basis for estimation of groundwater level contour lines in the area. Water levels in the three wells indicate a southeasterly groundwater flow direction, and is corroborated by the PCCZ Report data. Therefore, the wells are upgradient of mine areas and representative of background groundwater.

Further, these background wells were selected in the VRP Work Plan. As discussed in Section 4.6.2 of the VRP Work Plan, page 4-23, the following describes the intent of MW-2008-12:

> *"To further characterize background groundwater conditions within the Ruby Star Granodiorite, two monitoring wells (MW-2008-12 and MW-2008-13) will be constructed at the approximate locations illustrated on Figure 4-9. Analytical results from the sampling of groundwater in these two wells will be used to assess if the U mass concentrations associated with MH-21 are a result of naturally occurring uranium. Two monitor wells are recommended in the Ruby Star Granodiorite because the presence of hornblende is highly variable. These proposed locations for the two new wells are within the area identified by Conoco as having naturally elevated concentrations of uranium. The exact locations of the new wells will be dependent upon physical access restrictions."*

Monitoring wells MW-17, MW-2008-15, MW-2008-14 and PZ-1 are located west/southwest of the West Waste Rock Piles and define the West Background Area. Monitoring wells MW-17 and MW-2008-15 are completed in the Demetrie Volcanics. Although the two wells are approximately 500 feet west of the toe of the West Waste Rock Piles, the groundwater flow direction along the western side of the West Waste Rock Piles is toward the southeast as depicted on Figure 11, and corroborated by the PCCZ report. Consequently, the two wells are upgradient of mine disturbances and are representative of background groundwater. The water quality from the wells

also supports their locations being unaffected by mine disturbances. Metals concentrations are non-detect or at very low concentrations. Manganese and uranium have detectable concentrations; however, the values are consistent with wells in the North Background Area (MW-2008-12, MW-2008-13, and MH-21), which are unaffected by mine activities. Further, sulfate concentrations in groundwater samples collected from these wells are low, and typically range from 300 to 400 mg/L. Concentrations this low suggests that the groundwater in the wells is not affected by potential seepage from the West Waste Rock Piles, as waste rock seepage will typically contain elevated sulfate.

Monitoring wells MW-2008-14 and PZ-1 are completed in the Tinaja Peak Formation wells and are located southwest of the West Rock Piles. As shown on Figure 11, the groundwater flow in this specific area is to the south-southeast. Based on this flow direction and location of the West Waste Rock Piles that are to the northeast, PZ-1 is upgradient of mine disturbances. At first glance, MW-2008-14 may appear to be downgradient of the southwestern flank of the West Waste Rock Piles. However, review of water quality for MW-2008-14 indicates that most metal concentrations are non-detect or at very low concentrations. Manganese and uranium have detectable concentrations, but values are consistent with wells in the North Background Area, which are unaffected by mine activities. Sulfate concentrations in MW-2008-14 range from 160 to 180 mg/L and from 10 to 20 mg/L in PZ-1; concentrations this low suggest that the groundwater in the wells is not affected by mine activities, including potential seepage from the West Waste Rock Piles.

As mentioned in ADEQ comment #10, Piper and Stiff diagrams can be useful to assess groundwater geochemistry and to classify waters according to major cation and anion chemistry. Figure 1 (below) provides a Piper diagram for background wells in the Ruby Star Granodiorite, Harris Ranch Quartz monzonite, and Tinaja Peak formation, as well as non-background locations.

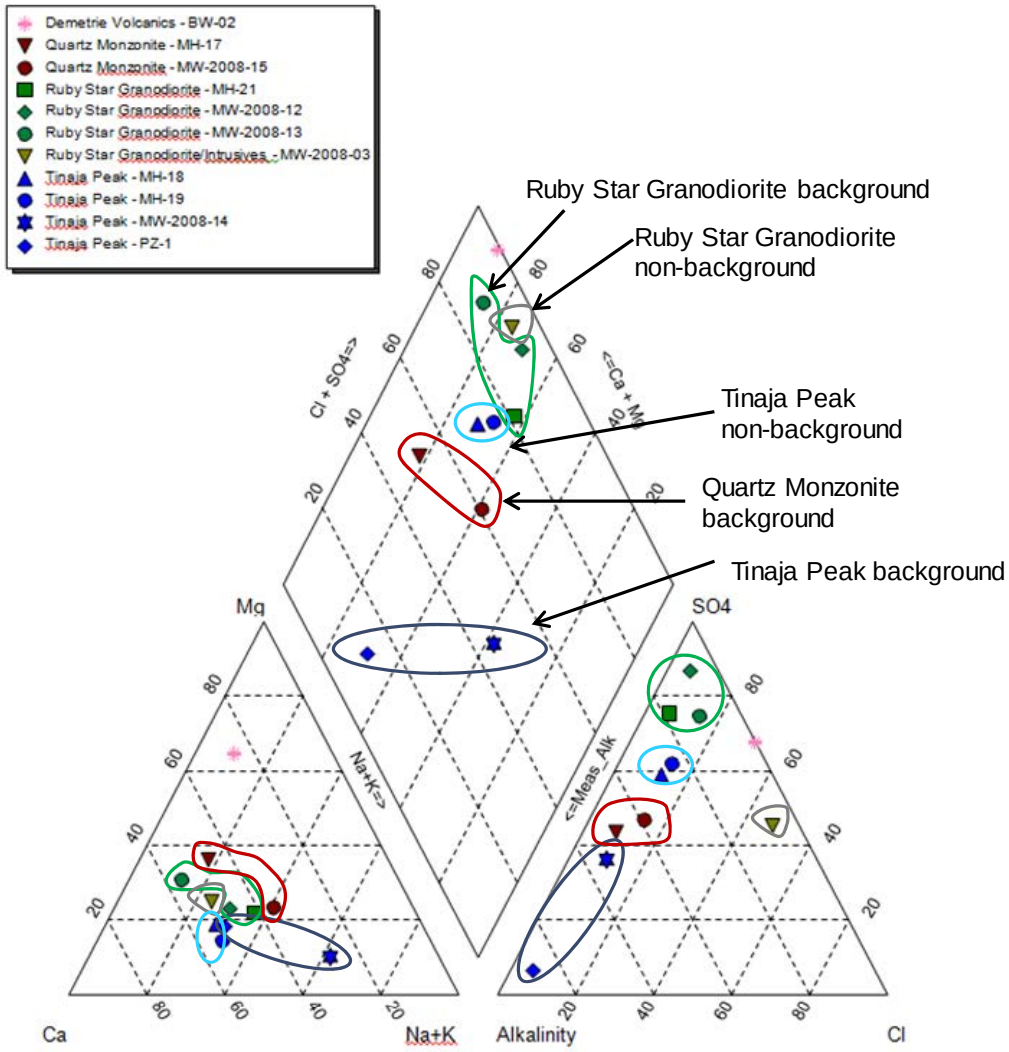


Figure 1. Piper diagram for background wells and select monitoring wells at the Sierrita mine. Data points are grouped and labeled.

As shown in Figure 1, the 3 wells in the Ruby Star Granodiorite which are in the North Background area group together in terms of major cation and anion composition, whereas a downgradient well screened in Ruby Star Granodiorite (MW-2008-03) has a very different anion composition from the background wells. Similarly, as shown in Figure 1, the Tinaja Peak background wells (PZ-1 and MW-2008- 14) are both of similar major cation and anion composition, and differ in composition from those wells that are downgradient of mine facilities that are also screened in the Tinaja Peak formation (MH-18 and MH-19).

This figure also demonstrates that the Tinaja Peak background wells (PZ-1 and MW-2008- 14) are both of similar major cation and anion composition and differ in composition from those wells that are downgradient of mine facilities in the Tinaja Peak formation (MH-18 and MH-19).

In conclusion, Sierrita's justification for locating background wells (described in the approved VRP Work Plan in 2008) and further evaluation of water chemistry characteristics support that the wells in the North and West Background Areas are suitable for their intended purpose.

Sincerely,

Deborah L. Chismar

Deborah Chismar
Environmental Specialist

DLC:ms
20140523_003

Attachment 1: Well Inventory Report
Attachment 2: Page replacements: Page 18, Figures 1, 2, 3, 8 and 9
Attachment 3: Figures 13, 14 and 18 from the PCCZ Report

FREEPORT-McMoRan
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Environment, Land & Water Department
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PO Box 527
Green Valley, Arizona 85622-0527

Attachment 1

phelps dodge Sierrita Inc.
6200 W. Duval Mine Road • P. O. Box 527 • Green Valley, AZ 85622-0527
(520) 648-8500

December 21, 2006

CERTIFIED MAIL #7002 1000 0005 6776 4494
RETURN RECEIPT REQUESTED

Mr. Robert Casey
Arizona Department of Environmental Quality
Water Quality Enforcement Unit
1110 West Washington Street
Phoenix, Arizona 85007-2935

Re: Well Inventory Report
Phelps Dodge Sierrita, Inc. – Mitigation Order on Consent, Docket No. P-50-06

Dear Mr. Casey:

Phelps Dodge Sierrita, Inc. ("PDSI") submits three copies of the attached Well Inventory Report. This report was prepared by Hydro Geo Chem, Inc., as described in Section 3.2 of the Work Plan.

Please do not hesitate to contact Mr. Stuart Brown at (503) 675-5252 or myself at (520) 648-8857 if you have any question regarding this report.

Very Truly Yours,

Ned Hall

E. L. (Ned) Hall
Chief Environmental Engineer

Attachment

cc: John Brack, Phelps Dodge Sierrita, Inc.
Chad Fretz, Phelps Dodge Sierrita, Inc.
Ray Lazuk, Phelps Dodge Corporation
Stuart Brown, Bridgewater Group, Inc.

WELL INVENTORY REPORT
TASK 1 OF AQUIFER CHARACTERIZATION PLAN
FOR MITIGATION ORDER ON CONSENT NO. P-50-06

Prepared for:

PHELPS DODGE SIERRITA, INC.
6200 West Duval Mine Road
Green Valley, Arizona 85629

Prepared by:

HYDRO GEO CHEM, INC.
51 West Wetmore Road, Suite 101
Tucson, Arizona 85705
(520) 293-1500

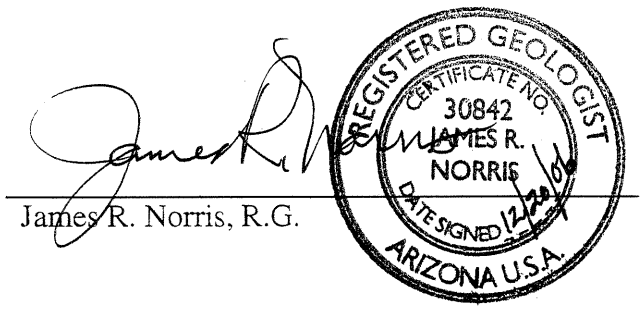
December 20, 2006

WELL INVENTORY REPORT
TASK 1 OF AQUIFER CHARACTERIZATION PLAN
FOR MITIGATION ORDER ON CONSENT NO. P-50-06

Prepared for:

PHELPS DODGE SIERRITA, INC.
6200 West Duval Mine Road
Green Valley, Arizona 85629

Approved By:



James R. Norris, R.G.

December 20, 2006

EXECUTIVE SUMMARY

This report presents the results of the well inventory required pursuant to Mitigation Order on Consent No. P-50-06 between Phelps Dodge Sierrita, Inc. and the Arizona Department of Environmental Quality (ADEQ). The objective of the well inventory was to identify and sample drinking water supply wells within a one mile radius downgradient and crossgradient of the outer edge of the sulfate plume from the Phelps Dodge Sierrita Tailing Impoundment. The well inventory also evaluated the presence of drinking water wells within the footprint of the plume.

Ten active drinking water supply wells were identified out of the 165 wells in the well inventory area. The drinking water supply wells were identified based on the following information:

- a compilation and review of data for wells registered with the Arizona Department of Water Resources (ADWR),
- a cross check of the registered wells with information from databases for ADWR water providers and ADEQ public water systems,
- compilation and review of imaged records for potential drinking water supply wells,
- field checks of potential drinking water supply wells, and
- contacts with the owners/operators of potential drinking water supply wells.

A water quality sample was collected from one private well used for drinking water supply. Water quality data for nine wells were provided by the owners/operators of public supply wells. All wells had sulfate concentrations less than the 250 milligram per liter (mg/L) limit set by the Mitigation Order except for well ESP-1 which had a sulfate concentration of 262 mg/L in a sample collected on December 4, 2006. Water from ESP-1 is blended with water from ESP-2 and ESP-3 in a storage tank which reduces the blended water concentration to less than 250 mg/L sulfate before it enters the distribution system for use.

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1. INTRODUCTION

In June 2006, Arizona Department of Environmental Quality (ADEQ) and Phelps Dodge Sierrita, Inc. (PDSI) entered into Mitigation Order on Consent No. P-50-06 (MO) requiring PDSI to characterize the extent of a plume of sulfate-bearing groundwater downgradient of the Phelps Dodge Sierrita Tailing Impoundment (PDSTI) and to develop a Mitigation Plan for any impacted drinking water supplies attributable to the PDSTI (ADEQ, 2006a). Section III.A.4 of the MO required "A plan to inventory all existing private wells used as a drinking water source and public water system wells located within a one (1) mile radius of the sulfate plume's down and cross-gradient outer edge."

On October 31, 2006, PDSI submitted a Work Plan (Hydro Geo Chem, Inc.[HGC], 2006) to be conducted pursuant to the MO. The Work Plan describes an Aquifer Characterization Plan to address the MO requirements to characterize the sulfate plume and to collect data needed for a feasibility study of mitigation actions. The well inventory reported here is Task 1 of the Aquifer Characterization Plan and was conducted according to the specifications of the Work Plan.

Specific well inventory tasks identified by the Work Plan include:

- Identify drinking water supply wells within one mile downgradient and crossgradient of the outer edge of the plume using the Arizona Department of Water Resources (ADWR) Well Registry Database (WRD).
- Categorize wells based on water use to identify potential drinking water wells.
- Cross-check potential drinking water wells identified from the WRD against ADWR service area provider and ADEQ public water system data to identify any additional drinking water supply wells.

- Check with local water providers and Pima County to identify any drinking water supply wells in the area of interest.

- Field check and obtain global positioning system (GPS) coordinates for drinking water supply wells.

- Collect a water quality sample from or obtain recent water quality data for drinking water supply wells, and, if possible, determine the depth to groundwater.

The "outer edge" of the sulfate plume has been delimited using the 250-milligram per liter (mg/L) sulfate contour (Figure 1), which is based on available water quality data summarized by HGC (2006). As stated in the Work Plan, the well inventory may be revised if the results of the sulfate plume characterization indicate a significantly different shape for the plume.

The remainder of this report is organized as follows:

- Section 2 reviews the well inventory methodology.

- Section 3 describes the results of the well inventory and provides a list of drinking water supply wells.

- Section 4 presents the results of water quality sampling from drinking water supply wells.

- Section 5 is a summary of the major findings of the well inventory and sampling.

2. WELL INVENTORY METHODOLOGY

The well inventory consisted of three steps:

- Identification of all wells located within one mile downgradient and cross gradient of the outer edge of the sulfate plume and in the footprint of the plume.
- A primary well screening to identify potential drinking water supply wells on the basis of the well and water use information in the WRD, and a cross-check of ADWR water providers and ADEQ public water systems.
- Verification of potential drinking water wells by a review of well records, field inspection of wells and owner/operator contacts, including collection of water quality samples or data.

2.1 Identification of Potential Drinking Water Supply Wells

2.1.1 Source of Data

The well inventory was conducted with the ADWR WRD compiled in September 2006 (ADWR, 2006a), which was provided in a Geographic Information System (GIS) format. The GIS format allows the use of spatial queries to identify and extract well information from the database on the basis of well location. Spatial queries were constructed within ArcVIEW software using geo-referenced shape files.

2.1.2 Well Inventory Area

The well inventory area (WIA) consists of the area one mile downgradient and crossgradient of the outer edge of the sulfate plume as defined by the MO and the area within the

footprint of the sulfate plume. The outer edge of the plume is defined in the Work Plan as the 250-mg/L sulfate contour line. Figure 1 shows the 250-mg/L sulfate contour and the downgradient and crossgradient directions based on groundwater elevation contours.

Using AutoCAD software, the 250-mg/L sulfate contour line was offset by one mile in the downgradient and crossgradient directions. The edges of this offset line and the 250-mg/L sulfate contour line were joined together to create a closed boundary defined as the downgradient and crossgradient search area (Figure 1). The endpoints of the offset line were joined together to create a closed boundary representing the plume footprint search area. As shown on Figure 1, this description of the plume footprint search area is conservative because it encompasses a larger area than the sulfate plume identified by HGC (2006). The boundaries of these two search areas were then exported into ArcVIEW and used for the spatial query to identify wells within the WIA.

2.1.3 Well Search Process and Safety Factors

Wells within the WIA were identified using safety factors to account for uncertainty in location due to cadastral coordinates. Well locations in the ADWR WRD are described by cadastral coordinates based on township, range, and section. Each 640-acre section is divided into 160-acre quarters (NE, NW, SE, SW). Location is further specified by a 40-acre quarter of the quarter section, and a 10-acre quarter of the 40-acre quarter, quarter section. For example: Section 25, NE, SW, NW describes a location in the NW 10-acre quarter of the SW 40-acre quarter of the NE 160-acre quarter of Section 25.

The cadastral coordinates impart an uncertainty because they are not exact with respect to well location. Most well records in the ADWR WRD include information on the quarter, quarter, quarter section, although some well records may only contain spatial information accurate to the section; quarter section; or quarter, quarter section. The WRD assigns the well location to the midpoint of the cadastral area, although the well can be anywhere in the described area. Thus, a well within the WIA might not be identified if the midpoint of the quarter, quarter, quarter section lies outside the WIA boundary. Conversely, a well outside the WIA boundary could be identified as being in the WIA if the midpoint of its cadastral coordinates is within the WIA boundary.

To account for the uncertainty in well location due to cadastral coordinates and to ensure the well inventory is comprehensive and identifies all wells potentially within the WIA, a series of safety factors were added to the search area to identify wells that might be in the WIA even though the midpoint of their cadastral coordinates are outside the WIA. An additional distance of 3,735 feet was added to the search radius of the WIA's downgradient and crossgradient boundary. The safety factor of 3,735 feet represents the distance from a corner of a 640-acre section to its midpoint and is meant to account for wells known only to the section. The data set was reviewed for any wells identified only by the section number with no quarter section information. These wells were included in the inventory.

Next, all wells within 1,870 feet of the WIA's downgradient and crossgradient boundary were identified. The safety factor of 1,870 feet is the distance from a corner of a 160-acre

quarter section to its midpoint. The data set was reviewed for any wells identified only by the section number and the 160-acre quarter. These wells were included in the inventory.

This process was repeated using safety factors of 935 feet and 470 feet to account for the distance from the corner of a 40-acre quarter, quarter section to its midpoint and from the corner of a 10-acre quarter, quarter, quarter section to its midpoint, respectively. From the set of wells identified on this basis, wells were removed only if they could be verified as being outside the search area based on more detailed cadastral coordinates. The final set of wells remaining after this process constitutes the inventory of all wells potentially within the WIA.

2.2 Primary Well Screening

Well compilations typically identify many different types of wells, including wells that are not potential drinking water supplies; such as wells used for environmental monitoring, geotechnical investigations, or mineral exploration. The objective of the primary well screening was to identify potential drinking water supply wells for further evaluation and to eliminate from additional consideration those wells without a drinking water use.

2.2.1 Screening Based on Well Type, Well Use, and Water Use

Information in the WRD on all wells identified in the WIA was compiled into a spreadsheet and sorted according to well type, well use, and water use. This information was

used to screen the population of wells in the WIA to identify potential drinking water supply wells and to eliminate wells without drinking water use.

For the primary well screening, wells listed with a water production well use and a municipal, commercial, domestic, stock, utility, domestic-industrial, irrigation, or irrigation-domestic water use were identified for further evaluation as potential drinking water wells. Water production wells listed with an industrial water use were evaluated on a well-by-well basis to identify wells used for mining supply, sulfate mitigation pumping, or other non-drinking water uses. Wells with no well or water use listed were also included for further evaluation.

