# SECOND QUARTER 2009
# GROUNDWATER MONITORING REPORT

## TASKS 1.0 AND 2.2 OF AQUIFER CHARACTERIZATION PLAN
## MITIGATION ORDER ON CONSENT DOCKET NO. P-121-07
## COCHISE COUNTY, ARIZONA

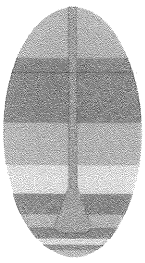
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July 9, 2009



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*Environmental Science & Technology*

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July 9, 2009

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# 1. INTRODUCTION

This data report was prepared for Freeport-McMoRan Copper Queen Branch (CQB), and provides the results of groundwater monitoring conducted in the second quarter of 2009 in the vicinity of the Concentrator Tailing Storage Area (CTSA). Groundwater monitoring was conducted by CQB pursuant to Tasks 1.0 and 2.2 of the Work Plan (Hydro Geo Chem, Inc. [HGC], 2008a) to characterize sulfate in the vicinity of the CTSA. The Work Plan was submitted to Arizona Department of Environmental Quality (ADEQ) on December 17, 2007 (ADEQ, 2007) pursuant to the Mitigation Order on Consent Docket No. P-121-07. CQB initiated water sampling prior to work plan approval while ADEQ was commenting on the Work Plan and CQB was responding to their comments. Revision 1 of the Work Plan was submitted to ADEQ on July 3, 2008 and ADEQ approved the Work Plan on August 3, 2008. HGC prepared this groundwater monitoring report on behalf of CQB.

## 1.1 Scope of Groundwater Monitoring

The scope of the groundwater monitoring program is described in Sections 3.2, 3.3.2 and 3.3.3 of the Work Plan (HGC, 2008a). This report presents the results of groundwater monitoring conducted in the second quarter of 2009 for Tasks 1.0 and 2.2 of the Work Plan. Groundwater monitoring for Task 1.0 consisted of identifying private drinking water supply wells and public water supply system wells within one mile of the sulfate plume. The groundwater plume is considered to consist of groundwater with sulfate in excess of 250 milligrams per liter (mg/L) attributable to the CTSA. In addition, ongoing quarterly monitoring of drinking water supply wells and monthly monitoring for sulfate trend analysis at certain wells are conducted as described in Section 4 of the Work Plan. Groundwater monitoring for Task 2.2 consisted of water elevation measurement and collection of groundwater samples from wells in the vicinity of the CTSA. Figure 1 presents a generalized geologic map of the study area and well locations where data were collected during this reporting period.

The Work Plan identifies two purposes for the groundwater monitoring program required in Task 2.2; plume monitoring and regional monitoring. Plume monitoring is conducted quarterly at wells that are proximal to the sulfate plume in order to track the plume's location in the aquifer. Regional monitoring to characterize hydrologic conditions outside the area of the sulfate plume was completed in the third quarter of 2008 (HGC, 2008b). This report presents the results of well inventory and plume monitoring conducted during the second quarter of 2009. Pursuant to the Work Plan, the only constituent of interest for monitoring is sulfate.

Table 1 lists wells identified in the Work Plan for plume monitoring, their availability for sampling in the second quarter of 2009, and their sampling status. Groundwater sampling and analysis methods used by HGC are described in the Quality Assurance Project Plan (QAPP) contained in Appendix F of the Work Plan (HGC, 2008a). Results of groundwater monitoring for Tasks 1.0 and 2.2 are presented in Section 2.

On April 23, 2009 a measuring point elevation survey was completed by Arizona Land Specialists, Inc. (ALS) for one public water company well that had a measurable water level. A copy of the survey report completed by ALS is included as Appendix A.1.

# 2. GROUNDWATER MONITORING RESULTS

## 2.1 Results of Monitoring for Tasks 1.0 and 2.2

Analytical results and groundwater elevation data for the second quarter of 2009 are tabulated in Table 2. Figure 2 shows the concentrations of dissolved sulfate in the wells sampled in the second quarter of 2009. The highest sulfate concentration measured at co-located wells was used for concentration contouring. Figure 3 shows groundwater elevations in the second quarter of 2009. Groundwater elevations were calculated using the depth to water measurements made under static (nonpumping) conditions for all wells shown.

## 2.2 Quality Assurance/Quality Control Review

Pursuant to Section 6.4 of the QAPP, a data verification report was prepared for quality assurance and quality control purposes. The data verification report and analytical laboratory reports for data collected by HGC during the second quarter of 2009 are included in Appendix A and Appendix B, respectively. Copies of groundwater sampling forms for samples collected by HGC are in Appendix C. As determined by the analytical data verification review, all data for samples collected in the second quarter of 2009 by HGC are of acceptable quality for use in the aquifer characterization being conducted pursuant to the Work Plan.

## 3. FINDINGS

This data report provides the results of groundwater monitoring conducted within the vicinity of the CTSA for the second quarter of 2009. Groundwater samples were collected from 80 plume monitoring and well inventory wells, and depth to water measurements were collected at 79 wells. Findings based on the second quarter 2009 groundwater monitoring are described below. The April 2009 Aquifer Characterization Report (HGC, 2009) provides detailed descriptions of the hydrogeology, water quality, and sulfate plume.