The primary well screening excluded from further evaluation as potential drinking water wells those wells listed as:

- abandoned or cancelled (abandoned or not drilled) wells,
- wells associated with mineral exploration, exploration, groundwater monitoring and observation, geotechnical, or drainage use,
- wells listed with a water production well use and a mining or mineral exploration water use, and
- industrial water use wells controlled by PDSI or Park Corporation and known to be used for purposes other than supplying drinking water (i.e., the interceptor wellfield wells, dewatering wells at Twin Buttes Mine).

2.2.2 ADWR Water Provider and ADEQ Public Water System Review

Wells identified in the WIA were cross-checked against two additional data sets:

- ADWR service area providers in Pima County, and
- ADEQ public water systems.

Each ADWR or ADEQ data set was used to identify potential drinking water supply wells in the WIA. Potential drinking water supply wells identified from ADWR and ADEQ data sets were cross-checked against the well inventory list to ensure inclusion of potential drinking water supply wells. After completing the cross-check, no additional wells were added to the well inventory list. The cross-check methods are described below.

2.2.2.1 ADWR Service Area Provider Review

The Tucson ADWR office provided a data set including all service area providers in Pima County (ADWR, 2006b). The data included any service area provider with a 56-right number, which includes any provider using an exempt well serving at least four households, Small Municipal Providers supplying less than 250 acre-feet annually, and Large Municipal Providers supplying 250 acre-feet or more annually. The data included the water right number, the owner/contact name, contact information, and 55-well registry numbers associated with the water right. The following summarizes data evaluation procedures:

1. The 55-well registry numbers associated with 56-right numbers provided by ADWR (2006b) were cross-checked in Microsoft Excel against all wells listed in the Upper Santa Cruz River sub-basin of the WRD (ADWR, 2006a). Wells existing in both data sets represented all registered ADWR service area provider wells in the Upper Santa Cruz River sub-basin.

2. Wells identified in the WIA search were plotted in ArcView.

3. Using ArcView, wells described in step 1 were plotted in a new layer, on top of wells described in step 2.

4. Overlapping wells were assumed to have been included in the WIA search. Wells identified in step 1 that did not overlap wells identified in step 2 were identified and evaluated for their potential to be within the WIA using the safety factors described in Section 2.1.3.

2.2.2.2 ADEQ Public Water Systems

ADEQ provided a database of all registered public water systems in the State of Arizona (ADEQ, 2006b). These include water systems that provide drinking water to a minimum of 25 users or 15 service connections. The data included the county, the water system ID, the water system name, address, phone number, water system type, population served, number of connections, and the initial monitoring year. The following summarizes ADEQ public water system data evaluation procedures:

1. Water systems potentially in the WIA were identified using address information. Three zip codes were identified in the WIA: 85614, 85622, and 85629. Any water system listed in Green Valley or Sahuarita was also included in the data subset. Quail Creek Water Company, with an address in Sun Lakes, Arizona, was also included and serves the Robson Ranch Quail Creek community in Green Valley.

2. The water system names identified in step 1 were searched for in the WRD (ADWR, 2006a) in three ways including: a) in the last name field, b) in the company field, and c) using a key word search.

3. Matching records from the WRD were saved in a separate spreadsheet.

4. All wells compiled in the spreadsheet described in step 3 were plotted in ArcView as a layer on top of a layer representing wells identified in the WIA search.

5. Overlapping wells were assumed to have been included in the well inventory. Wells identified in step 3 that did not overlap inventoried wells were evaluated for their potential to be within the WIA using the safety factors identified in Section 2.1.3.

2.2.3 Verification of Potential Drinking Water Supply Wells

Wells identified by the primary screening as potential drinking water supply wells were verified by (1) review of the ADWR imaged records for the well to further research its water use, (2) field checks of wells to determine their location and operational status, and (3) contacts with well owner/operators to determine well operational status and water use.

Records for each of the wells identified as potential drinking water supply wells were downloaded from ADWR's on-line Imaged Records Database and cross-checked with information obtained from ADWR (2006a). Information such as ownership, water use, additional well identifiers, and well status were compiled and reviewed for information pertinent to operational status and well use.

A field check on wells identified as potential drinking water supply wells were conducted to verify the well location using a hand-held GPS unit, evaluate the operational status of the well, and gather supplemental well ownership information. Subsequent to the field check, well owners/operators were contacted on a case by case basis to verify water use and other well information. The results of the verification of potential drinking water supply wells are reported in Section 3.3.

2.3 Water Quality Sampling

PDSI requested permission to sample wells that were verified as drinking water supply wells. Where permission was granted, PDSI collected water quality samples and, if possible,

depth-to-water measurements. In some cases, water quality samples were collected and analyzed by the owner/operator and the information was provided to PDSI.

PDSI collected and analyzed samples using methods consistent with the Quality Assurance Project Plan (HGC, 2006). Prior to sampling, wells were purged to the degree permitted by site-specific circumstances. If it was not practical to purge three casing volumes from the well because of inconvenience to the owner/operator, wells were purged of less than three casing volumes. The purge condition under which the sample was collected was noted in the field logbook or on the groundwater sampling form.

Wells sampled by owner/operators were wells in continuous operation which were sampled without purging. Data provided by owner/operators was gathered using the owner/operator's standard sampling and analysis protocols.

Section 4 contains the results of water quality sampling for the well inventory task.

3. WELL INVENTORY RESULTS

3.1 Identification of Wells in the Well Inventory Area

A total of 165 wells were identified in the WIA. These wells include water production wells, monitoring wells, mineral exploration and geotechnical boreholes, and cancelled or abandoned wells. Appendix A lists the ADWR WRD records for the wells identified in the WIA. These wells were reviewed for the primary well screening.

3.2 Results of Primary Well Screening

The primary screening identified potential drinking water supply wells on the basis of well type, well use, water use, and cancelled status information in the ADWR WRD, and a cross-check with ADWR water provider and water rights databases and the ADEQ water system database. Table 1 summarizes service area providers included in the cross-check of WIA wells. ADEQ public water systems included in the cross-check of WIA wells are listed in Table 2. The cross-check against ADWR and ADEQ databases was conservative in that it encompassed an area larger than the WIA.

Table 3 summarizes the results of the primary well screening. Of the 165 wells identified in the WIA, 36 were considered potential drinking water supply wells based on the primary well screening and cross-check of ADWR and ADEQ databases. The remaining 129 wells were

considered non-drinking water supply wells and eliminated from further consideration. The wells eliminated from the well inventory are described below and listed in Appendix A.

- Forty-one (41) wells identified as abandoned or cancelled (never drilled or abandoned).
- Eight (8) wells associated with mineral exploration.
- Thirty-nine (39) wells associated with exploration, groundwater monitoring and observation, or geotechnical use.
- Five wells (5) listed with drainage as the well and water use.
- Thirty-six (36) wells listed with a water production well use but having industrial, commercial, mining, or mineral exploration water uses not associated with drinking water supply.

Of the 36 potential drinking water wells, 34 were listed with a water production well use and a municipal, domestic, stock, utility, domestic-industrial, industrial, irrigation, or irrigation-domestic water use and two (2) wells were non-exempt well types with no well or water use listed.

3.3 Results of Verification of Potential Drinking Water Wells

The 36 potential drinking water supply wells identified in the WIA consisted of: 18 wells listed with a domestic, domestic-industrial, irrigation-domestic, municipal, or utility use, and 18 wells listed with an industrial, irrigation, stock, or unlisted water use (Appendix A). Figure 2 shows wells evaluated as potential drinking water supply wells. The service areas of water providers in the ADWR database are also shown on Figure 2.

Verification of the potential drinking water supply wells was needed to:

1. Determine operational status of wells belonging to local water providers: Community Water Company (CWC), Farmers Water Company (FWC) and Green Valley Domestic Water Improvement District (GVDWID).

2. Verify water uses for wells with industrial, irrigation, stock, and unlisted water uses.

3. Evaluate the existence, operational status, and water use of wells that appear to service parks, private residences, and housing developments.

Verification was conducted by a compilation and review of ADWR imaged records, a field check of the well, and contacts with well owner/operators. The result of the verification was a list of confirmed drinking water supply wells for water quality sampling.

Information contained in the ADWR imaged records database was compiled for each potential drinking water supply well. The imaged records are provided in portable document format on the compact disk included as Appendix B. Information from the imaged records was useful for understanding the chain of ownership for some wells and historical uses of well water.

The field check was able to determine the location and operational status of some but not all potential drinking water wells. Wells were inspected in the field unless the property had restricted access or the well could not be found using its cadastral coordinates. Well owners/operators were contacted by phone and visited in the field as necessary to obtain additional information on wells.

As required by the Work Plan, water providers in the WIA and Pima County Department of Environmental Quality (PDEQ) were contacted to discuss whether they had knowledge of any

private wells used as water supplies in the portions of their service areas covered by the WIA. CWC, FWC, GVDWID, and PDEQ were not aware of any private wells used for water supply in the WIA other than the ones evaluated by this study.

Table 4 summarizes the results of the verification of potential drinking water supply wells and indicates the status of each well as a drinking water supply. Of the 36 wells identified as potential drinking water supply wells, 10 wells were verified as having a current drinking water supply use. Nine (9) of the 10 wells are operated by public water companies, either CWC or GVDWID. One private well was found to be a water supply well.

Table 5 identifies the verified drinking water supply wells in the WIA including their GPS coordinates. Figure 3 shows the locations of verified drinking water supply wells. The results of groundwater sampling from drinking water supply wells are presented in Section 4.

4. WATER QUALITY SAMPLING RESULTS

The owners of wells verified as drinking water wells (Table 5) were contacted by PDSI with an offer to collect and analyze a groundwater sample free of charge. In the case of water providers with current water quality data for the subject wells, PDSI compiled water quality information provided by the well owner/operator. Table 6 contains sulfate concentrations in drinking water supply wells.

All wells had sulfate concentration less than the 250 milligram per liter (mg/L) limit set by the Mitigation Order except for well ESP-1 which had a sulfate concentration of 262 mg/L on December 4, 2006. Water from ESP-1 is blended with water from ESP-2 and ESP-3 in a storage tank which reduces the blended water concentration to les than 250 mg/L sulfate before it enters the distribution system for use.

5. DISCUSSION

Potential drinking water supply wells were identified in the WIA defined as the area one mile downgradient and crossgradient of the sulfate plume from the PDSTI and in the footprint of the plume. Ten (10) active drinking water supply wells were identified out of the 165 wells in the WIA. The drinking water supply wells were identified based on the following information:

- a compilation and review of data for wells registered with ADWR,
- a cross check of the registered wells with information from databases for ADWR water providers and ADEQ water systems,
- data from imaged records for potential drinking water supply wells,
- field checks of potential drinking water supply wells, and
- contacts with the owners/operators of potential drinking water supply wells.

A water quality sample was collected from one private well used for drinking water supply. Water quality data for nine wells were provided by the owners/operators of public supply wells. All wells had sulfate concentrations less than the 250 mg/L limit set by the Mitigation Order except for well ESP-1 which had a sulfate concentration of 262 mg/L on December 4, 2006. Water from ESP-1 is blended with water from ESP-2 and ESP-3 in a storage tank which reduces the blended water concentration to less than 250 mg/L sulfate before it enters the distribution system for use.

6. LIMITATIONS

The information and conclusions presented in this report are based upon the scope of services and information obtained through the performance of the services, as agreed upon by HGC and the party for whom this report was originally prepared. Results of any investigations, tests, or findings presented in this report apply solely to conditions existing at the time HGC's investigative work was performed and are inherently based on and limited to the available data and the extent of the investigation activities. No representation, warranty, or guarantee, express or implied, is intended or given. HGC makes no representation as to the accuracy or completeness of any information provided by other parties not under contract to HGC to the extent that HGC relied upon that information. This report is expressly for the sole and exclusive use of the party for whom this report was originally prepared and for the particular purpose that it was intended. Reuse of this report, or any portion thereof, for other than its intended purpose, or if modified, or if used by third parties, shall be at the sole risk of the user.

7. REFERENCES

Arizona Department of Environmental Quality (ADEQ). 2006a. Mitigation Order on Consent. Docket No. P-50-06, ADEQ Identification Number 101679. June 14, 2006.

ADEQ. 2006b. Drinking Water Systems Quick Look Report of Active Regulated Systems in Arizona, by System ID or Name, ASCII delimited. August 2006.

Arizona Department of Water Resources (ADWR). 2006a. Wells 55 Data CD-ROM. September 2006.

ADWR. 2006b. Service Area Provider Database Query provided through personal communication with Virginia Welford. September 21, 2006.

Hydro Geo Chem, Inc. (HGC). 2006. Work Plan to Characterize and Mitigate Sulfate with Respect to Drinking Water Supplies in the Vicinity of the Phelps Dodge Sierrita Tailing Impoundment, Pima County, Arizona. October 31, 2006.

TABLES

TABLE 1
Summary of Service Area Providers

Right #	Name	Address	City	State	Zip	Phone
56-000046.0000	COMM WATER CO OF GREEN VALLEY	PO BOX 1078	GREEN VALLEY	AZ	85622	(520) 625-8409
56-000080.0000	FARMERS WATER CO	PO BOX 7	SAHUARITA	AZ	85629	(520) 791-2852
56-000302.0000	GREEN VALLEY DOMESTIC WID	PO BOX 623	GREEN VALLEY	AZ	85622	(520) 625-9112
56-000367.0000	QUAIL CREEK WATER COMPANY INC.	9532 E. RIGGS ROAD	SUN LAKES	AZ	85248	(520) 648-0332
56-000373.0000	RANCHO SAHUARITA WATER CO LLC	6339 E. SPEEDWAY, SUITE 102	TUCSON	AZ	85710	520-299-8766
56-000371.0000	RANCHO SAHUARITA WATER CO LLC	6339 E. SPEEDWAY, SUITE 102	TUCSON	AZ	85710	520-299-8766
56-000185.0000	RINCON WATER COMPANY	HC 70 BOX 3601	SAHUARITA	AZ	85629	
56-000227.0000	VALLE VERDE DEL NORTE WATER COOP	PO BOX 1192	GREEN VALLEY	AZ	85622	
56-000128.0000	LAS QUINTAS SERENAS W.C.	PO BOX 68	SAHUARITA	AZ	85629	(520) 625-8040
56-000191.0000	SAHUARITA VILLAGE WATER CO	P.O. BOX 710	SAHUARITA	AZ	85629	(520) 625-7617
56-000225.0000	VAL VERDE INC	18100 S. CALLE VERDE	GREEN VALLEY	AZ	85614	(602) 625-2815
56-000307.0000	VAL VERDE SUBDIVISION	18256 S CALLE VALLE VERDE	GREEN VALLEY	AZ	85614	(520) 648-1402

Notes:
Source: ADWR Tucson Office.
Service Area Providers in Green Valley, Sahuarita and associated zip codes are included in this table.
Each Service Area Provider Name was cross-referenced to the September 2006 ADWR 55-registry database to inventory wells operated by the entity.

TABLE 2
Summary of Public Water Systems

County	System ID	Public Water System Name	Address	City	State	Zip	Phone Number	Type	Population	Connections	Initial Monitoring Year
PIMA	20005	ASARCO, INC-MISSION UNIT	4201 W PIMA MINE RD	SAHUARITA	AZ	85629	520-648-2500	NTNC	250	8	INITIAL MONITORING YEAR - 1995
PIMA	10258	CATERPILLAR WATER	6000 W CATERPILLAR TRAIL	GREEN VALLEY	AZ	85614	520-648-4619	NTNC	110	1	INITIAL MONITORING YEAR - 1993
PIMA	10004	COMMUNITY WATER - GREEN	PO BOX 1078	GREEN VALLEY	AZ	85622-1078	520-625-8409	C	15500	10445	INITIAL MONITORING YEAR - 1995
PIMA	10213	FARMERS WATER	PO BOX 7	SAHUARITA	AZ	85629	520-879-7473	C	2317	1363	INITIAL MONITORING YEAR - 1994
PIMA	10048	FARMERS WATER COMPANY-SAHUARITA	PO BOX 7	SAHUARITA	AZ	85629	520-879-7473	C	350	101	INITIAL MONITORING YEAR - 1994
PIMA	10049	FARMERS WATER CO-SCHOOL	PO BOX 7	SAHUARITA	AZ	85629	520-879-7473	C	911	396	INITIAL MONITORING YEAR - 1994
PIMA	10157	GREEN VALLEY WD	3290 S CAMINO DEL SOL STE 100	GREEN VALLEY	AZ	85614	520-625-9112	C	5292	4080	INITIAL MONITORING YEAR - 1994
PIMA	10064	LAS QUINTAS SERENAS W C	PO BOX 68	SAHUARITA	AZ	85629	520-625-8040	C	4073	1000	INITIAL MONITORING YEAR - 1993
PIMA	20036	PHELPS DODGE SIERRITA INC	PO BOX 527	GREEN VALLEY	AZ	85622-0527	520-648-8500	NTNC	800	20	INITIAL MONITORING YEAR - 1993
PIMA	10262	QUAIL CREEK WATER CO	9532 E RIGGS RD	SUN LAKES	AZ	85248-7411	480-895-9200	C	2138	1069	INITIAL MONITORING YEAR - 1993
PIMA	20419	SAHUARITA HEIGHTS MHP	P O BOX 63	SAHUARTIA	AZ	85629	520-625-1530	C	100	55	INITIAL MONITORING YEAR - 1993
PIMA	20331	SAHUARITA SCHOOL DIST 30	PO BOX 26	SAHUARITA	AZ	85629-0026	602-625-8040	NTNC	2653	1	INITIAL MONITORING YEAR - 1993
PIMA	10123	SAHUARITA VILLAGE WATER	420 E. CASTILLO	SAHUARITA	AZ	85629	520-625-4113	C	125	48	INITIAL MONITORING YEAR - 1995
PIMA	20008	TWIN BUTTES PROPERTIES	18550 S LA CANADA DR #1	SAHUARITA	AZ	85629	520-648-1630	NTNC	25	2	INITIAL MONITORING YEAR - 1995
PIMA	10183	VAL VERDE INC	18120 S CALLE VALLE VERDE	GREEN VALLEY	AZ	85614-4420		C	81	27	INITIAL MONITORING YEAR - 1994
PIMA	10152	VALLE VERDE DEL NORTE	PO BOX 1192	GREEN VALLEY	AZ	85622	520-648-6965	C	300	104	INITIAL MONITORING YEAR - 1995

Notes:
Source: ADEQ Public Water System Quick Look Database.
Water Systems in Green Valley, Sahuarita and associated zip codes are included in this table.
Each Public Water System Name was cross-referenced to the September 2006 ADWR 55-registry database to inventory wells operated by the entity.
Water system types are defined in Arizona Administrative Code Title 18, Article 4, Section 101.
NTNC = Nontransient, noncommunity, serves at least 25 persons 6 months out of the year and has at least 15 service connections.
C = Community Water System, serves at least 25 year round residents and has at least 15 service connections.

TABLE 3
Summary of Primary Well Screening

Well Type	Well Use	Water Use	Number of Wells	Evaluate as Potential Drinking Water Supply Well?
Cancelled or Abandoned			41	No
Exempt / Exploration / Mineral Exploration	Mineral Exploration / Test	None / Other - Mineral Exploration	8	No
Exempt / Exploration / Monitor or Piezometer / Monitor / Geotechnical	Observation / Test / Geotechnical / Monitor / Piezometer	Monitoring / Test / None	39	No
Non-Exempt	Drainage	Drainage	5	No
Non-Exempt / Non-Service	Water Production	Industrial[1] / Commercial[1] / Mining / Other - Mineral Exploration	36	No
Non-Exempt	None Listed	None Listed	2	Yes
Exempt / Non-Exempt / Service / Replacement	Water Production	Municipal / Domestic / Stock / Utility / Domestic-Industrial / Industrial[2] / Irrigation / Irrigation-Domestic	34	Yes
		Total:	***165***	

Notes:

[1] Wells with a Commercial and Industrial water use were evaluated on a well-by-well basis. All wells in the WIA under this category are non-drinking water wells owned by PDSI or Park Corporation.

[2] Wells ESP1, ESP2, and ESP3 with industrial water use are included in this group for further evaluation because they are presently providing water supply to Community Water Company

TABLE 4
Summary of Well Verification

Owner/Operator	ADWR 55-Registry No.	Well Name	Operational Status Determined by Field Check OR Owner Contact	Active Drinking Water Supply Well?	Information Summary
City of Tucson (COT)	620330	DUVAL-1	Not Operational	No	This test well in the vicinity of the PDSTI may have been backfilled. Neither COT or PDSI can locate the well which may be buried. COT does not use this well as a drinking water supply well.
Community Water Company (CWC)	207982	CW-10	Operational	Yes	Active drinking water supply well.
	502546	CW-7	Operational	No	Not being used for drinking water supply.
	543600	CW-8	Operational	No	Not being used for drinking water supply.
	588121	CW-9	Operational	Yes	Active drinking water supply well.
	605898	NP-2	Not Operational	No	Well is capped and disconnected from power and distribution system.
	605899	NP-1	Not Operational	No	Per ADWR records the well was abandoned.
	627483	CW-3	Not Operational	No	Well is capped and disconnected from power and distribution system.
	627485	CW-6	Operational	Yes	Active drinking water supply well.
	801179	Former CC of GV Well	Not Operational	No	Well is not connected to distribution system.
Cooper, M.L. (Private Domestic)	640274	Cooper	Not Operational	No	Owner indicated that well pump is not functioning.
Country Club of Green Valley	501760	CC of GV	Operational	No	Owner/Operator interview indicated well is used for golf course irrigation. Club house, restaurant and drinking water supply provided by CWC.
Davis-Monthan Air Force Base	804995	DM	Not Operational	No	Titan Missile Museum well is disconnected. Water supply for the museum is from CWC.
Farmers Investment Company	624008	C-1	Not Operational	No	Owner/operator indicated that the well was abandoned.
	624010	C-4	Operational	No	Owner/operator indicated the well is used for irrigation water use only.
	624024	W-9	Operational	No	Owner/operator indicated the well is used for irrigation water use only.
	624026	W-12	Operational	No	Owner/operator indicated the well is used for irrigation water use only.
Gatterer, A.H. (Private Domestic)	632969	Gatterer	Operational	Yes	Owner uses well as sole drinking water supply for home.
Green Valley Investors / Haven Golf	504970	GV INV 504970	Operational	No	Two records for single well. Owner/operator indicated well is used for golf course irrigation only. Club house, restaurant and drinking water supply provided by CWC.
	515867	Haven Golf	Operational	No	
	625711	GV INV 625711	Operational	No	Two records for single well. Owner/operator indicated well is used for golf course irrigation only. Club house, restaurant and drinking water supply provided by CWC.
	625712	GV INV 625712	Operational	No	
Green Valley Domestic Water Improvement District (GVDWID)	208825	SI	Operational	Yes	Active drinking water supply well.
	603428	GV-1	Operational	Yes	Active drinking water supply well.
	603429	GV-2	Operational	Yes	Active drinking water supply well.
	603430	GV-6	Not Operational	No	Well used for monitoring only.
Marley Cattle	625276	Marley Cattle	Not Operational	No	Owner/Operator indicated well not used as drinking water supply.
Phelps Dodge Sierrita, Inc.	623102	ESP-1	Operational	Yes	Wells are currently providing drinking water supply to CWC under an interim license agreement with PDSI.
	623103	ESP-2	Operational	Yes	
	623104	ESP-3	Operational	Yes	
Pepper Viner	481995	Pepper Viner	Not Operational	No	Notice of intent to abandon well is on file with ADWR.
Pima County Parks	616156	PC Parks	Not Operational	No	Pima County believes this is the Titan Missile museum well. The well may have been registered a second time when Pima County took over the property in the late 1980s.
Robson Ranch Quail Creek	608584	Robson Ranch	Not Operational	No	ADWR records indicate well was inactive irrigation well in 1982. No well found by field check. Robson Ranch/Quail Creek declined comment on status of well.
Sbragia, H. (Private Domestic)	588039	Sbragia	Operational	No	Resident is connected to CWC. Well water used for landscape irrigation. Owner declined participation in well inventory.
Schneiker, J. (Private Domestic)	611220	Schneiker	Not Operational	No	Well is not connected to power or distribution system. Unable to contact owner.
Torres Blancas Golf Club	543409	Par for Course	Operational	No	Owner/Operator indicated the well is used for irrigation supply only.

TABLE 5
Verified Drinking Water Supply Wells

Owner/Operator	ADWR 55-Registry No.	Well Name	GPS Coordinates[1]	
			Easting	Northing
Community Water Company (CWC)	207982	CW-10	500975	3523257
	588121	CW-9	501137	3528540
	627485	CW-6	500953	3525611
Gatterer, A.H. (Private Domestic)	632969	Gatterer	496712	3519558
Green Valley Domestic Water Improvement District (GVDWID)	208825	SI	497226	3519512
	603428	GV-1	499807	3522239
	603429	GV-2	500367	3521753
Phelps Dodge Sierrita, Inc.	623102	ESP-1	500030.85	3526252.71
	623103	ESP-2	500302.81	3526728.19
	623104	ESP-3	500295.24	3527180.77

Notes:

[1] Coordinates are in UTM, Zone 12, NAD 27, meters.

TABLE 6
Sulfate Concentrations in Samples from Drinking Water Supply Wells

Owner/Operator	ADWR 55-Registry No.	Well Name	Date Sampled	Sulfate (mg/L)
Community Water Company (CWC)	207982	CW-10	12/4/2006	37.2
	588121	CW-9	12/4/2006	44.5
	627485	CW-6	12/4/2006	46.2
Gatterer, A.H. (Private Domestic)	632969	Gatterer	11/15/2006	5.1
Green Valley Domestic Water Improvement District (GVDWID)	208825	SI	10/4/2006	5.9
	603428	GV-1	8/6/2006	41.2
	603429	GV-2	10/4/2006	95.3
Phelps Dodge Sierrita, Inc.	623102	ESP-1	12/4/2006	262
	623103	ESP-2	12/4/2006	29.6
	623104	ESP-3	12/4/2006	36.2

Notes:
mg/L = milligrams per liter.

FIGURES

2550
2600
2650
2700
2750
2800
2850
2900
PDSTI
1 MILE DOWNGRADIENT
OR CROSS GRADIENT
250 mg/L
SULFATE CONTOUR
GREEN VALLEY
SAN IGNACIO DE LA CANOA
Santa Cruz River
MINE DUMP
TWIN BUTTES
Tailings Pond
Sewage Disposal Ponds
Continental

EXPLANATION

- GROUNDWATER ELEVATION CONTOURS (ft amsl, contour interval 25 ft)
- >250-mg/L SULFATE PLUME FOOTPRINT (Based on HGC, 2006)
- 1 MILE DOWNGRADIENT AND CROSS GRADIENT RADIUS AREA
- PLUME FOOTPRINT SEARCH AREA
- WELL INVENTORY AREA
- DOWNGRADIENT DIRECTION
- CROSS GRADIENT DIRECTION

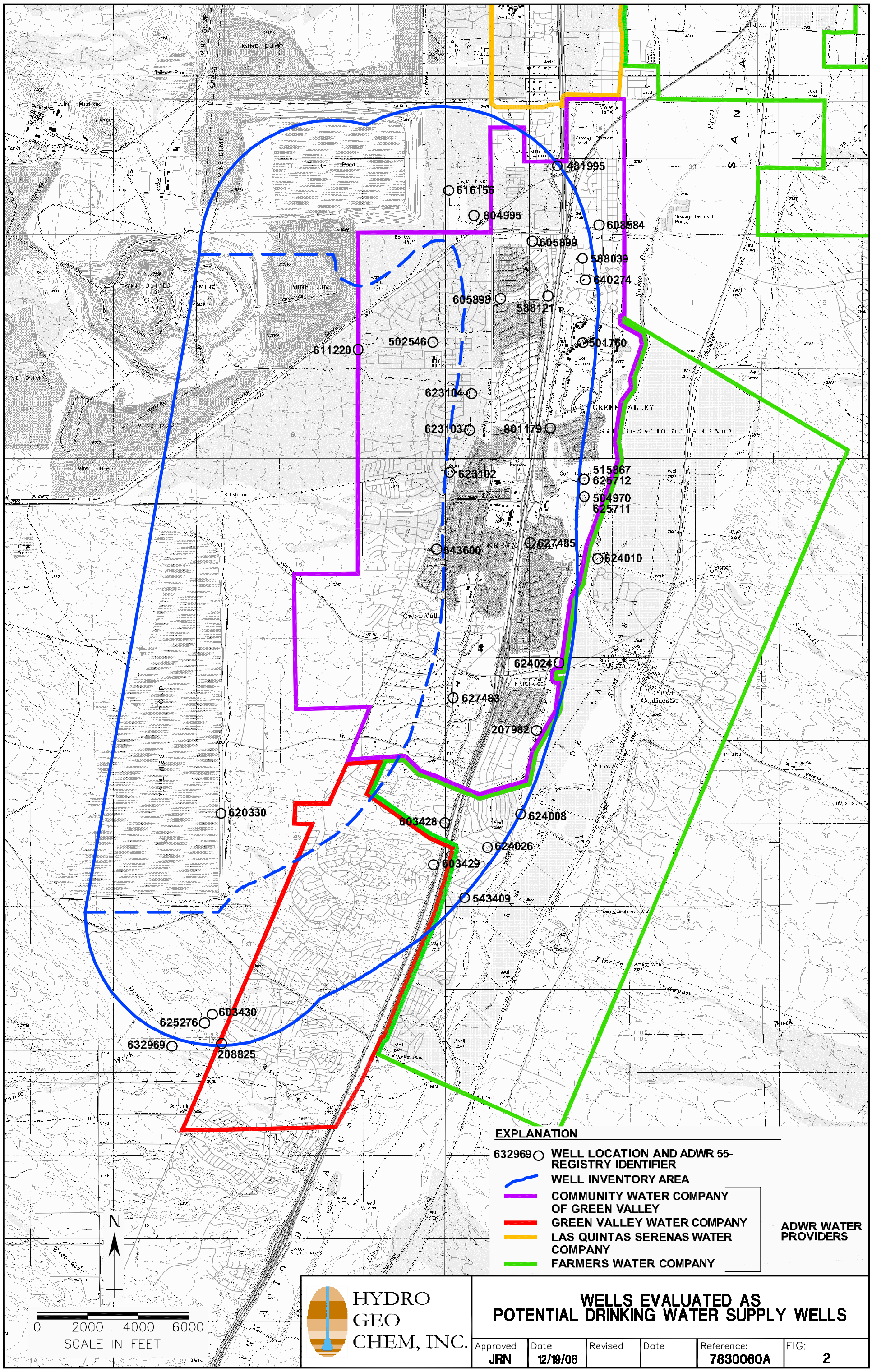
N

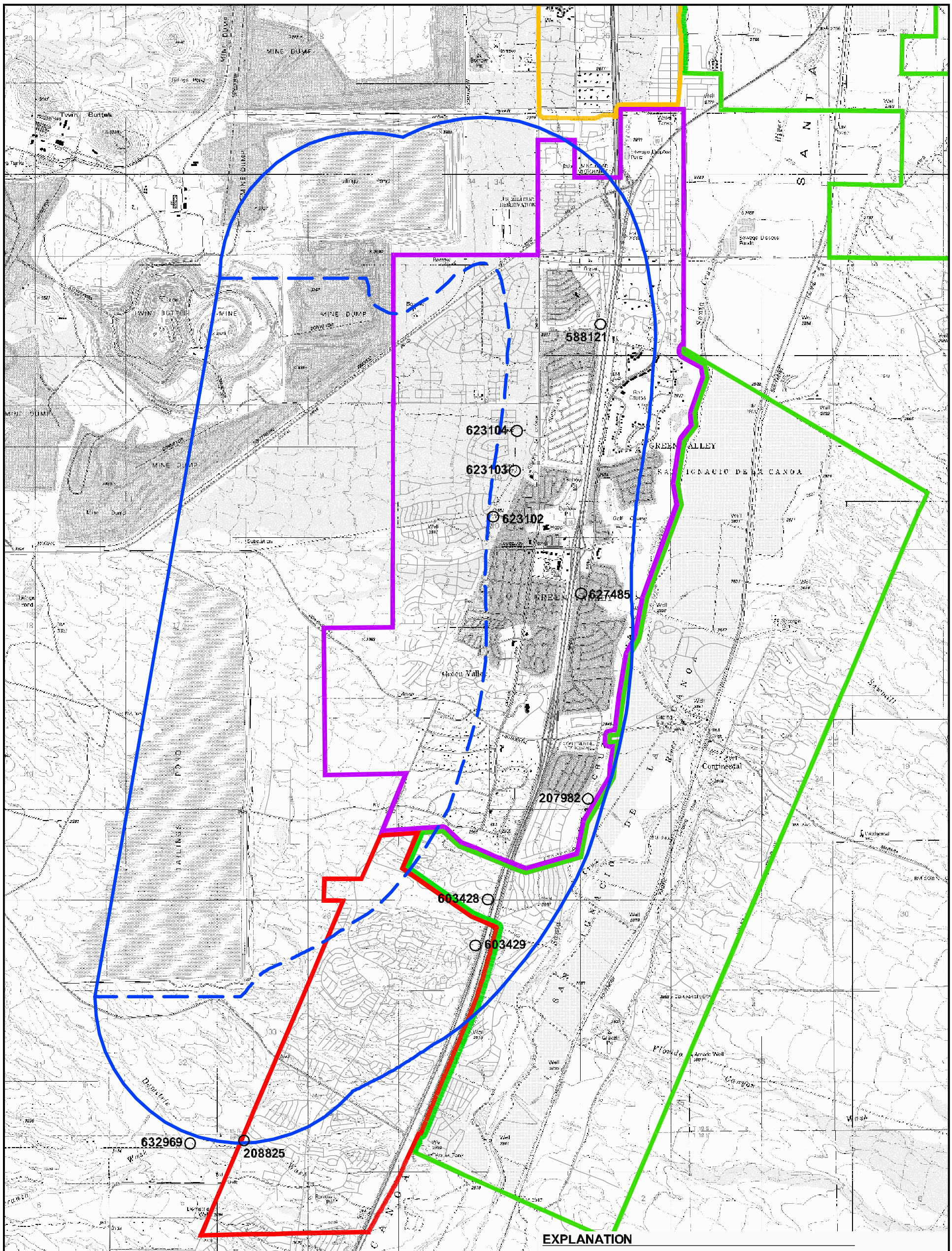
2,000 1,000 0 2,000 4,000 6,000 8,000 Feet

HYDRO GEO CHEM, INC.

SULFATE PLUME, GROUNDWATER ELEVATIONS, HYDRAULIC GRADIENT DIRECTIONS, AND WELL INVENTORY AREA

Approved	Date	Revised	Date	Reference:	FIG.
JRN	12/19/06			7830009G	1


481995
616156
804995
608584
605899
588039
640274
605898
588121
611220
502546
501760
623104
623103
801179
623102
515867
625712
504970
625711
543600
627485
624010
624024
627483
207982
620330
603428
624008
624026
603429
543409
603430
625276
632969
208825
EXPLANATION
632969 WELL LOCATION AND ADWR 55-REGISTRY IDENTIFIER
WELL INVENTORY AREA
COMMUNITY WATER COMPANY OF GREEN VALLEY
GREEN VALLEY WATER COMPANY
LAS QUINTAS SERENAS WATER COMPANY
FARMERS WATER COMPANY
ADWR WATER PROVIDERS
N
0 2000 4000 6000
SCALE IN FEET
HYDRO GEO CHEM, INC.
WELLS EVALUATED AS POTENTIAL DRINKING WATER SUPPLY WELLS
Approved JRN
Date 12/19/06
Revised
Date
Reference: 7830060A
FIG: 2



HYDRO GEO CHEM, INC.