- Water quality samples have been collected from wells completed in three principal water-bearing units in the area: basin fill, undifferentiated Bisbee Group, and Glance Conglomerate. The undifferentiated Bisbee Group consists, from youngest to oldest, of the Cintura Formation, Upper Mural Limestone, Lower Mural Limestone and Morita Formation. Table 4 includes the well completion depth, screen interval, and screened lithology of wells sampled.

- Based on the sulfate concentration data the sulfate plume extends to the southwest from the vicinity of the former evaporation pond to the vicinity of Naco and to the south to the vicinity of Bisbee Junction (Figure 2). The groundwater monitoring data indicate that the sulfate plume extends over an area of approximately 2.8 miles by 3.9 miles and is contained primarily in the basin fill and undifferentiated Bisbee Group except near the former evaporation pond where wells in the Glance Conglomerate have sulfate concentrations greater than 250 mg/L. Comparison of the second quarter 2009 sulfate concentrations with previous quarters indicates no significant change in the plume geometry or movement since the Mitigation Order sampling began in the first quarter 2008.

- Groundwater elevations decrease from north to south east of the Black Gap fault in the region between the Bisbee Municipal Airport and Bisbee Junction, and from east to west across the central portion of the study area west of the Black Gap fault (Figure 3). Comparison of the second quarter 2009 water elevations with those observed in the first quarter 2009 indicates about a 0.80-foot decrease in the average groundwater elevation and only minor differences in the apparent groundwater flow directions.

- Groundwater monitoring conducted during the second quarter of 2009 is deemed to have met the objectives of monitoring drinking water supply wells within one mile of the plume, identifying the location of the sulfate plume, and providing potentiometric data in the vicinity of the plume.

# 4. REFERENCES

Arizona Department of Environmental Quality. 2007. Mitigation Order on Consent, Docket No. P-121-07, In the Matter of: Phelps Dodge Corporation, Copper Queen Branch, located at 36 West Highway 92, Bisbee, Arizona, ADEQ Identification Number 100531. November 14, 2007.

Hydro Geo Chem, Inc. (HGC). 2008a. Revision 1, Work Plan to Characterize and Mitigate Sulfate with Respect to Drinking Water Supplies in the Vicinity of the Concentrator Tailing Storage Area, Cochise County, Arizona. July 3, 2008.

HGC. 2008b. Third Quarter 2008, Groundwater Monitoring Report, Tasks 1.0, 2.2 and 2.3 of Aquifer Characterization Plan Mitigation Order on Consent No. P-121-07, Cochise County, Arizona. October 27, 2008.

HGC. 2009. Aquifer Characterization Report, Task 4.0 of Aquifer Characterization Plan, Mitigation Order on Consent Docket No. P-121-07, Cochise County, Arizona, Volume I. April 29, 2009.