DRINKING WATER SUPPLY WELLS

Approved	Date	Revised	Date	Reference:	FIG:
JRN	12/19/08			7830071A	3

APPENDIX A

WELL INVENTORY AREA SEARCH RESULTS

Cancelled or Abandoned Wells: 41

Well Name	Cadastral Code	55-Registry ID	Township	Range	Section	160-acre Quarter	40-acre Quarter	10-acre Quarter	Well Type	Well Use	Water Use	Approved	Installed	Welldepth	Waterlevel	Lastname	Address	City	State	Zipcode	Cancelled
Cancelled-Abandoned	D(18-13)3aaa	86599	18S	13E	3	NE	NE	NE	EXEMPT	ABANDONED	OTHER - MINERAL EXPLORE		1-Jan-80	500	0	ANAMAX MINING CO	BOX 127	SAHUARITA	AZ	85629	Y
Cancelled-Abandoned	D(18-13)23cad	206385	18S	13E	23	SW	NE	SE	GEOTECHNICAL	ABANDONED	NONE	18-Jan-05		1440	147	COMMUNITY WATER CO OF GRE	ATTN: DAVID PFORDT	GREEN VALLEY	AZ	85622	Y
Cancelled-Abandoned	D(18-13)3bba	400053	18S	13E	3	NW	NW	NE	EXEMPT	ABANDONED	NONE	24-Feb-99		0	0	DUVAL INDUSTRIAL LLC	963 UNIVERSITY BLVD	TUCSON	AZ	85719	Y
Cancelled-Abandoned	D(18-13)5	520339	18S	13E	5				EXPLORATION	MINERAL EXPLORATION	NONE		2-Mar-88	0	0	CYPRUS EXPLORATION	PO BOX 1126	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)5dad	523830	18S	13E	5	SE	NE	SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING			0	0	CYPRUS TWIN BUTTES,	PO BOX 1406	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)5dad	523831	18S	13E	5	SE	NE	SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING			0	0	CYPRUS TWIN BUTTES,	PO BOX 1406	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)5dac	526358	18S	13E	5	SE	NE	SW	NON-EXEMPT	DRAINAGE	DRAINAGE			0	0	CYPRUS TWIN BUTTES,	PO BOX 527	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)4bcc	528146	18S	13E	4	NW	SW	SW	WITHDRAWAL PERMIT	WATER PRODUCTION	MINING			0	0	CYPRUS TWIN BUTTES,	PO BOX 1126	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)4bcc	528147	18S	13E	4	NW	SW	SW	WITHDRAWAL PERMIT	WATER PRODUCTION	MINING			0	0	CYPRUS TWIN BUTTES,	PO BOX 1126	GREEN VALLEY	AZ	85622	Y
Cancelled-Abandoned	D(18-13)5	528727	18S	13E	5				EXPLORATION	ABANDONED	NONE		2-Sep-90	782	0	CYPRUS MINERALS PARK	PO BOX 1126	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)5dac	528907	18S	13E	5	SE	NE	SW	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL			0	0	CYPRUS TWIN BUTTES,	PO BOX 1126	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)5dda	529500	18S	13E	5	SE	SE	NE	WITHDRAWAL PERMIT	WATER PRODUCTION	MINING			0	0	CYPRUS TWIN BUTTES,	PO BOX 1126	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)4bab	529504	18S	13E	4	NW	SW	NW	WITHDRAWAL PERMIT	WATER PRODUCTION	MINING			0	0	CYPRUS TWIN BUTTES,	PO BOX 1126	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)4bcb	529505	18S	13E	4	NW	SW	NW	WITHDRAWAL PERMIT	WATER PRODUCTION	MINING			0	0	CYPRUS TWIN BUTTES,	PO BOX 1126	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)4bcb	529506	18S	13E	4	NW	SW	NW	WITHDRAWAL PERMIT	WATER PRODUCTION	MINING			0	0	CYPRUS TWIN BUTTES,	PO BOX 1126	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)14bab	529814	18S	13E	14	NW	NE	NW	EXPLORATION	GEOTECHNICAL	NONE			0	0	TEXACO REFINING	3333 E CAMELBACK 170	PHOENIX	AZ	85018	Y
Cancelled	D(18-13)4	531216	18S	13E	4				EXPLORATION	MINERAL EXPLORATION	NONE			0	0	CYPRUS TWIN BUTTES	PO BOX 1126	GREEN VALLEY	AZ	85622	Y
Cancelled-Abandoned	D(18-13)5	531261	18S	13E	5				EXPLORATION	MINERAL EXPLORATION	NONE		3-Jul-91	2434	0	CYPRUS TWIN BUTTES	PO BOX 1126	GREEN VALLEY	AZ	85622	Y
Abandoned	D(18-13)20	541873	18S	13E	20				EXPLORATION	GEOTECHNICAL	NONE			0	0	CYPRUS SIERRITA CORP,	BOX 527	GREEN VALLEY	AZ	85622	
Cancelled	D(17-13)32	543329	17S	13E	32				EXPLORATION	MINERAL EXPLORATION	NONE			0	0	CYPRUS SIERRITA	PO BOX 527	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)5	569235	18S	13E	5				MINERAL EXPLORATION	MINERAL EXPLORATION	NONE	1-Jul-98		0	0	CYPRUS SIERRITA CORPORATI	PO BOX 527	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)11	582583	18S	13E	11				GEOTECHNICAL	GEOTECHNICAL	NONE	1-Aug-00		0	0	PIMA COUNTY WASTEWATER MA	201 NORTH STONE AVENUE 8TH FLOOR	TUCSON	AZ	85701	Y
Cancelled	D(18-13)32	584585	17S	13E	32				MINERAL EXPLORATION	MINERAL EXPLORATION	TEST	12-Dec-00		0	0	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)5	584586	18S	13E	5				MINERAL EXPLORATION	MINERAL EXPLORATION	TEST	12-Dec-00		0	0	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)1	586138	18S	13E	1				GEOTECHNICAL	GEOTECHNICAL	NONE	19-Mar-01		0	0	ROBSON RANCH MOUNTAINS LL	9532 E RIGGS RD	SUN LAKES	AZ	85248	Y
Cancelled	D(18-13)5	589225	18S	13E	5				MINERAL EXPLORATION	MINERAL EXPLORATION	NONE	15-Oct-01		0	0	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)32	589228	17S	13E	32				MINERAL EXPLORATION	MINERAL EXPLORATION	NONE	15-Oct-01		0	0	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)9aac	591054	18S	13E	9	NE	NE	SW	EXEMPT	WATER PRODUCTION	DOMESTIC	22-Feb-02		0	0	SIFFORD, GREGORY L	PO BOX 1332	GREEN VALLEY	AZ	85622	Y
Cancelled	D(18-13)11aca	596518	18S	13E	11	NE	SW	NE	MONITOR	MONITOR	MONITORING	24-Dec-02		0	0	SHELL OIL PRODUCTS US	9524 W CAMELBACK RD #130	GLENDALE	AZ	85305	Y
Cancelled	D(18-13)11aca	596519	18S	13E	11	NE	SW	NE	MONITOR	MONITOR	MONITORING	24-Dec-02		0	0	SHELL OIL PRODUCTS US	9524 W CAMELBACK RD #130	GLENDALE	AZ	85305	Y
Cancelled	D(18-13)11ca	596520	18S	13E	11	NE	SW	NE	MONITOR	MONITOR	MONITORING	24-Dec-02		0	0	SHELL OIL PRODUCTS US	9524 W CAMELBACK RD #130	GLENDALE	AZ	85305	Y
Cancelled	D(18-13)11aca	596521	18S	13E	11	NE	SW	NE	MONITOR	MONITOR	MONITORING	24-Dec-02		0	0	SHELL OIL PRODUCTS US	9524 W CAMELBACK RD #130	GLENDALE	AZ	85305	Y
Cancelled	D(18-13)9caa	597267	18S	13E	9	SW	NE	NE	EXEMPT	WATER PRODUCTION	DOMESTIC	01-Aug-03		0	0	SIFFORD, GREGORY L	PO BOX 1332	GREEN VALLEY	AZ	85622	Y
Cancelled-F-1	D(17-13)35dab	608578	17S	13E	35	SE	SW	NW	NON-EXEMPT	ABANDONED	IRRIGATION		10-May-84	472	0	ANAMAX MINING CO	PO BOX 127	SAHUARITA	AZ	85629	Y
Cancelled	D(17-13)35acc	608580	17S	13E	35	NE	SW	SW	NON-EXEMPT	ABANDONED	IRRIGATION		1-Oct-61	305	0	PIONEER TRUST CO	6245 E BROADWAY	TUCSON	AZ	85711	Y
Cancelled-Abandoned	D(17-13)34acc	620328	17S	13E	34	NE	SW	SW	EXEMPT	WATER PRODUCTION	MUNICIPAL		1-Dec-73	474	0	ANAMAX MINING CO	PO BOX 127	SAHUARITA	AZ	85629	Y
Cancelled	D(18-13)10aad	623107	18S	13E	10	NE	NE	SE	EXEMPT	ABANDONED	NONE	21-Aug-01	6-Jul-56	650	325	WLC GREEN VALLEY LP	7100 E LINCOLN RD C 136	SCOTTSDALE	AZ	85253	Y
Cancelled-Abandoned	D(18-13)10dcc	623108	18S	13E	10	SE	SW	SW	EXEMPT	TEST	NONE		1-Jul-56	610	500	RICHLAND DEVEL CORP	4715 E FT LOWELL RD	TUCSON	AZ	85712	Y
Abandoned	D(18-13)10bab	623109	18S	13E	10	NW	NW	NW	EXEMPT	ABANDONED	NONE	21-Aug-01		0	450	WLC GREEN VALLEY LP	7100 E LINCOLN ROAD C 13	SCOTTSDALE	AZ	85253	Y
CW-1 - Abandoned	D(18-13)15cc	627482	18S	13E	15	NE	SW	SW	NON-EXEMPT	WATER PRODUCTION	DOMESTIC		13-Jun-63	490	311	COMMUNITY WATER CO	PO BOX 1078	GREEN VLY	AZ	85614	Y
Cancelled	D(18-13)3dab	627486	18S	13E	3	SE	SW	NW	NON-EXEMPT	WATER PRODUCTION	DOMESTIC		28-Jun-82	1065	410	COMMUNITY WATER CO,	PO BOX 1078	GREEN VALLEY	AZ	85614	Y

Well Use or Water Use = Mineral Exploration: 8

Well Name	Cadastral Code	55-Registry ID	Township	Range	Section	160-acre Quarter	40-acre Quarter	10-acre Quarter	Well Type	Well Use	Water Use	Approved	Installed	Welldepth	Waterlevel	Lastname	Address	City	State	Zipcode	Cancelled
PCA-M-5	D(17-13)34baa	87387	17S	13E	34	NW	NE	NE	EXEMPT	TEST	OTHER - MINERAL EXPLORE		25-Jul-81	665	445	THE PARK CO OF AZ IN	6200 RIVERSIDE DR	CLEVELAND	OH	44135	
PCA-M-7	D(17-13)34caa	87389	17S	13E	34	SW	NE	NE	EXEMPT	MINERAL EXPLORATION	OTHER - MINERAL EXPLORE		15-Jul-81	670	449	THE PARK CO OF AZ IN	6200 RIVERSIDE DR	CLEVELAND	OH	44135	
PCA-M-8	D(17-13)34cda	87390	17S	13E	34	SW	SE	NE	EXEMPT	MINERAL EXPLORATION	OTHER - MINERAL EXPLORE		2-Jul-81	660	437	THE PARK CO OF AZ IN	6200 RIVERSIDE DR	CLEVELAND	OH	44135	
PCA-M-9	D(17-13)34acd	501652	17S	13E	34	NE	SW	SE	EXEMPT	TEST	OTHER - MINERAL EXPLORE		30-Nov-81	660	419	THE PARK CO OF AZ IN	6200 RIVERSIDE DRIVE	CLEVELAND	OH	44135	
PCA-M-10	D(17-13)34bdd	501653	17S	13E	34	NW	SE	SE	EXEMPT	MINERAL EXPLORATION	OTHER - MINERAL EXPLORE		21-Nov-81	1050	447	THE PARK CO OF AZ IN	6200 RIVERSIDE DRIVE	CLEVELAND	OH	44135	
PCA-21111	D(18-13)8aab	508425	18S	13E	8	NE	NE	NW	EXPLORATION	MINERAL EXPLORATION	NONE		08-Aug-84	0	0	THE PARK CO OF AZ IN,C	6200 RIVERSIDE DRIVE	CLEVELAND	OH	44135	
PCA-2125	D(17-13)33cac	514015	17S	13E	33	SW	NE	SW	EXPLORATION	MINERAL EXPLORATION	NONE		4-Jun-86	0	0	THE PARK CO OF AZ IN	6200 RIVERSIDE DRIVE	CLEVELAND	OH	44135	
PDS	D(18-13)4bbb	599798	18S	13E	4	NW	NW	NW	MINERAL EXPLORATION	MINERAL EXPLORATION	OTHER - MINERAL EXPLORE	4-Aug-03		0	0	TWIN BUTTES PROPERTIES IN	18550 S LA CANADA DR	SAHUARITA	AZ	85629	

Well Type, Well Use, or Water Use = Geotechnical, Monitor or Piezometer, Monitor, or Monitoring: 39

Well Name	Cadastral Code	55-Registry ID	Township	Range	Section	160-acre Quarter	40-acre Quarter	10-acre Quarter	Well Type	Well Use	Water Use	Approved	Installed	Welldepth	Waterlevel	Lastname	Address	City	State	Zipcode	Cancelled
PCA-M-6	D(17-13)34bdd	87388	17S	13E	34	NW	SE	SE	EXEMPT	OBSERVATION	MONITORING		23-Jul-81	660	446	THE PARK CO OF AZ IN	6200 RIVERSIDE DR	CLEVELAND	OH	44135	
PDS-MH-26A	D(18-13)9aaa	201527	18S	13E	9	NE	NE	NE	MONITOR	MONITOR	MONITORING	10-Dec-03		530	445	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	
PDS-MH-25A	D(18-13)9dda	201528	18S	13E	9	SE	SE	NE	MONITOR	MONITOR	MONITORING	10-Dec-03		540	430	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	
PDS-MH-26C	D(18-13)9dda	208426	18S	13E	9	SE	SE	NE	MONITOR	MONITOR	MONITORING	30-Jun-05		0	0	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	
PDS-MH-26B	D(18-13)9aaa	208427	18S	13E	9	NE	NE	NE	MONITOR	MONITOR	MONITORING	30-Jun-05		0	0	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	
PDS-MH-25C	D(18-13)9aaa	208428	18S	13E	9	NE	NE	NE	MONITOR	MONITOR	MONITORING	30-Jun-05		0	0	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	
PDS-MH-25B	D(18-13)9dda	208429	18S	13E	9	SE	SE	NE	MONITOR	MONITOR	MONITORING	30-Jun-05		0	0	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	
PCA-M-11	D(17-13)34aab	501654	17S	13E	34	NE	NE	NW	EXEMPT	OBSERVATION	MONITORING		9-Jul-82	635	395	THE PARK CO OF AZ IN	6200 RIVERSIDE DRIVE	CLEVELAND	OH	44135	
Private	D(18-13)23a	509212	18S	13E	23	NE			EXPLORATION	PIEZOMETER	NONE		25-Sep-84	0	0	H LEE MYERS INC	1131 N WINSTEL BLVD	TUCSON	AZ	85716	
PCA	D(17-13)33cac	511894	17S	13E	33	SW	NE	SW	EXPLORATION	PIEZOMETER	NONE		1-Sep-85	664	0	ANAMAX MINING CO	PO BOX 127	SAHUARITA	AZ	85629	
PCA-2124	D(17-13)34ccc	511896	17S	13E	34	SW	SW	SW	EXPLORATION	PIEZOMETER	NONE		1-Aug-85	600	480	THE PARK CO OF AZ IN	6200 RIVERSIDE DRIVE	CLEVELAND	OH	44135	
PDS-MH-15W	D(18-13)21cbc	528093	18S	13E	21	SW	NW	SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING		15-Jun-90	466	349	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS-MH-15E	D(18-13)21cbd	528094	18S	13E	21	SW	NW	SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		22-Jun-90	467	345	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS-MH-14	D(18-13)16bcc	528098	18S	13E	16	NW	SW	SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING		12-Jun-90	561	403	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS-MH-16W	D(18-13)28cbb	528099	18S	13E	28	SW	NW	NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING		29-Jun-90	460	233	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS-MH-16E	D(18-13)28cba	528100	18S	13E	28	SW	NW	NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		01-Jul-90	460	327	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
Texaco	D(18-13)14bab	530158	18S	13E	14	NW	NE	NW	MONITOR OR PIEZOMETER	MONITOR	NONE		14-Dec-90	110	0	TEXACO REFINING	3333 E CAMELBACK 170	PHOENIX	AZ	85018	
PDS	D(18-13)20daa	531366	18S	13E	20	SE	NE	NE	MONITOR OR PIEZOMETER	PIEZOMETER	TEST		10-Apr-91	200	0	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS	D(18-13)29dca	531367	18S	13E	29	SE	SW	NE	MONITOR OR PIEZOMETER	PIEZOMETER	TEST		11-Apr-91	200	0	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS	D(18-13)17add	531368	18S	13E	17	NE	SE	SE	MONITOR OR PIEZOMETER	PIEZOMETER	TEST		12-Apr-91	251	0	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
Texaco	D(18-13)14bab	558095	18S	13E	14	NW	NE	NW	MONITOR OR PIEZOMETER	GEOTECHNICAL	NONE		20-Jun-96	55	0	TEXACO CORPORATION	10 UNIVERSAL CTY PLZ	UNIVERSAL CITY	CA	91608	
PDS-MH-24	D(18-13)21bcc	563799	18S	13E	21	NW	SW	SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING		17-Sep-97	468	425	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PC Wastewater	D(18-13)11	582584	18S	13E	11				GEOTECHNICAL	GEOTECHNICAL	NONE	1-Aug-00		30	0	PIMA COUNTY WASTEWATER MA	201 NORTH STONE AVENUE 8TH FLOOR	TUCSON	AZ	85701	
PCA-1225	D(17-13)34bad	634394	17S	13E	34	NW	NE	SE	EXEMPT	OBSERVATION	MONITORING		6-Feb-70	650	446	THE PARK CO OF AZ IN	6200 RIVERSIDE DRIVE	CLEVELAND	OH	44135	
PDS-MH-1	D(18-13)16bbb	803629	18S	13E	16	NW	NW	NW	MONITOR OR PIEZOMETER	TEST	MONITORING		01-Nov-75	520	435	CYPRUS SIERRITA,	PO BOX 3299	ENGLEWOOD	CO	80155	
MH-3	D(18-13)16bcc	803630	18S	13E	16	NW	SW	SW	EXEMPT	TEST	MONITORING		01-Feb-76	520	409	CYPRUS SIERRITA,	PO BOX 3299	ENGLEWOOD	CO	80155	
MH-4	D(18-13)21bbb	803631	18S	13E	21	NW	NW	NW	EXEMPT	TEST	MONITORING		01-Mar-76	540	376	CYPRUS SIERRITA,	PO BOX 3299	ENGLEWOOD	CO	80155	
MH-5	D(18-13)21bcc	803632	18S	13E	21	NW	SW	SW	EXEMPT	TEST	MONITORING		01-Mar-76	640	343	CYPRUS SIERRITA,	PO BOX 3299	ENGLEWOOD	CO	80155	
MH-6	D(18-13)28bbb	803633	18S	13E	28	NW	NW	NW	EXEMPT	TEST	MONITORING		01-Mar-76	960	340	CYPRUS SIERRITA CORP,	PO BOX 3299	ENGLEWOOD	CO	80155	
PDS-MH-7	D(18-13)28ccb	803634	18S	13E	28	SW	SW	NW	EXEMPT	TEST	MONITORING		1-Apr-76	1100	316	CYPRUS SIERRITA	PO BOX 3299	ENGLEWOOD	CO	80155	
MH-9	D(18-13)29dcd	803635	18S	13E	29	SE	SW	SE	EXEMPT	TEST	MONITORING		01-Jul-76	1400	343	CYPRUS SIERRITA,	PO BOX 3299	ENGLEWOOD	CO	80155	
PDS-MH-11	D(18-13)21aaa	803637	18S	13E	21	NE	NE	NE	MONITOR OR PIEZOMETER	TEST	MONITORING		01-Feb-77	820	332	CYPRUS SIERRITA CORP,	PO BOX 3299	ENGLEWOOD	CO	80155	
MH-12	D(18-13)16daa	803638	18S	13E	16	SE	NE	NE	EXEMPT	TEST	MONITORING		01-Feb-77	800	387	CYPRUS SIERRITA CORP,	PO BOX 3299	ENGLEWOOD	CO	80155	
PDS-MH-13	D(18-13)21add	803639	18S	13E	21	NE	SE	SE	MONITOR OR PIEZOMETER	TEST	MONITORING		01-Feb-77	1425	281	CYPRUS SIERRITA,	PO BOX 3299	ENGLEWOOD	CO	80155	
PDS-MH-28	D(18-13)21bbb	903648	18S	13E	21	NW	NW	NW	MONITOR		MONITORING	18-Nov-05		0	0	PHELPS DODGE SIERRITA INC	W DUVAL MINE RD PO BOX	GREEN VALLEY	AZ	85622	
PDS-MH-29	D(18-13)28bba	903649	18S	13E	28	NW	NW	NE	MONITOR		MONITORING	18-Nov-05		0	0	PHELPS DODGE SIERRITA INC	W DUVAL MINE RD PO BOX	GREEN VALLEY	AZ	85622	
PDS-MH-13A	D(18-13)21add	904071	18S	13E	21	NE	SE	SE	MONITOR		MONITORING	24-Jan-06		0	0	PHELPS DODGE SIERRITA	W. DUVAL MINE RD PO BOX	GREEN VALLEY	AZ	85622	
PDS-MH-13B	D(18-13)21add	904072	18S	13E	21	NE	SE	SE	MONITOR		MONITORING	24-Jan-06		0	0	PHELPS DODGE SIERRITA INC	W DUVAL MINE RD PO BOX	GREEN VALLEY	AZ	85622	
PDS-MH-13C	D(18-13)21add	904073	18S	13E	21	NE	SE	SE	MONITOR		MONITORING	24-Jan-06		0	0	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	

Well Use and Water Use = Drainage: 5

Well Name	Cadastral Code	55-Registry ID	Township	Range	Section	160-acre Quarter	40-acre Quarter	10-acre Quarter	Well Type	Well Use	Water Use	Approved	Installed	Welldepth	Waterlevel	Lastname	Address	City	State	Zipcode	Cancelled
PDS	D(18-13)5dab	526359	18S	13E	5	SE	NE	NW	NON-EXEMPT	DRAINAGE	DRAINAGE		06-Apr-90	310	86	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	
PDS	D(18-13)5daa	526360	18S	13E	5	SE	NE	NE	NON-EXEMPT	DRAINAGE	DRAINAGE		28-Mar-90	500	105	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	
PDS	D(18-13)5daa	526361	18S	13E	5	SE	NE	NE	NON-EXEMPT	DRAINAGE	DRAINAGE		16-Apr-90	500	125	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	
PDS	D(18-13)5daa	526362	18S	13E	5	SE	NE	NE	NON-EXEMPT	DRAINAGE	DRAINAGE		09-Apr-90	500	125	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	
PDS	D(18-13)4bcc	526363	18S	13E	4	NW	SW	SW	NON-EXEMPT	DRAINAGE	DRAINAGE		25-Mar-90	405	137	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	

Well Use = Water Production and Water Use = Industrial, Mining, or Other - Mineral Explore: 36

Well Name	Cadastral Code	55-Registry ID	Township	Range	Section	160-acre Quarter	40-acre Quarter	10-acre Quarter	Well Type	Well Use	Water Use	Approved	Installed	Welldepth	Waterlevel	Lastname	Address	City	State	Zipcode	Cancelled
PCA-I-13	D(18-13)4acc	87309	18S	13E	4	NE	SW	SW	NON-SERVICE	WATER PRODUCTION	MINING		26-Aug-82	1167	777	TWIN BUTTES PROPERTIES, I	50 S. LA CANADA DR., SUIT	SAHUARITA	AZ	85629	
PDS-IW-22	D(18-13)21cbc	200554	18S	13E	21	SW	NW	SW	NON-SERVICE	WATER PRODUCTION	INDUSTRIAL	26-Nov-03	15-Jan-04	590	343	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	
PDS-IW-23	D(18-13)21ccb	200555	18S	13E	21	SW	SW	NW	NON-SERVICE	WATER PRODUCTION	INDUSTRIAL	26-Nov-03	13-Feb-04	964	340	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	
PDS-IW-24	D(18-13)28bbb	200556	18S	13E	28	NW	NW	NW	NON-SERVICE	WATER PRODUCTION	INDUSTRIAL	26-Nov-03	24-Jan-04	880	315	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	
PDS-IW-3A	D(18-13)28cbc	201732	18S	13E	28	SW	NW	SW	NON-EXEMPT	WATER PRODUCTION	MINING	13-Jan-04	04-Mar-04	1050	332	PHELPS DODGE SIERRITA INC	6200 W DUVAL MINE RD	GREEN VALLEY	AZ	85622	
PDS-IW-11	D(18-13)21cbc	508235	18S	13E	21	SW	NW	SW	NON-EXEMPT	WATER PRODUCTION	MINING		24-Aug-84	605	347	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS-IW-8	D(18-13)28bcc	508236	18S	13E	28	NW	SW	SW	NON-EXEMPT	WATER PRODUCTION	MINING		26-Jul-84	783	327	CYPRUS SIERRITA CORP,	P O BOX 527	GREEN VALLEY	AZ	85622	
PDS-IW-10	D(18-13)21cbc	508237	18S	13E	21	SW	NW	SW	NON-EXEMPT	WATER PRODUCTION	MINING		15-Aug-84	831	320	CYPRUS SIERRITA CORP,	PO BOX 3299	ENGLEWOOD	CO	80155	
PDS-IW-9	D(18-13)28bcc	508238	18S	13E	28	NW	SW	SW	NON-EXEMPT	WATER PRODUCTION	MINING		06-Aug-84	853	318	CYPRUS SIERRITA CORP,	PO BOX 3299	ENGLEWOOD	CO	80155	
PDS-IW-12	D(18-13)21bcb	545555	18S	13E	21	NW	SW	NW	NON-EXEMPT	WATER PRODUCTION	OTHER - MINERAL EXPLORE		06-Dec-94	625	304	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS-IW-13	D(18-13)21bbc	545556	18S	13E	21	NW	NW	SW	NON-EXEMPT	WATER PRODUCTION	OTHER - MINERAL EXPLORE		13-Dec-94	495	318	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS-IW-14	D(18-13)21bbb	545557	18S	13E	21	NW	NW	NW	NON-EXEMPT	WATER PRODUCTION	COMMERCIAL		20-Dec-94	550	308	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS-IW-15	D(18-13)16ccc	545558	18S	13E	16	SW	SW	SW	NON-EXEMPT	WATER PRODUCTION	OTHER - MINERAL EXPLORE		08-Jan-95	548	315	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS-IW-16	D(18-13)16ccb	545559	18S	13E	16	SW	SW	NW	NON-EXEMPT	WATER PRODUCTION	OTHER - MINERAL EXPLORE		16-Jan-95	470	337	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS-IW-17	D(18-13)16cbc	545560	18S	13E	16	SW	NW	SW	NON-EXEMPT	WATER PRODUCTION	OTHER - MINERAL EXPLORE		20-Jan-95	502	355	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS-IW-18	D(18-13)16cbb	545561	18S	13E	16	SW	NW	NW	NON-EXEMPT	WATER PRODUCTION	OTHER - MINERAL EXPLORE		25-Jan-95	508	365	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS-IW-19	D(18-13)16bcc	545562	18S	13E	16	NW	SW	SW	NON-EXEMPT	WATER PRODUCTION	OTHER - MINERAL EXPLORE		30-Jan-95	544	340	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS-IW-20	D(18-13)16bcb	545563	18S	13E	16	NW	SW	NW	NON-EXEMPT	WATER PRODUCTION	OTHER - MINERAL EXPLORE		06-Feb-95	506	342	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS-IW-21	D(18-13)16bbc	545564	18S	13E	16	NW	NW	SW	NON-EXEMPT	WATER PRODUCTION	OTHER - MINERAL EXPLORE		16-Feb-95	620	345	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PDS-IW-6A	D(18-13)21bcc	545565	18S	13E	21	NW	SW	SW	NON-EXEMPT	WATER PRODUCTION	OTHER - MINERAL EXPLORE		29-Nov-94	492	313	CYPRUS SIERRITA CORP,	PO BOX 527	GREEN VALLEY	AZ	85622	
PCA-P-1114	D(18-13)5aad	608517	18S	13E	5	NE	NE	SE	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		30-Mar-80	500	25	TWIN BUTTES PROPERTIES	18550 S. LA CANADA DR.	SAHUARITA	AZ	85629	

PCA-I-12	D(18-13)4acc	608523	18S	13E	4	NE	SW	SW	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		11-Aug-78	1019	747	TWIN BUTTES PROPERTIES, I	50 S. LA CANADA DR., SUIT	SAHUARITA	AZ	85629	
PCA-I-11	D(18-13)4caa	608524	18S	13E	4	SW	NE	NE	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		18-Jan-77	1045	861	TWIN BUTTES PROPERTIES, I	50 S. LA CANADA DR., SUIT	SAHUARITA	AZ	85629	
PCA-I-10	D(18-13)4cab	608525	18S	13E	4	SW	NE	NW	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		27-Nov-76	932	705	TWIN BUTTES PROPERTIES, I	50 S. LA CANADA DR., SUIT	SAHUARITA	AZ	85629	
PCA-I-9	D(18-13)4bdc	608526	18S	13E	4	NW	SE	SW	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		20-May-76	900	654	TWIN BUTTES PROPERTIES, I	50 S. LA CANADA DR., SUIT	SAHUARITA	AZ	85629	
PCA-I-8	D(18-13)4cab	608527	18S	13E	4	SW	NE	NW	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		28-Apr-76	954	665	TWIN BUTTES PROPERTIES, I	50 S. LA CANADA DR., SUIT	SAHUARITA	AZ	85629	
PCA-I-7	D(18-13)4bdc	608528	18S	13E	4	NW	SE	SW	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		07-May-76	980	601	TWIN BUTTES PROPERTIES, I	50 S. LA CANADA DR., SUIT	SAHUARITA	AZ	85629	
PCA-I-6	D(18-13)4bdc	608529	18S	13E	4	NW	SE	SW	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		16-Oct-75	950	760	TWIN BUTTES PROPERTIES, I	50 S. LA CANADA DR., SUIT	SAHUARITA	AZ	85629	
PDS-ESP-4	D(18-13)10dcd	623105	18S	13E	10	SE	SW	SE	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		15-Mar-67	1045	357	CYPRUS SIERRITA CORP	PO BOX 3299	ENGLEWOOD	CO	80155	
PDS-IW-1	D(18-13)29dcd	623129	18S	13E	29	SE	SW	SE	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		31-Jul-78	855	350	CYPRUS SIERRITA CORP,	PO BOX 3299	ENGLEWOOD	CO	80155	
PDS-IW-3	D(18-13)28cbc	623131	18S	13E	28	SW	NW	SW	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		09-Jul-78	1047	250	CYPRUS SIERRITA CORP,	PO BOX 3299	ENGLEWOOD	CO	80155	
PDS-IW-4	D(18-13)28bcb	623132	18S	13E	28	NW	SW	NW	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		23-Jul-78	946	350	CYPRUS SIERRITA CORP,	PO BOX 3299	ENGLEWOOD	CO	80155	
PDS-IW-5	D(18-13)28bbb	623133	18S	13E	28	NW	NW	NW	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		13-Jun-79	956	298	CYPRUS SIERRITA CORP,	PO BOX 3299	ENGLEWOOD	CO	80155	
PDS-IW-6	D(18-13)21bcc	623134	18S	13E	21	NW	SW	SW	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		21-Jun-79	489	308	CYPRUS SIERRITA CORP,	PO BOX 3299	ENGLEWOOD	CO	80155	
PDS-IW-7	D(18-13)29cdd	623135	18S	13E	29	SW	SE	SE	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		27-Sep-79	1050	339	CYPRUS SIERRITA CORP,	PO BOX 3299	ENGLEWOOD	CO	80155	

Non-Exempt Wells with No Well Use or Water Use (Retained for Evaluation as a Potential Drinking Water Supply Well): 2

Well Name	Cadastral Code	55-Registry ID	Township	Range	Section	160-acre Quarter	40-acre Quarter	10-acre Quarter	Well Type	Well Use	Water Use	Approved	Installed	Welldepth	Waterlevel	Lastname	Address	City	State	Zipcode	Cancelled
Pepper Viner	D(18-13)35	481995	17S	13E	35				NON-EXEMPT					0	0	PEPPER VINER AT RANCHO AB	5633 E GRANT RD	TUCSON	AZ	85712	
CW-6	D(18-13)14bdb	627485	18S	13E	14	NW	SE	NW	NON-EXEMPT				9-May-77	840	225	COMMUNITY WATER CO	PO BOX 1078	GREEN VALLEY	AZ	85614	

Well Use = Water Production and Water Use = Domestic, Municipal, Utility (Water Co), Domestic-Industrial, IrrigationStock (Retained for Evaluation as a Potential Drinking Water Supply Well): 34

Well Name	Cadastral Code	55-Registry ID	Township	Range	Section	160-acre Quarter	40-acre Quarter	10-acre Quarter	Well Type	Well Use	Water Use	Approved	Installed	Welldepth	Waterlevel	Lastname	Address	City	State	Zipcode	Cancelled
CWC	D(18-13)23cac	207982	18S	13E	23	SW	NE	SW	SERVICE	WATER PRODUCTION	UTILITY (WATER CO)	12-Jul-05		1140	97	COMMUNITY WATER CO OF GRE	ATTN: DAVID PFORDT	GREEN VALLEY	AZ	85622	
GV Water	D(19-13)5aaa	208825	19S	13E	5	NE	NE	NE	SERVICE	WATER PRODUCTION	UTILITY (WATER CO)	28-Dec-05		650	222	GREEN VALLEY WATER COMPAN	P O BOX 623	GREEN VALLEY	AZ	85622	
GV Country Club	D(18-13)2dca	501760	18S	13E	2	SE	SW	NE	NON-EXEMPT	WATER PRODUCTION	IRRIGATION		27-Aug-82	955	249	CTY CLUB OF GREEN VL	PO BOX 681	GREEN VLY	AZ	85614	
CW-7	D(18-13)3dcb	502546	18S	13E	3	SE	SW	NW	REPLACEMENT WELL IN NEW LOCATI	WATER PRODUCTION	DOMESTIC		28-Jun-82	1065	410	COMMUNITY WATER CO,	PO BOX 1078	GREEN VALLEY	AZ	85614	
GV Investrors	D(18-13)11dcd	504970	18S	13E	11	SE	SW	SE	NON-EXEMPT	WATER PRODUCTION	IRRIGATION		30-Mar-83	800	187	GREEN VALLEY INVESTR	231 W ESPERANZA	GREEN VALLEY	AZ	85614	
Haven Golf	D(18-13)11dca	515867	18S	13E	11	SE	SW	NE	NON-EXEMPT	WATER PRODUCTION	IRRIGATION		12-Nov-86	500	160	HAVEN GOLF ASSOC.	BOX 686	GREEN VALLEY	AZ	85622	
Par for Course	D(18-13)27ddc	543409	18S	13E	27	SE	SE	SW	NON-EXEMPT	WATER PRODUCTION	IRRIGATION		9-Dec-94	840	109	PAR FOR THE COURSE	3233 S ABREGO DR	GREEN VALLEY	AZ	85614	
CW-8	D(18-13)15acc	543600	18S	13E	15	NE	SW	SW	NON-EXEMPT	WATER PRODUCTION	MUNICIPAL		21-Jun-94	1200	310	COMMUNITY WATER CO	PO BOX 1078	GREEN VALLEY	AZ	85622	
Sbragia	D(18-13)2abd	588039	18S	13E	2	NE	NW	SE	EXEMPT	WATER PRODUCTION	DOMESTIC	23-Jul-01		340	260	SBRAGIA, HARRYLYN	1901 N ABREGO DR	GREEN VALLEY	AZ	85614	
CW-9	D(18-13)2bdd	588121	18S	13E	2	NW	SE	SE	SERVICE	WATER PRODUCTION	MUNICIPAL	10-Oct-01	15-Dec-01	1000	289	COMMUNITY WATER COMPANY O	1501 S. LA CANADA DR.	GREEN VALLEY	AZ	85622	
GV-1	D(18-13)27a	603428	18S	13E	27	NE			NON-EXEMPT	WATER PRODUCTION	IRRIGATION-DOMESTIC		23-Sep-77	645	196	GREEN VALLEY MUNICIPAL PR	PO BOX 373	GREEN VALLEY	AZ	85622	
GV-2	D(18-13)27d	603429	18S	13E	27	SE			NON-EXEMPT	WATER PRODUCTION	IRRIGATION-DOMESTIC		20-Sep-77	560	171	GREEN VALLEY MUNICIPAL PR	PO BOX 373	GREEN VALLEY	AZ	85622	
GV-6	D(18-13)32dd	603430	18S	13E	32	SE	SE		NON-EXEMPT	WATER PRODUCTION	IRRIGATION-DOMESTIC			350	265	GREEN VALLEY MUNICIPAL PR	PO BOX 373	GREEN VALLEY	AZ	85622	
CWC	D(18-13)2bcc	605898	18S	13E	2	NW	SW	SW	NON-EXEMPT	WATER PRODUCTION	DOMESTIC-INDUSTRIAL		12-Nov-74	515	314	COMMUNITY WATER CO	PO BOX 1078	GREEN VALLEY	AZ	85622	
CWC	D(18-13)2bab	605899	18S	13E	2	NW	NE	NW	NON-EXEMPT	WATER PRODUCTION	DOMESTIC-INDUSTRIAL	20-Jun-02	1-Apr-77	700	286	COMMUNITY WATER CO OF GRE	ATTN: DAVID PFORDT	GREEN VALLEY	AZ	85622	
Robson Ranch	D(17-13)35ddc	608584	17S	13E	35	SE	SE	SW	NON-EXEMPT	WATER PRODUCTION	IRRIGATION		1-Apr-53	256	0	ROBSON RANCH QUAIL CREEK	9532 EAST RIGGS ROAD	SUN LAKES	AZ	85248	
Schneiker	D(18-13)3ccb	611220	18S	13E	3	SW	SW	NW	EXEMPT	WATER PRODUCTION	DOMESTIC		16-Dec-72	495	415	SCHNEIKER,J	2238 E HEDRICK #5	TUCSON	AZ	85719	
PimaCo Parks	D(17-13)34dbd	616156	17S	13E	34	SE	NW	SE	EXEMPT	WATER PRODUCTION	DOMESTIC-INDUSTRIAL		31-Dec-60	500	453	PIMA COUNTY PARKS	1204 W SILVER LAKE	TUCSON	AZ	85713	
COT / DUVAL-1	D(18-13)29ada	620330	18S	13E	29	NE	SE	NE	EXEMPT	WATER PRODUCTION	MUNICIPAL		01-Dec-73	360	0	TUCSON, CITY OF,	PO BOX 27210	TUCSON	AZ	85726	
PDS-ESP-1	D(18-13)10dca	623102	18S	13E	10	SE	SW	NE	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		1-Feb-57	1020	333	CYPRUS SIERRITA CORP	PO BOX 3299	ENGLEWOOD	CO	80155	
PDS-ESP-2	D(18-13)10adc	623103	18S	13E	10	NE	SE	SW	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		25-Apr-57	1044	364	CYPRUS SIERRITA CORP	PO BOX 3299	ENGLEWOOD	CO	80155	
PDS-ESP-3	D(18-13)10aac	623104	18S	13E	10	NE	NE	SW	NON-EXEMPT	WATER PRODUCTION	INDUSTRIAL		30-Nov-56	1043	338	CYPRUS SIERRITA CORP	PO BOX 3299	ENGLEWOOD	CO	80155	
FICO-C-1	D(18-13)26bca	624008	18S	13E	26	NW	SW	NE	NON-EXEMPT	WATER PRODUCTION	IRRIGATION		1-Aug-20	395	133	FARMERS INVESTMENT	PO BOX 7	SAHUARITA	AZ	85629	
FICO-C-4	D(18-13)14acd	624010	18S	13E	14	NE	SW	SE	NON-EXEMPT	WATER PRODUCTION	IRRIGATION		28-Feb-75	1200	171	FARMERS INVESTMENT	PO BOX 7	SAHUARITA	AZ	85629	
FICO-W-9	D(18-13)23bad	624024	18S	13E	23	NW	NE	SE	NON-EXEMPT	WATER PRODUCTION	IRRIGATION		1-Jan-51	1175	159	FARMERS INVESTMENT	PO BOX 7	SAHUARITA	AZ	85629	
FICO-W-12	D(18-13)27daa	624026	18S	13E	27	SE	NE	NE	NON-EXEMPT	WATER PRODUCTION	IRRIGATION		16-Feb-75	1300	137	FARMERS INVESTMENT	PO BOX 7	SAHUARITA	AZ	85629	
Marley Cattle	D(18-13)32ddc	625276	18S	13E	32	SE	SE	SW	EXEMPT	WATER PRODUCTION	STOCK			0	0	MARLEY CATTLE CO	PO BOX 6632	PHOENIX	AZ	85005	
GV Investrors	D(18-13)11dcd	625711	18S	13E	11	SE	SW	SE	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			280	226	GREEN VALLEY INVESTR	231 W ESPERANZA	GREEN VALLEY	AZ	85614	
GV Investrors	D(18-13)11dca	625712	18S	13E	11	SE	SW	NE	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			450	193	GREEN VALLEY INVESTR	231 W ESPERANZA	GREEN VALLEY	AZ	85614	
CW-3	D(18-13)22acd	627483	18S	13E	22	NE	SW	SE	NON-EXEMPT	WATER PRODUCTION	DOMESTIC		16-Mar-64	501	260	COMMUNITY WATER CO	PO BOX 1078	GREEN VALLEY	AZ	85614	
Gatterer	D(19-13)5abb	632969	19S	13E	5	NE	NW	NW	EXEMPT	WATER PRODUCTION	DOMESTIC		1-Jun-64	345	246	GATTERER, A H	PO BOX 274	GREEN VALLEY	AZ	85614	
Cooper	D(18-13)2aca	640274	18S	13E	2	NE	SW	NE	EXEMPT	WATER PRODUCTION	DOMESTIC		1-Dec-78	301	0	COOPER, MIA LEE	170 E CALLE HERBOSA	GREEN VALLEY	AZ	85614	
CWC	D(18-13)11bdd	801179	18S	13E	11	NW	SE	SE	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			500	285	COMMUNITY WATER CO OF GRE	ATTN: DAVID PFORDT	GREEN VALLEY	AZ	85622	
Davis-Monthan	D(17-13)34ddd	804995	17S	13E	34	SE	SE	SE	EXEMPT	WATER PRODUCTION	DOMESTIC		1-Sep-62	600	444	DAVIS-MONTHAN AFB	DAVIS-MONTHAN AFB	TUCSON	AZ	85707	

Notes:
Data compiled from Arizona Department of Water Resources Wells 55 Data CD-ROM. September 2006.
Shaded cells indicate information compiled by HGC.

APPENDIX B

CD OF ADWR IMAGED RECORDS FOR WELLS EVALUATED AS POTENTIAL DRINKING WATER PRODUCTION SUPPLY WELLS

APPENDIX C

LABORATORY REPORTS FOR SAMPLES FROM DRINKING WATER SUPPLY WELLS

TABLE OF CONTENTS

C.1 SAMPLES COLLECTED BY PHELPS DODGE SIERRITA, INC.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

November 30, 2006

Report to:
Kimberly Garcia
Hydro Geo Chem, Inc.
51 W. Wetmore Rd
Tucson, AZ 85705-1678

Bill to:
Kimberly Garcia
Hydro Geo Chem, Inc.
51 W. Wetmore Rd
Tucson, AZ 85705-1678

Project ID: 78305
ACZ Project ID: L60024

Kimberly Garcia:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on November 17, 2006. This project has been assigned to ACZ's project number, L60024. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L60024. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after December 30, 2006. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl 05/Dec/06

Scott Habermehl, Project Manager, has reviewed and approved this report in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac

ACIL

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Hydro Geo Chem, Inc.
Project ID: 78305
Sample ID: WI-632969-111506

ACZ Sample ID: ***L60024-01***
Date Sampled: *11/15/06 16:50*
Date Received: *11/17/06*
Sample Matrix: *Ground Water*

Gatterer Well

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	44.1			mg/L	0.2	1	11/28/06 1:31	wfg
Magnesium, dissolved	M200.7 ICP	6.4			mg/L	0.2	1	11/28/06 1:31	wfg
Potassium, dissolved	M200.7 ICP	3.2			mg/L	0.3	1	11/28/06 1:31	wfg
Sodium, dissolved	M200.7 ICP	28.1			mg/L	0.3	1	11/28/06 1:31	wfg

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		167			mg/L	2	20	11/29/06 0:00	ct
Carbonate as CaCO3			U		mg/L	2	20	11/29/06 0:00	ct
Hydroxide as CaCO3			U		mg/L	2	20	11/29/06 0:00	ct
Total Alkalinity		168			mg/L	2	20	11/29/06 0:00	ct
Cation-Anion Balance	Calculation								
Cation-Anion Balance		3.9			%			11/30/06 11:56	calc
Sum of Anions		3.7			meq/L	0.1	0.5	11/30/06 11:56	calc
Sum of Cations		4.0			meq/L	0.1	0.5	11/30/06 11:56	calc
Chloride	M300.0 - Ion Chromatography	9.2			mg/L	0.5	3	11/28/06 0:42	nps
Fluoride	M300.0 - Ion Chromatography	0.2	B		mg/L	0.1	0.5	11/28/06 0:42	nps
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	0.66			mg/L	0.02	0.1	11/30/06 11:56	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.66	H	*	mg/L	0.02	0.1	11/17/06 20:27	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		UH	*	mg/L	0.01	0.05	11/17/06 20:27	pjb
Residue, Filterable (TDS) @180C	M160.1 - Gravimetric	260			mg/L	10	20	11/21/06 15:33	lcp
Sulfate	300.0 - Ion Chromatography	5.1			mg/L	0.5	3	11/28/06 0:42	nps
TDS (calculated)	Calculation	199			mg/L	10	50	11/30/06 11:56	calc
TDS (ratio - measured/calculated)	Calculation	1.31						11/30/06 11:56	calc

Arizona license number: AZ0102

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
R	Poor spike recovery accepted because the other spike in the set fell within the given limits.
T	High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL.
U	Analyte was analyzed for but not detected at the indicated MDL
V	High blank data accepted because sample concentration is 10 times higher than blank concentration
W	Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride.
X	Quality control sample is out of control.
Z	Poor spike recovery is accepted because sample concentration is four times greater than spike concentration.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Hydro Geo Chem, Inc.
Project ID: 78305

ACZ Project ID: ***L60024***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217255													
WG217255LCSW2	LCSW	11/29/06 11:50	WC061113-1	820		746.8	mg/L	91.1	80	120			
WG217255LCSW5	LCSW	11/29/06 13:54	WC061113-1	820		738.3	mg/L	90	80	120			
L60024-01DUP	DUP	11/29/06 16:07			168	168.8	mg/L				0.5	20	
WG217255LCSW8	LCSW	11/29/06 16:20	WC061113-1	820		741.1	mg/L	90.4	80	120			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217168													
WG217168ICV	ICV	11/28/06 0:08	II061113-6	100		101.16	mg/L	101.2	95	105			
WG217168ICB	ICB	11/28/06 0:12				U	mg/L		-0.6	0.6			
WG217168LFB	LFB	11/28/06 0:24	II061116-2	67.93192		71.73	mg/L	105.6	85	115			
L59980-01AS	AS	11/28/06 1:17	II061116-2	679.3192	454	1106.5	mg/L	96.1	85	115			
L59980-01ASD	ASD	11/28/06 1:21	II061116-2	679.3192	454	1100.8	mg/L	95.2	85	115	0.52	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216682													
WG216682ICV	ICV	11/16/06 18:15	IC061109-1	20.01		20.49	mg/L	102.4	90	110			
WG216682ICB	ICB	11/16/06 18:33				U	mg/L		-1.5	1.5			
WG217110													
WG217110ICV	ICV	11/16/06 18:15	IC061109-1	20.01		20.49	mg/L	102.4	90	110			
WG217110ICB	ICB	11/16/06 18:33				U	mg/L		-1.5	1.5			
WG217110ICV1	ICV	11/27/06 11:07	IC061109-1	20.01		19.52	mg/L	97.6	90	110			
WG217110ICB1	ICB	11/27/06 11:25				U	mg/L		-1.5	1.5			
WG217110LFB1	LFB	11/27/06 11:43	IC061106-1	30		31.07	mg/L	103.6	90	110			
WG217110LFB2	LFB	11/27/06 20:28	IC061106-1	30		31.26	mg/L	104.2	90	110			
L59951-05DUP	DUP	11/27/06 21:04			10.6	10.62	mg/L				0.2	20	
L59980-01AS	AS	11/27/06 21:41	IC061106-1	1500	30	1523	mg/L	99.5	90	110			

Fluoride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216682													
WG216682ICV	ICV	11/16/06 18:15	IC061109-1	3.992		4.11	mg/L	103	90	110			
WG216682ICB	ICB	11/16/06 18:33				U	mg/L		-0.3	0.3			
WG217110													
WG217110ICV	ICV	11/16/06 18:15	IC061109-1	3.992		4.11	mg/L	103	90	110			
WG217110ICB	ICB	11/16/06 18:33				U	mg/L		-0.3	0.3			
WG217110ICV1	ICV	11/27/06 11:07	IC061109-1	3.992		3.89	mg/L	97.4	90	110			
WG217110ICB1	ICB	11/27/06 11:25				U	mg/L		-0.3	0.3			
WG217110LFB1	LFB	11/27/06 11:43	IC061106-1	1.5		1.58	mg/L	105.3	90	110			
WG217110LFB2	LFB	11/27/06 20:28	IC061106-1	1.5		1.59	mg/L	106	90	110			
L59951-05DUP	DUP	11/27/06 21:04			5	5	mg/L				0	20	
L59980-01AS	AS	11/27/06 21:41	IC061106-1	75	U	76.2	mg/L	101.6	90	110			

Hydro Geo Chem, Inc.
Project ID: 78305

ACZ Project ID: ***L60024***

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217168													
WG217168ICV	ICV	11/28/06 0:08	II061113-6	100		98.81	mg/L	98.8	95	105			
WG217168ICB	ICB	11/28/06 0:12				U	mg/L		-0.6	0.6			
WG217168LFB	LFB	11/28/06 0:24	II061116-2	54.94443		57.92	mg/L	105.4	85	115			
L59980-01AS	AS	11/28/06 1:17	II061116-2	549.4443	341	873.1	mg/L	96.8	85	115			
L59980-01ASD	ASD	11/28/06 1:21	II061116-2	549.4443	341	867.3	mg/L	95.8	85	115	0.67	20	

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216809													
WG216809ICV	ICV	11/17/06 18:01	WI060906-3	2.416		2.286	mg/L	94.6	90	110			
WG216809ICB	ICB	11/17/06 18:02				U	mg/L		-0.06	0.06			
WG216813													
WG216813ICV	ICV	11/17/06 19:53	WI060906-3	2.416		2.254	mg/L	93.3	90	110			
WG216813ICB	ICB	11/17/06 19:54				U	mg/L		-0.06	0.06			
WG216813LFB	LFB	11/17/06 19:55	WI060906-4	2		1.946	mg/L	97.3	90	110			
L60021-08AS	AS	11/17/06 20:16	WI060906-4	2	1.73	3.655	mg/L	96.3	90	110			
L60021-09DUP	DUP	11/17/06 20:19			.21	.216	mg/L				2.8	20	

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216809													
WG216809ICV	ICV	11/17/06 18:01	WI060906-3	.609		.592	mg/L	97.2	90	110			
WG216809ICB	ICB	11/17/06 18:02				U	mg/L		-0.03	0.03			
WG216813													
WG216813ICV	ICV	11/17/06 19:53	WI060906-3	.609		.598	mg/L	98.2	90	110			
WG216813ICB	ICB	11/17/06 19:54				U	mg/L		-0.03	0.03			
WG216813LFB	LFB	11/17/06 19:55	WI060906-4	1		.934	mg/L	93.4	90	110			
L60021-08AS	AS	11/17/06 20:16	WI060906-4	1	U	.959	mg/L	95.9	90	110			
L60021-09DUP	DUP	11/17/06 20:19			U	U	mg/L				0	20	RA

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217168													
WG217168ICV	ICV	11/28/06 0:08	II061113-6	20		20.39	mg/L	102	95	105			
WG217168ICB	ICB	11/28/06 0:12				U	mg/L		-0.9	0.9			
WG217168LFB	LFB	11/28/06 0:24	II061116-2	99.46819		103.13	mg/L	103.7	85	115			
L59980-01AS	AS	11/28/06 1:17	II061116-2	994.6819	13	1009.3	mg/L	100.2	85	115			
L59980-01ASD	ASD	11/28/06 1:21	II061116-2	994.6819	13	1009	mg/L	100.1	85	115	0.03	20	

Residue, Filterable (TDS) @180C M160.1 - Gravimetric

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216990													
WG216990PBW	PBW	11/21/06 15:00				12	mg/L		-20	20			
WG216990LCSW	LCSW	11/21/06 15:01	PCN25978	260		300	mg/L	115.4	80	120			
L60024-01DUP	DUP	11/21/06 15:34			260	264	mg/L				1.5	20	

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Hydro Geo Chem, Inc.
Project ID: 78305

ACZ Project ID: ***L60024***

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG217168													
WG217168ICV	ICV	11/28/06 0:08	II061113-6	100		101.7	mg/L	101.7	95	105			
WG217168ICV	ICV	11/28/06 0:08	II061113-6	100		101.45	mg/L	101.5	95	105			
WG217168ICB	ICB	11/28/06 0:12				U	mg/L		-6	6			
WG217168ICB	ICB	11/28/06 0:12				U	mg/L		-0.9	0.9			
WG217168LFB	LFB	11/28/06 0:24	II061116-2	99.78197		101.2	mg/L	101.4	85	115			
WG217168LFB	LFB	11/28/06 0:24	II061116-2	99.78197		104.85	mg/L	105.1	85	115			
L59980-01AS	AS	11/28/06 1:17	II061116-2	997.8197	996	1859.3	mg/L	91.1	85	115			
L59980-01ASD	ASD	11/28/06 1:21	II061116-2	997.8197	996	1855.7	mg/L	90.8	85	115	0.05	20	

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG216682													
WG216682ICV	ICV	11/16/06 18:15	IC061109-1	50.1		51.83	mg/L	103.5	90	110			
WG216682ICB	ICB	11/16/06 18:33				U	mg/L		-1.5	1.5			
WG217110													
WG217110ICV	ICV	11/16/06 18:15	IC061109-1	50.1		51.83	mg/L	103.5	90	110			
WG217110ICB	ICB	11/16/06 18:33				U	mg/L		-1.5	1.5			
WG217110ICV1	ICV	11/27/06 11:07	IC061109-1	50.1		49.83	mg/L	99.5	90	110			
WG217110ICB1	ICB	11/27/06 11:25				U	mg/L		-1.5	1.5			
WG217110LFB1	LFB	11/27/06 11:43	IC061106-1	30		31.62	mg/L	105.4	90	110			
WG217110LFB2	LFB	11/27/06 20:28	IC061106-1	30		30.42	mg/L	101.4	90	110			
L59951-05DUP	DUP	11/28/06 17:22			266	266	mg/L				0	20	
L59980-01AS	AS	11/28/06 18:35	IC061106-1	3000	4720	6762	mg/L	68.1	90	110			M2

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Extended Qualifier Report

Hydro Geo Chem, Inc.

ACZ Project ID: ***L60024***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L60024-01	WG216813	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	HE	Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	HE	Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions).
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Certification Qualifiers

Hydro Geo Chem, Inc.

ACZ Project ID: ***L60024***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Hydro Geo Chem, Inc.
78305

ACZ Project ID: L60024
Date Received: 11/17/2006
Received By:
Date Printed: 11/17/2006

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
na2577		5.5	14

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Hydro Geo Chem, Inc.
78305

ACZ Project ID: L60024
Date Received: 11/17/2006
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L60024-01	WI-632969-111506		Y									

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

ACZ Laboratories, Inc. L60024

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Kimberly A. Garcia
Company: Hydro Geo Chem, Inc.
E-mail: KimG@HGCinc.com
Address: 51W. Wetmore Rd Tucson, AZ 85705-1678
Telephone: 520. 293. 1500 x. 123

Copy of Report to:

Name: Kim Garcia (as above)
Company: Hydro Geo Chem inc.
E-mail: KimG@HGCinc.com
Telephone: 520. 293. 1500 x. 123

Invoice to:

Name: Kim Garcia
Company: Hydro Geo Chem
E-mail: KimG@HGCinc.com
Address: 51 W. Wetmore, Tucson, AZ 85705. 1678
Telephone: 520. 293. 1500 x. 123

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES ☐ NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

Quote #: Sierita - Short
Project/PO #: ~~75806~~ 75805 ~~Kim~~ 11/16/06
Reporting state for compliance testing: AZ
Sampler's Name: Kim Garcia
Are any samples NRC licensable material?

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Metals: Ca, Mg, Na, K Wet Chem: Alk, TDS, + Anions	SO_4						
WI-(B29169-111506	11/15/06 1050	GW	1	X							
WI-(B29169-111506	11/15/06 1050	GW	1		X						
WI-(B29169-111506	11/15/06 1055	GW	1			X					

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Kim Garcia	11/16/06 1520		11-17-06 12:14

FRMAD050.03.05.02 White - Return with sample. Yellow - Retain for your records.

COPY

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Quote

James Norris
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tucson, AZ 85705

11/14/2006

Quote Number: SIERITTA-SHORT

Matrix: Ground Water — Sierritta Groundwater Monitoring (Short Suite)

Parameter	Method	Detection Limit	Cost/Sample
Metals Analysis			
Calcium, dissolved	M200.7 ICP	0.2 mg/L	$6.00
Magnesium, dissolved	M200.7 ICP	0.2 mg/L	$6.00
Potassium, dissolved	M200.7 ICP	0.3 mg/L	$6.00
Sodium, dissolved	M200.7 ICP	0.3 mg/L	$6.00
Misc.			
Electronic Data Deliverable			$0.00
Quality Control Summary			$0.00
Wet Chemistry			
Alkalinity as CaCO3	SM2320B - Titration	2 mg/L	$6.75
Cation-Anion Balance	Calculation		$0.00
Chloride	M300.0 - Ion Chromatography	0.5 mg/L	$9.00
Fluoride	M300.0 - Ion Chromatography	0.1 mg/L	$9.00
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	Calculation	$0.00
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.02 mg/L	$6.75
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.01 mg/L	$6.75
Residue, Filterable (TDS) @180C	M160.1 - Gravimetric	10 mg/L	$7.50
Sulfate	300.0 - Ion Chromatography	0.5 mg/L	$9.00
TDS (calculated)	Calculation	Calculation	$0.00
TDS (ratio - measured/calculated)	Calculation	Calculation	$0.00
		Cost/Sample:	**$78.75**

C.2 SAMPLES COLLECTED BY COMMUNITY WATER COMPANY

LEGEND
Technical Services, Inc.
www.legend-group.com

17631 North 25th Avenue • Phoenix, AZ 85023
P (602) 324-6100 • F (602) 324-6101
4585 S. Palo Verde Rd., Ste. 423 • Tucson, AZ 85714
P (520) 327-1234 • F (520) 327-0518

19 December 2006

Norris West
Community Water Co.
1501 S. La Canada Dr.
Green Valley, AZ 85614-1600

RE: Drinking Water Analysis
Legend ID: 6120105

Legend Technical Services of Arizona, Inc. is pleased to provide the enclosed analytical results for the aforementioned project. This cover letter and the accompanying pages represent the full report for these analyses and should only be reproduced in full. Samples for this project were received by the laboratory on 12/04/06 15:15.

The samples were processed in accordance with the Chain of Custody document and the results presented relate only to the samples tested. The Chain of Custody is considered part of this report.

All samples will be retained by LEGEND for 30 days from the date of this report and then discarded unless other arrangements are made.

This entire report was reviewed and approved for release by the undersigned. If you have any questions concerning this report, please feel free to contact me.

Sincerely,
LEGEND TECHNICAL SERVICES OF ARIZONA, INC.

Lisa Sutherland

Lisa Sutherland For Francisco Canez
Tucson Analyst

Community Water Co.	Project: Drinking Water Analysis	
1501 S. La Canada Dr.	Project Number: 04-10-004	**Reported:**
Green Valley, AZ 85614-1600	Project Manager: Norris West	12/19/06 17:11

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
CWC #6 Well	6120105-01	Drinking Water	Grab	12/04/06 10:11	12/04/06 15:15
CWC #9 Well	6120105-02	Drinking Water	Grab	12/04/06 10:00	12/04/06 15:15
CWC #10 Well	6120105-03	Drinking Water	Grab	12/04/06 11:48	12/04/06 15:15
Esp. Well #1	6120105-04	Drinking Water	Grab	12/04/06 11:15	12/04/06 15:15
Esp. Well #2	6120105-05	Drinking Water	Grab	12/04/06 11:10	12/04/06 15:15
Esp. Well #3	6120105-06	Drinking Water	Grab	12/04/06 10:20	12/04/06 15:15
Sand Tank	6120105-07	Drinking Water	Grab	12/04/06 11:27	12/04/06 15:15

Case Narrative:

Holding Times: All holding times were met unless otherwise qualified.
QA/QC Criteria: All analyses met method requirements unless otherwise qualified.
Comments: There were no problems encountered during the processing of the samples, unless otherwise noted.

Faxed results on 12/12/06- LDS (SO4 -04 verbal result on 12/13/06)
Faxed all prelims on 12/18/06- LDS

Community Water Co. 1501 S. La Canada Dr. Green Valley, AZ 85614-1600	Project: Drinking Water Analysis Project Number: 04-10-004 Project Manager: Norris West	**Reported:** 12/19/06 17:11

CWC #6 Well (6120105-01) Drinking Water (Grab) Sampled: 12/04/06 10:11 Received: 12/04/06 15:15

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry									
Sulfate	**46.2**	5.00	mg/L	1	B6L0485	12/06/06 10:20	12/06/06 10:20	EPA 300.0	
Total Dissolved Solids	**287**	1	mg/L	1	B6L0153	12/06/06 12:20	12/06/06 12:20	SM 2540 D	

CWC #9 Well (6120105-02) Drinking Water (Grab) Sampled: 12/04/06 10:00 Received: 12/04/06 15:15

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry									
Sulfate	**44.5**	5.00	mg/L	1	B6L0485	12/06/06 10:20	12/06/06 10:20	EPA 300.0	
Total Dissolved Solids	**240**	1	mg/L	1	B6L0153	12/06/06 12:20	12/06/06 12:20	SM 2540 D	

CWC #10 Well (6120105-03) Drinking Water (Grab) Sampled: 12/04/06 11:48 Received: 12/04/06 15:15

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry									
Sulfate	**37.2**	5.00	mg/L	1	B6L0485	12/06/06 10:20	12/06/06 10:20	EPA 300.0	
Total Dissolved Solids	**204**	1	mg/L	1	B6L0153	12/06/06 12:20	12/06/06 12:20	SM 2540 D	

Esp. Well #1 (6120105-04) Drinking Water (Grab) Sampled: 12/04/06 11:15 Received: 12/04/06 15:15

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry									
Sulfate	**262**	25.0	mg/L	5	B6L0489	12/12/06 10:45	12/12/06 10:45	EPA 300.0	
Total Dissolved Solids	**660**	1	mg/L	1	B6L0153	12/06/06 12:20	12/06/06 12:20	SM 2540 D	

Esp. Well #2 (6120105-05) Drinking Water (Grab) Sampled: 12/04/06 11:10 Received: 12/04/06 15:15

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry									
Sulfate	**29.6**	5.00	mg/L	1	B6L0485	12/06/06 10:20	12/06/06 10:20	EPA 300.0	
Total Dissolved Solids	**209**	1	mg/L	1	B6L0153	12/06/06 12:20	12/06/06 12:20	SM 2540 D	

Esp. Well #3 (6120105-06) Drinking Water (Grab) Sampled: 12/04/06 10:20 Received: 12/04/06 15:15

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry									
Sulfate	**36.2**	5.00	mg/L	1	B6L0485	12/06/06 10:20	12/06/06 10:20	EPA 300.0	
Total Dissolved Solids	**218**	1	mg/L	1	B6L0153	12/06/06 12:20	12/06/06 12:20	SM 2540 D	

Sand Tank (6120105-07) Drinking Water (Grab) Sampled: 12/04/06 11:27 Received: 12/04/06 15:15

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Community Water Co. 1501 S. La Canada Dr. Green Valley, AZ 85614-1600	Project: Drinking Water Analysis Project Number: 04-10-004 Project Manager: Norris West	**Reported:** 12/19/06 17:11

Sand Tank (6120105-07) Drinking Water (Grab) Sampled: 12/04/06 11:27 Received: 12/04/06 15:15

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry									
Sulfate	105	10.0	mg/L	2	B6L0486	12/07/06 10:32	12/07/06 10:32	EPA 300.0	
Total Dissolved Solids	339	1	mg/L	1	B6L0153	12/06/06 12:20	12/06/06 12:20	SM 2540 D	

Community Water Co.
1501 S. La Canada Dr.
Green Valley, AZ 85614-1600

Project: Drinking Water Analysis
Project Number: 04-10-004
Project Manager: Norris West

Reported:
12/19/06 17:11

Inorganic Chemistry - Quality Control
Legend Technical Services of Arizona, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6L0153 - NO PREP										
Blank (B6L0153-BLK1)				*Prepared & Analyzed: 12/06/06*						
Total Dissolved Solids	<1	1	mg/L							
Duplicate (B6L0153-DUP1)		**Source: 6111588-01**		*Prepared & Analyzed: 12/06/06*						
Total Dissolved Solids	477	1	mg/L		497			4.11	5	
Batch B6L0485 - NO PREP										
Blank (B6L0485-BLK1)				*Prepared & Analyzed: 12/06/06*						
Sulfate	<5.00	5.00	mg/L							
LCS (B6L0485-BS1)				*Prepared & Analyzed: 12/06/06*						
Sulfate	19.3	5.00	mg/L	20.0		96.5	80-120			
LCS Dup (B6L0485-BSD1)				*Prepared & Analyzed: 12/06/06*						
Sulfate	19.4	5.00	mg/L	20.0		97.0	80-120	0.517	25	
Batch B6L0486 - NO PREP										
Blank (B6L0486-BLK1)				*Prepared & Analyzed: 12/07/06*						
Sulfate	<5.00	5.00	mg/L							
LCS (B6L0486-BS1)				*Prepared & Analyzed: 12/07/06*						
Sulfate	20.2	5.00	mg/L	20.0		101	80-120			
LCS Dup (B6L0486-BSD1)				*Prepared & Analyzed: 12/07/06*						
Sulfate	20.0	5.00	mg/L	20.0		100	80-120	0.995	25	

Community Water Co.	Project: Drinking Water Analysis	
1501 S. La Canada Dr.	Project Number: 04-10-004	**Reported:**
Green Valley, AZ 85614-1600	Project Manager: Norris West	12/19/06 17:11

Inorganic Chemistry - Quality Control

Legend Technical Services of Arizona, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6L0486 - NO PREP										
Matrix Spike (B6L0486-MS1)		**Source: 6120294-01**		*Prepared & Analyzed: 12/07/06*						
Sulfate	121	10.0	mg/L	40.0	79.2	104	80-120			
Matrix Spike Dup (B6L0486-MSD1)		**Source: 6120294-01**		*Prepared & Analyzed: 12/07/06*						
Sulfate	120	10.0	mg/L	40.0	79.2	102	80-120	0.830	25	
Batch B6L0489 - NO PREP										
Blank (B6L0489-BLK1)				*Prepared & Analyzed: 12/12/06*						
Sulfate	<5.00	5.00	mg/L							
LCS (B6L0489-BS1)				*Prepared & Analyzed: 12/12/06*						
Sulfate	19.9	5.00	mg/L	20.0		99.5	80-120			
LCS Dup (B6L0489-BSD1)				*Prepared & Analyzed: 12/12/06*						
Sulfate	19.9	5.00	mg/L	20.0		99.5	80-120	0.00	25	
Matrix Spike (B6L0489-MS1)		**Source: 6111653-01**		*Prepared & Analyzed: 12/12/06*						
Sulfate	41.1	5.00	mg/L	20.0	20.6	102	80-120			
Matrix Spike Dup (B6L0489-MSD1)		**Source: 6111653-01**		*Prepared & Analyzed: 12/12/06*						
Sulfate	40.8	5.00	mg/L	20.0	20.6	101	80-120	0.733	25	

Community Water Co.	Project: Drinking Water Analysis	
1501 S. La Canada Dr.	Project Number: 04-10-004	**Reported:**
Green Valley, AZ 85614-1600	Project Manager: Norris West	12/19/06 17:11

Notes and Definitions

BLK	Method Blank
LCS/Dup	Laboratory Control Sample/Laboratory Fortified Blank/Duplicate
MS/Dup	Matrix Spike/Duplicate
Dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

C.3 SAMPLES COLLECTED BY GREEN VALLEY DOMESTIC WATER IMPROVEMENT DISTRICT

LEGEND
Technical Services, Inc.
www.legend-group.com

17631 N. 25th Avenue • Phoenix, AZ 85023
P (602) 324-6100 • F (602) 324-6101
4585 S. Palo Verde Rd., Ste. 423 • Tucson, AZ 85714
P (520) 327-1234 • F (520) 327-0518
ADHS#0004

Paul Jacobson
Green Valley Water District
PO Box 623
Green Valley, ARIZONA85622

Project: Drinking Water Analysis
Project Number: [none]

Reported:
10/31/06 11:53

S.I. Well (6100358-01) Drinking Water (Grab) Sampled: 10/04/06 15:14 Received: 10/05/06 12:00

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Metals									
Arsenic	**0.010**	0.002	mg/L	1	B6J0527	10/19/06 16:10	10/20/06 16:21	EPA 200.9	
Inorganic Chemistry									
pH	**7.6**		pH Units	1	B6J0158	10/06/06 16:20	10/06/06 16:20	EPA 150.1	
Temperature	**18.7**		°C	1	B6J0158	10/06/06 16:20	10/06/06 16:20	pH Temperature	
Sulfate	**5.9**	5.0	mg/L	1	B6J0291	10/10/06 10:16	10/10/06 10:16	EPA 300.0	
Total Dissolved Solids	**221**	1	mg/L	1	B6J0249	10/10/06 15:15	10/10/06 15:15	SM 2540 C	

Canoa Ranch (6100358-02) Drinking Water (Grab) Sampled: 10/04/06 15:39 Received: 10/05/06 12:00

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Metals									
Arsenic	**0.017**	0.002	mg/L	1	B6J0527	10/19/06 16:10	10/20/06 16:21	EPA 200.9	
Inorganic Chemistry									
pH	**7.7**		pH Units	1	B6J0158	10/06/06 16:20	10/06/06 16:20	EPA 150.1	
Temperature	**18.5**		°C	1	B6J0158	10/06/06 16:20	10/06/06 16:20	pH Temperature	
Sulfate	**95.2**	5.0	mg/L	1	B6J0291	10/10/06 10:16	10/10/06 10:16	EPA 300.0	
Total Dissolved Solids	**360**	1	mg/L	1	B6J0249	10/10/06 15:15	10/10/06 15:15	SM 2540 C	

Desert Hills II Well (6100358-03) Drinking Water (Grab) Sampled: 10/04/06 16:03 Received: 10/05/06 12:00

GV-2

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Metals									
Arsenic	**0.014**	0.002	mg/L	1	B6J0527	10/19/06 16:10	10/20/06 16:21	EPA 200.9	
Inorganic Chemistry									
pH	**7.6**		pH Units	1	B6J0158	10/06/06 16:20	10/06/06 16:20	EPA 150.1	
Temperature	**17.9**		°C	1	B6J0158	10/06/06 16:20	10/06/06 16:20	pH Temperature	
Sulfate	**95.3**	5.0	mg/L	1	B6J0291	10/10/06 10:16	10/10/06 10:16	EPA 300.0	
Total Dissolved Solids	**356**	1	mg/L	1	B6J0249	10/10/06 15:15	10/10/06 15:15	SM 2540 C	

Case Narrative:

Holding Times: All holding times were met unless otherwise qualified.
QA/QC Criteria: All analyses met method requirements unless otherwise qualified.
Comments: There were no problems encountered during the processing of the samples, unless otherwise noted.

Notes and Definitions

Legend Technical Services of Arizona, Inc.

Tucson Analyst

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Green Valley Water District	Project: Inorganics	
PO Box 623	Project Number: [none]	**Reported:**
Green Valley, ARIZONA 85622	Project Manager: Paul Jacobson	08/24/06 11:21

Point Of Entry #1 (Well #1) (6080376-01) Drinking Water (Grab) Sampled: 08/06/06 10:16 Received: 08/07/06 09:45

GV-1

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry									
Sulfate	**41.2**	5.0	mg/L	1	B6H0347	08/09/06 13:42	08/09/06 13:42	EPA 300.0	
Total Dissolved Solids	**271**	1	mg/L	1	B6H0365	08/10/06 13:50	08/10/06 13:50	SM 2540 C	

Point Of Entry #2 (Well #2) (6080376-02) Drinking Water (Grab) Sampled: 08/06/06 11:21 Received: 08/07/06 09:45

GV-2

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Inorganic Chemistry									
Sulfate	**48.6**	5.0	mg/L	1	B6H0347	08/09/06 13:42	08/09/06 13:42	EPA 300.0	
Total Dissolved Solids	**290**	1	mg/L	1	B6H0365	08/10/06 13:50	08/10/06 13:50	SM 2540 C	

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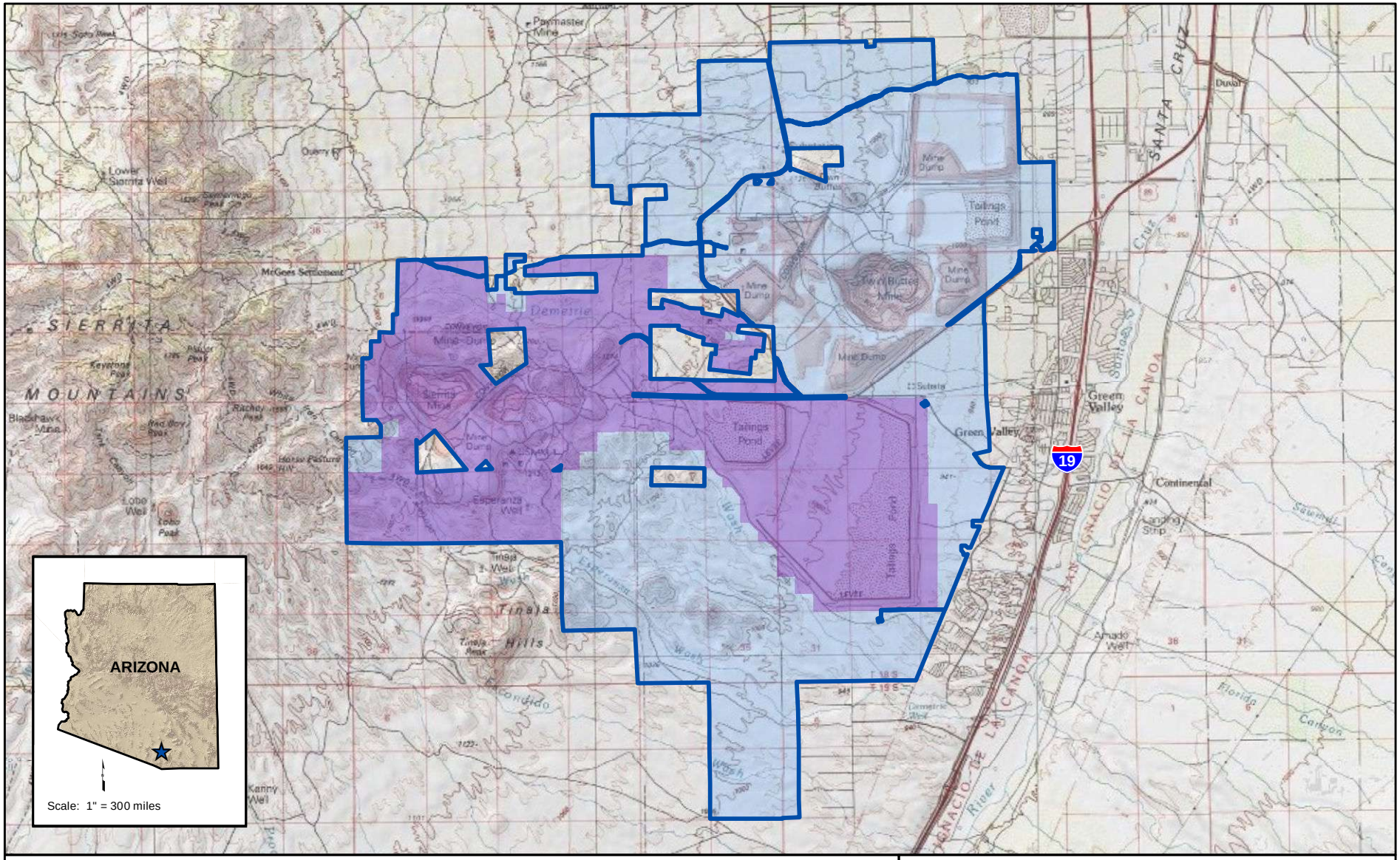
Sierrita Operations
Environment, Land & Water Department
6200 West Duval Mine Road
PO Box 527
Green Valley, Arizona 85622-0527

Attachment 2



LEGEND

- Property boundary
- VRP Site boundary

NOTES

· Topographic map source: ESRI USA Topo Maps.

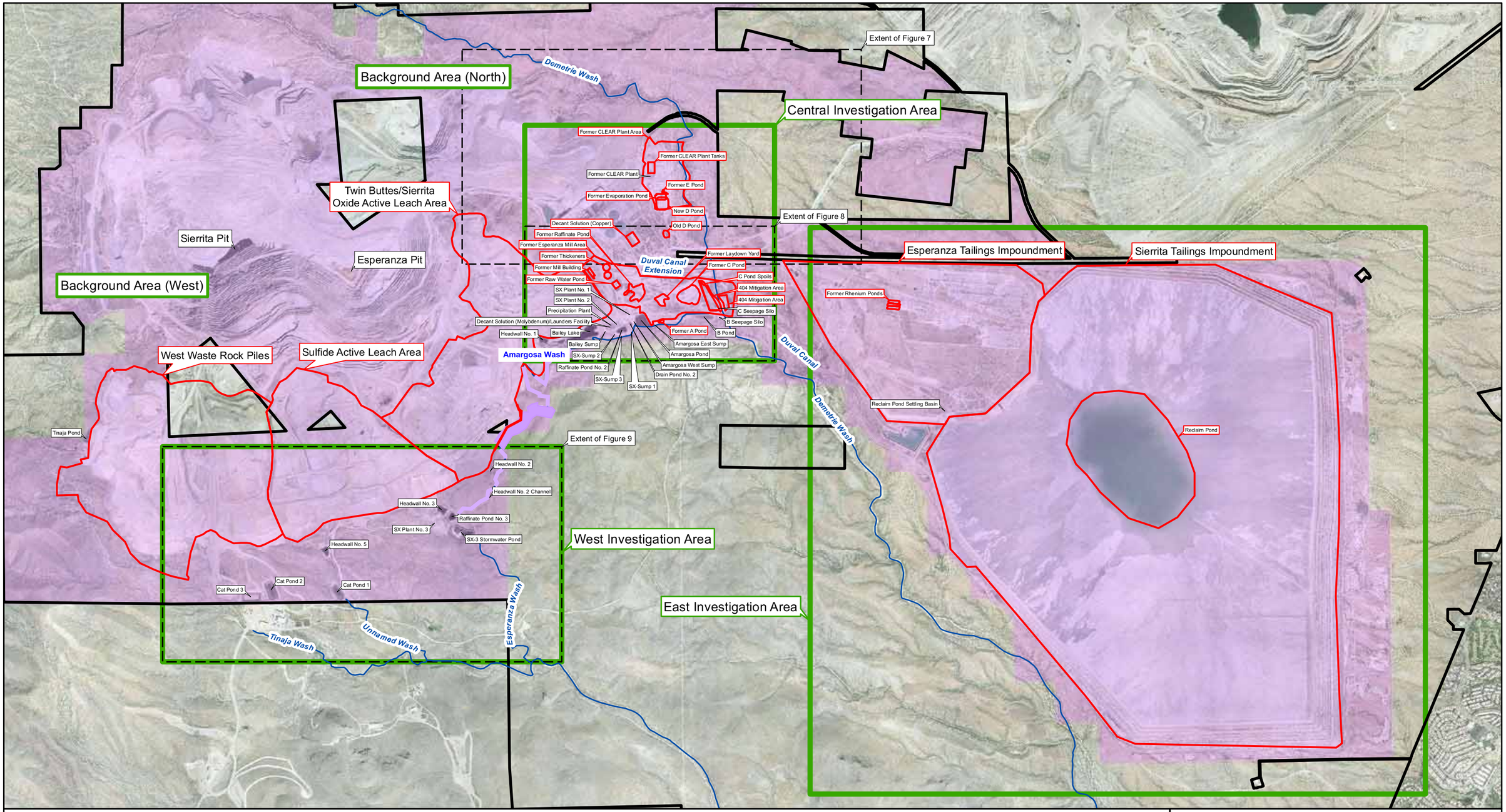
FREEPORT-MCMORAN SIERRITA INC.
GREEN VALLEY, ARIZONA
VOLUNTARY REMEDIATION PROGRAM
GROUNDWATER INVESTIGATION REPORT

SITE LOCATION MAP

ARCADIS

FIGURE
1

G:\Project\Sierrita\GIS\Projects\VRP GW characterization report\Final 05-19-2014\Figure 01 site location map.mxd 5/20/2014



G:\Project\Sierrita\GIS\Projects\VRP GW characterization report\Final 05-19-2014\Figure 02 site features map.mxd 5/20/2014

LEGEND

- Property boundary
- VRP Site boundary
- VRP investigation area
- Site feature
- Wash
- Figure extent

NOTES

· Aerial photo source: Kenney, 2010.

N

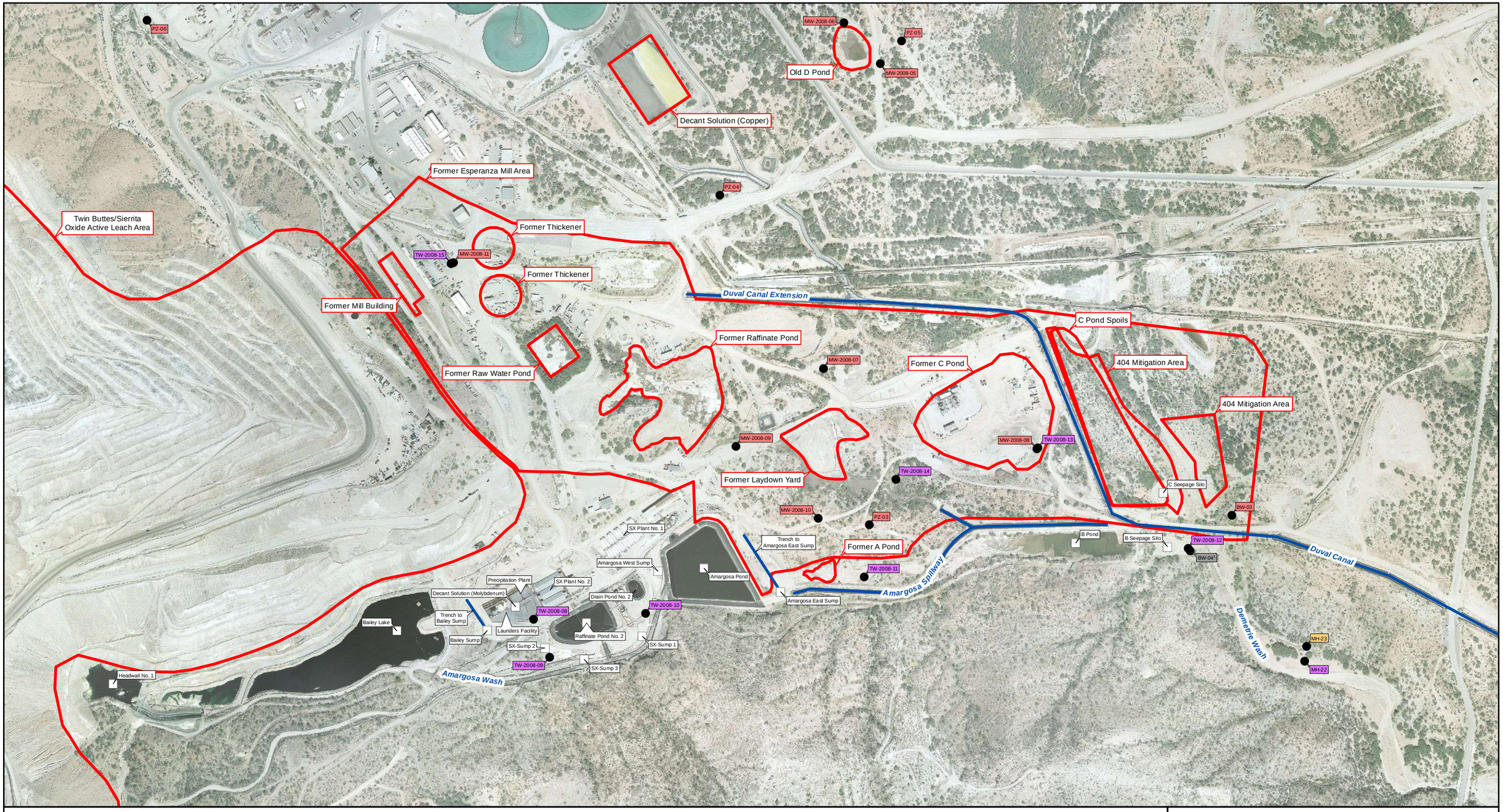
Feet
0 1,500 3,000
Scale: 1" = 3,000'

FREEPORT-MCMORAN SIERRITA INC.
GREEN VALLEY, ARIZONA
VOLUNTARY REMEDIATION PROGRAM
GROUNDWATER INVESTIGATION REPORT

SITE FEATURES MAP

ARCADIS

FIGURE
2



GROUNDWATER WELL LITHOLOGIC UNITS

- MH-14 Basin Fill Deposits
- MH-18 Tinaja Peak Formation
- MH-17 Harris Ranch Quartz Monzonite
- BW-02 Demetrie Volcanics
- BW-03 Ruby Star Granodiorite/Intrusives
- MH-22 Alluvium
- PZ-2008-16 Tailings
- BW-04 Other

LEGEND

- Site feature
- Trench/channel/canal
- Groundwater sampling location
- Facility sampling location

NOTES

· Aerial photo source: Kenney, 2010.
· [1] = BW-04 is screened in the bedrock complex.

N

0 250 500 Feet

Scale: 1" = 500'

FREEPORT-MCMORAN SIERRITA INC.
GREEN VALLEY, ARIZONA
VOLUNTARY REMEDIATION PROGRAM
GROUNDWATER INVESTIGATION REPORT

FACILITIES AND SAMPLING LOCATIONS
LOWER DEMETRIE WASH AND AMARGOSA WASH

ARCADIS

FIGURE
8

G:\Project\Sierrita\GIS\Projects\VRP GW characterization report\Final 05-19-2014\Figure 08 facility locations lower Demetrie Wash.mxd 5/20/2014

Twin Buttes/Sierrita Oxide Active Leach Area
Headwall No. 2
Channel to SX-3 Stormwater Pond
TW-2008-07
MH-27
Headwall No. 2 Channel
Headwall No. 3
Raffinate Pond No. 3
TW-2008-03
TW-2008-04
SX Plant No. 3
Sulfide Active Leach Area
TW-2008-02
Cut-off Trench and Sump (Upgradient of SX-3 Stormwater Pond)
SX-3 Stormwater Pond
Headwall No. 5
TW-2008-05
BW-02
K-Dump Collection System
PZ-16
MH-20
West Waste Rock Piles
Southwest Seepage Collection System
Cat Pond 2
Lined Channel to Cat Pond 1
Cat Pond 1
Cat Pond 3
MW-2008-14
MH-18
MH-19
Esperanza Wash
Unnamed Wash
Tinaja Wash

GROUNDWATER WELL LITHOLOGIC UNITS

- MH-14 Basin Fill Deposits
- MH-18 Tinaja Peak Formation
- MH-17 Harris Ranch Quartz Monzonite
- BW-02 Demetrie Volcanics
- BW-03 Ruby Star Granodiorite/Intrusives
- MH-22 Alluvium
- PZ-2008-16 Tailings
- BW-04 Other

LEGEND

- Site feature
- Trench/channel/canal
- Groundwater sampling location
- Facility sampling location

NOTES

· Aerial photo source: Kenney, 2010.

N

0 400 800 Feet

Scale: 1" = 800'

FREEPORT-MCMORAN SIERRITA INC.
GREEN VALLEY, ARIZONA
VOLUNTARY REMEDIATION PROGRAM
GROUNDWATER INVESTIGATION REPORT

FACILITIES AND SAMPLING LOCATIONS
ESPERANZA WASH, TINAJA WASH, AND UNNAMED WASH

ARCADIS

FIGURE
9

G:\Project\Sierrita\GIS\Projects\VRP GW characterization report\Final 05-19-2014\Figure 09 facility locations Esperanza Wash.mxd 5/20/2014

from B and C Seepage Silos, tailings thickeners, and decant pond; bleed from the lime scrubber; dust control water from crushing and conveying; and vehicle wash water. Fluids are conveyed to Duval Canal Impoundment.

2.6.2.7 Bailey Lake

Bailey Lake is an active, APP-permitted PLS Impoundment. The facility is designed to contain overflow and subsurface flow from Headwall No. 1 and excess fluid from the Moly Decant Tanks. It is an unlined impoundment behind an earthen dam with a storage capacity of 135 acre-feet and a maximum depth of 42.1 feet. Accumulated fluid is pumped to SX Plant Nos. 1 and 2. The facility is designed to overflow into Amargosa Pond through a concrete-lined spillway.

2.6.2.8 Sump and Interceptor Trench System

A series of sumps and interceptor trenches is located along Amargosa Wash to collect underflow from the various process solution impoundments. Based on discussion with Sierrita staff and record review, the feature names and descriptions for these facilities were updated from the Work Plan, as described below (see Table 1 for name changes).

The sumps sampled for the groundwater investigation include Bailey Sump, Amargosa East Sump, Amargosa West Sump, SX-Sump 1, SX-Sump 2, and SX-Sump 3.

Bailey Sump is located immediately downstream of Bailey Lake. Subsurface flow captured at Bailey Sump is pumped downstream to Raffinate Pond No. 2.

Raffinate Pond No. 2 is an active, APP-permitted Raffinate Impoundment. This facility provides temporary storage for copper-depleted leakage solution from SX Plants Nos. 1 and 2. It is double-lined (using two 60-mil HDPE liners) with a storage capacity of 6 acre-feet, and a maximum depth of 16 feet. Accumulated solution is pumped to the leach stockpiles for leaching operations. Raffinate Pond No. 2 is equipped with an LCRS.

To minimize subsurface flows in Amargosa Wash, Amargosa West Sump and Amargosa East Sump have been constructed immediately upstream and downstream of Amargosa Pond, respectively.

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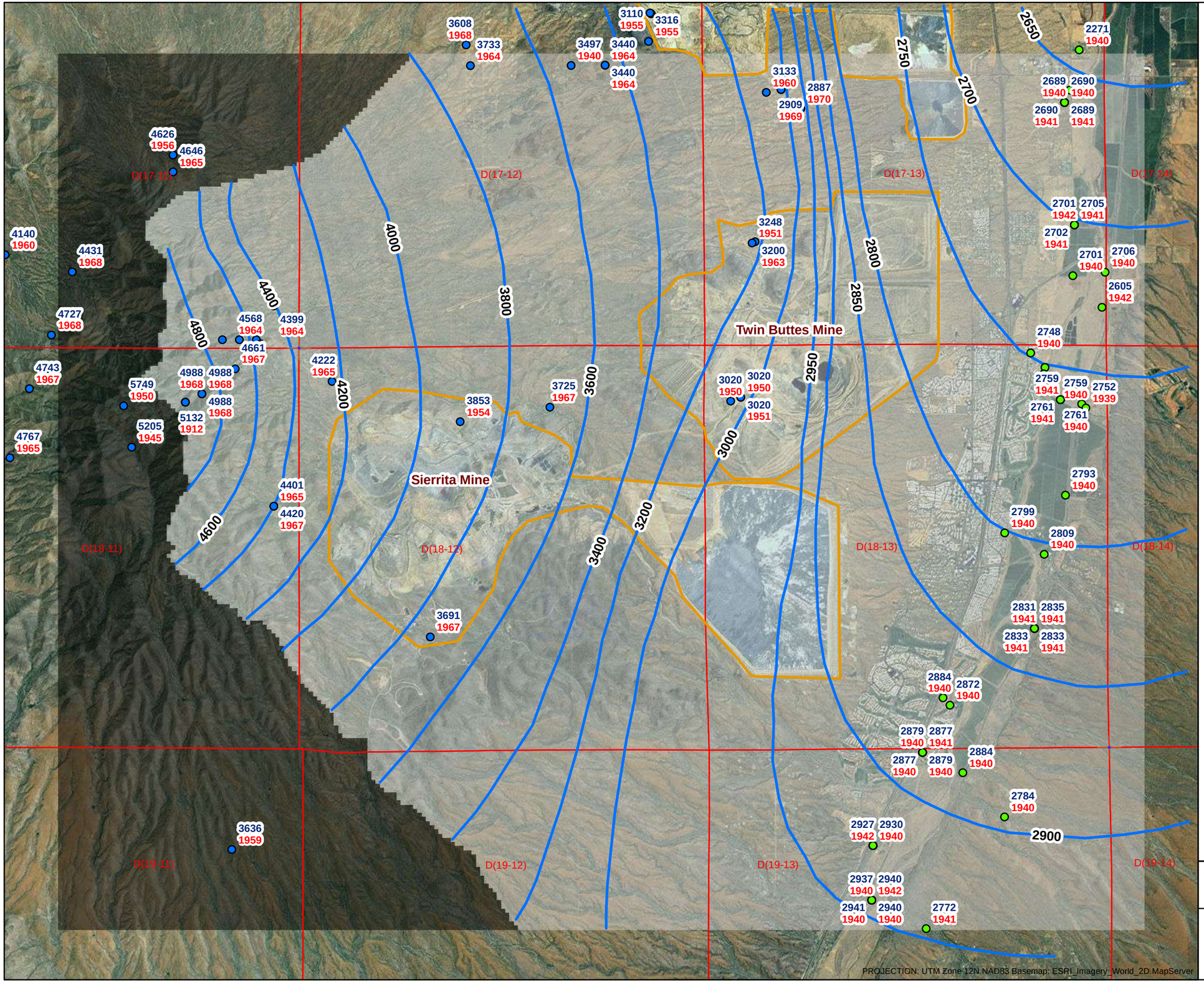
Environment, Land & Water Department
6200 West Duval Mine Road
PO Box 527
Green Valley, Arizona 85622-0527

Attachment 3



Legend

- 1940 Basin Fill Water Levels
- 1967 and Older Bedrock Water Levels
- Approximate Steady State Water Level Contour (feet-MSL)
- Mine Properties
- Township

Boundary Conditions

- Active
- Noflow

Blue text = Water Level Elevation
Red text = Year of Measurement

NOTE: Water levels are listed in feet above mean sea level (AMSL).

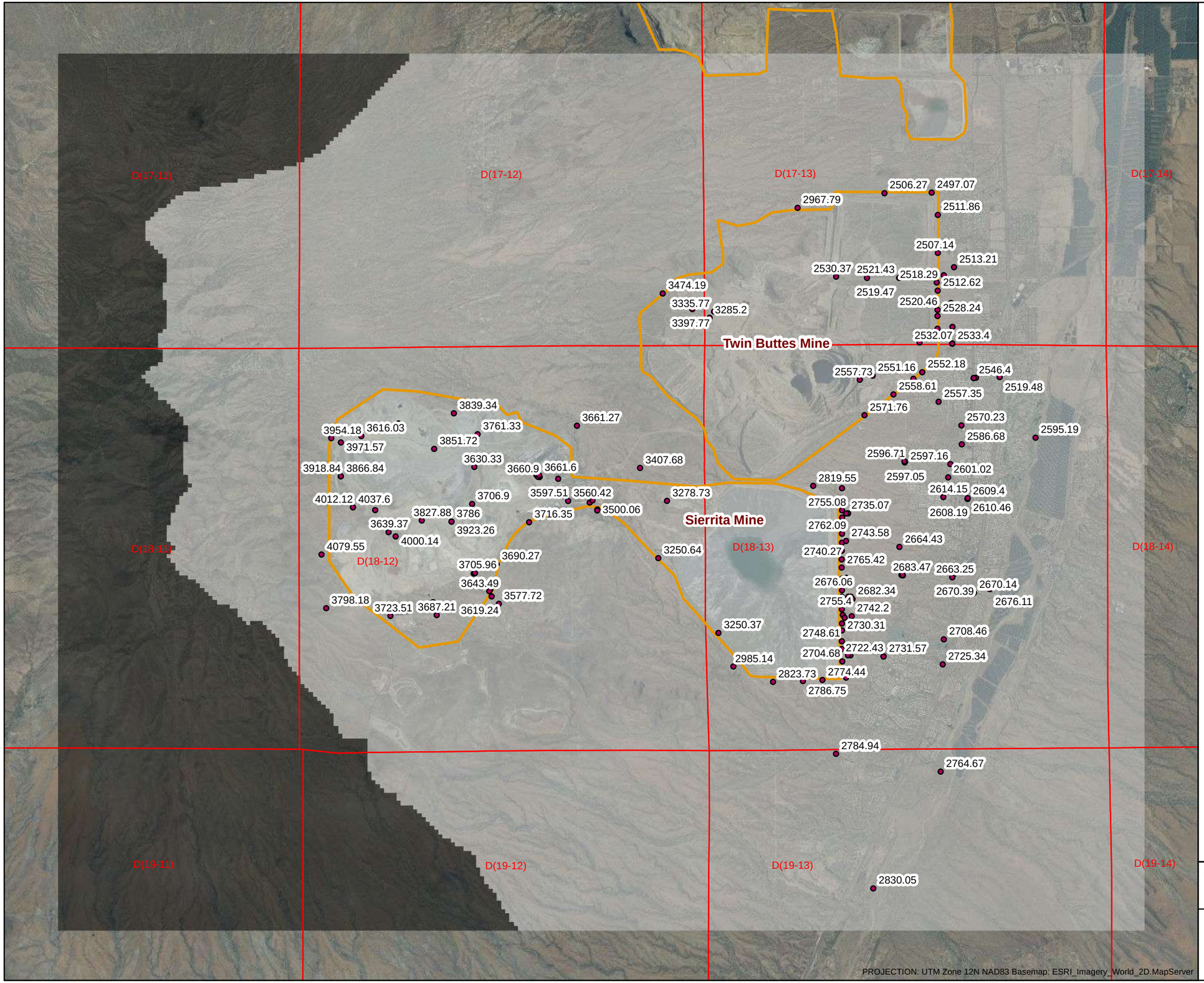
0 0.5 1 2 3 4
Miles

CLEAR CREEK ASSOCIATES

File: P:\Freeport McMoRan\Sierrita\6 Projects\2011 Bedrock Model Revision\4 Report\Figures\Figure 12 Pre-1967 Water Levels.mxd

Date: March 2012 Version: 1

FIGURE 13
1940 APPROXIMATE STEADY STATE GROUNDWATER LEVEL CONTOURS



Legend

- 2011 Water Level Measurements (feet)
- Mine Properties
- Township

Boundary Conditions

- Active
- Noflow

Aerial Photograph from USDA NAIP Coverage dated June 27, 2010.

NOTE: Water levels are listed in feet above mean sea level (AMSL).

0 0.5 1 2 3 4
Miles

CLEAR CREEK ASSOCIATES

File: P:\Freeport McMoRan\Sierrita\6 Projects\2011 Bedrock Model Revision\4 Report\Figures\Figure 14 2006 Water Levels V3 042011.mxd

Date: March 2012

Version: 1

Figure 14
2011 Water Levels in Model Domain

PZ-1947 3972.6
PZ-2011-5-350 3999.4
PZ-2011-5-680 4028
PZ-2010-1 3840.3
PZ-2010-3 3954.3
PZ-1946 3617
PZ-2010-2 3762.3
MH-21 3662.2
MW-2008-17 3661.8
MW-2008-18 3662.5
PZ-1942 3852.7
PZ-2197 3631.3
PZ-6 3730.2
PZ-5 3578.5
PZ-7 3408.6
MW-3 3657.6
PZ-2011-4-400 3919.8
Pit Lake Alt. 2461.9 (10/26/2011)
PZ-4 3598.4
PZ-2011-4-680 3867.8
Pit Lake Alt.2805.2 (10/26/2011)
MW-4 3658.2
PZ-9 3279.6
PZ-1941 3805
PZ-2193 3707.9
BW-3 3516.1
PZ-2011-3-400 4038.6
PZ-1948 3472.8
PZ-3 3561.3
BW-4 3516.8
PZ-2011-3-800 4013.1
PZ-2011-02 3828.9
PZ-2 3717.3
PZ-2011-1-400 3924.3
MW-2008-19 3667.3
PZ-2195 3715.6
PZ-12 4001.2
MH-23 3499.6
MH-22 3501
PZ-2196 3640.3
PZ-2011-1-660 3787
PZ-8 3251.5
MH-17 4080.6
MH-27 3691.2
PZ-13 3703.5
IW-2009-1 3631.9
IW-2009-2 3644.4
PZ-16 3694.5
BW-2 3620.2
PZ-1 3799.2
MH-18 3724.5
MH-20 3446.3
MH-19 3688.2
4000
3900
3800
3700
3600
3500
3400
3300
3200
3100
3000
2900
PROJECTION: UTM Zone 12N NAD83 Basemap: ESRI_Imagery_World_2D.MapServer

Legend

Latest 2011 Water Level Data

Well Depth

- Depth Not Known
- <200 Feet Deep
- >200 Feet Deep
- Contour (feet-MSL)
- Sierrita Buildings
- Township
- Section

Notes:

Well PZ-12 (southwest of Sierrita Pit) is a shallow well which may not be representative of regional water levels (not used for contouring).

Well PZ-2196 (north of PZ-12) appears to have anomalously low levels, which may represent levels from fractures which intersect the the pit (not used for contouring).

Wells PZ-2011-1-400 and PZ-2011-1-660 have very different water levels which may indicate strong vertical gradients, local fractures intersecting the pit or both effects (not used for contouring).

Aerial Photograph from USDA NAIP Coverage dated June 27, 2010.

0 1,000 2,000 4,000 6,000
Feet

CLEAR CREEK ASSOCIATES

File: P:\Freeport McMoRan\Sierrita\6 Projects\2011 Water Level Map\Figure 1 Sierrita 2011 WaterLevelMap.mxd

Date: March 2012 Version: 1

FIGURE 18
2011 APPROXIMATE GROUNDWATER LEVEL CONTOURS
SIERRITA-ESPERANZA PIT AREA, SIERRITA MINE