# TABLES

# TABLE 1
## Summary of Groundwater Monitoring Second Quarter 2009

| Well Name | ADWR 55 Registry No. | Owner | Monitoring Purpose | Casing Depth (feet) | Water Level Measured? | Water Sample Collected? | Status |
|---|---|---|---|---|---|---|---|
| ANDERSON | 613396 | Anderson | Well Inventory | 236 | YES | YES | Water quality sample collected in April 2009 |
| AWC-02 | 616586 | Arizona Water Company | Plume | 330 | YES | YES | Water quality sample collected in April 2009 |
| AWC-03 | 616585 | Arizona Water Company | Plume | 269 | YES | YES | Water quality sample collected in April 2009 |
| AWC-04 | 616584 | Arizona Water Company | Plume | 250 | YES | YES | Water quality sample collected in April 2009 |
| AWC-05 | 590620 | Arizona Water Company | Plume | 1183 | YES | YES | Water quality sample collected in June 2009 |
| BANKS 986 | 647986 | Banks | Well Inventory | 435 | NO | YES | Water quality sample collected in April 2009; unable to collect water level due to obstruction |
| BANKS 987 | 647987 | Banks | Well Inventory | 339 | YES | NO | Well identified for water level measurements only |
| BARTON 010 | 085010 | Barton | Plume | 300 | NO | NO | Dry |
| BARTON 919 | 644919 | Barton | Plume | 130 | YES | NO | Well not operational; identified for water level measurements only |
| BF-01 | 539783 | Copper Queen Branch | Plume | 400 | YES | YES | Water quality sample collected in May 2009 |
| BIMA | 577927 | Bisbee Municipal Airport | Plume | 465 | YES | YES | Water quality sample collected in April 2009 |
| BLOMMER | 633472 | Blommer | Well Inventory | 380 | NO | NO | Owner declined participation in monitoring program |
| BMO-2008-1G | 909474 | Copper Queen Branch | Plume | 310 | YES | YES | Water quality sample collected in April 2009 |
| BMO-2008-3B | 909147 | Copper Queen Branch | Plume | 260 | YES | YES | Water quality sample collected in April 2009 |
| BMO-2008-4B | 910096 | Copper Queen Branch | Plume | 610 | YES | YES | Water quality sample collected in April 2009 |
| BMO-2008-5B | 909653 | Copper Queen Branch | Plume | 285 | YES | YES | Water quality sample collected in April 2009 |
| BMO-2008-5M | 909552 | Copper Queen Branch | Plume | 450 | YES | YES | Water quality sample collected in April 2009 |
| BMO-2008-6B | 909146 | Copper Queen Branch | Plume | 265 | YES | YES | Water quality sample collected in April 2009 |
| BMO-2008-6M | 909019 | Copper Queen Branch | Plume | 450 | YES | YES | Water quality sample collected in April 2009 |
| BMO-2008-7M | 908794 | Copper Queen Branch | Plume | 670 | YES | YES | Water quality sample collected in May 2009 |
| BMO-2008-8B | 910097 | Copper Queen Branch | Plume | 480 | YES | YES | Water quality sample collected in May 2009 |
| BMO-2008-8M | 909711 | Copper Queen Branch | Plume | 1210 | YES | YES | Water quality sample collected in May 2009 |
| BMO-2008-9M | 909255 | Copper Queen Branch | Plume | 775 | YES | YES | Water quality sample collected in May 2009 |
| BMO-2008-10GU | 909272 | Copper Queen Branch | Plume | 449 | YES | YES | Water quality sample collected in May 2009 |
| BMO-2008-10GL | 909435 | Copper Queen Branch | Plume | 810 | YES | YES | Water quality sample collected in May 2009 |
| BMO-2008-11G | 909434 | Copper Queen Branch | Plume | 760 | YES | YES | Water quality sample collected in April 2009 |
| BMO-2008-13B | 909551 | Copper Queen Branch | Plume | 474 | YES | YES | Water quality sample collected in May 2009 |
| BMO-2008-13M | 909760 | Copper Queen Branch | Plume | 1030 | YES | YES | Water quality sample collected in April 2009 |
| BULLARD | 602134 | Bullard | Plume | 300 | NO | NO | Well not operational; unable to collect water level due to obstruction |
| BURKE | 212268 | Burke | Plume | 781 | YES | YES | Water quality sample collected in April 2009 |

# TABLE 1
## Summary of Groundwater Monitoring Second Quarter 2009

| Well Name | ADWR 55 Registry No. | Owner | Monitoring Purpose | Casing Depth (feet) | Water Level Measured? | Water Sample Collected? | Status |
|---|---|---|---|---|---|---|---|
| CHAMBERS | 629807 | Chambers | Well Inventory | 245 | NO | YES | Water quality samples collected in April 2009; no access to well casing for water level measurement |
| COB MW-1 | 903992 | City of Bisbee | Plume | 420 | YES | YES | Water quality sample collected in April 2009 |
| COB MW-2 | 903984 | City of Bisbee | Plume | 170 | YES | YES | Water quality sample collected in April 2009 |
| COB MW-3 | 906823 | City of Bisbee | Plume | 269 | YES | YES | Water quality sample collected in April 2009 |
| COB WL | 593116 | City of Bisbee | Plume | 150 | YES | YES | Water quality sample collected in April 2009 |
| COLLINS[1] | 565260 | Collins | Well Inventory | 320 | YES | YES | Water quality sample collected in April 2009 |
| COOPER | 623564 | Cooper, Teresa | Plume | 325 | NO | YES | Water quality samples collected in April 2009; unable to collect water level due to obstruction |
| COOPER C | 637069 | Cooper, Charles | Plume | 220 | YES | YES | Water quality sample collected in April 2009 |
| CROWLEY | 510298 | Crowley | Plume | 788 | NO | NO | Dry |
| DODSON | 644927 | Dodson | Plume | 200 | YES | YES | Water quality sample collected in April 2009 |
| DOUGLASS 791 | 592791 | Douglass | Well Inventory | 200 | YES | NO | Well not operational; identified for water level measurements only |
| DOUGLASS 792 | 592792 | Douglass | Well Inventory | 200 | YES | NO | Well not operational; identified for water level measurements only |
| DURAZO | NR | Durazo | Well Inventory | ND | NO | YES | Water quality samples collected in April 2009; no access to well casing for water level measurement |
| EAST | 599796 | East | Well Inventory | 125 | YES | YES | Water quality sample collected in April 2009 |
| EPPELE 641 | 805641 | Eppele | Well Inventory | 265 | YES | YES | Water quality sample collected in April 2009 |
| FLEMING | 218386 | Fleming | Well Inventory | 400 | YES | NO | Well installed in February 2009 however, not operational; identified for water level measurement only |
| FRANCO | 500101 | Franco | Well Inventory | 200 | NO | YES | Water quality sample collected in April 2009; unable to collect water level measurement due to obstruction |
| FULTZ | 212447 | Fultz | Well Inventory | 300 | YES | YES | Water quality sample collected in April 2009 |
| GARNER 557 | 558557 | Garner | Plume | 300 | YES | NO | Well identified for water level measurements only |
| GARNER 635 | 587635 | Garner | Plume | 680 | YES | YES | Water quality sample collected in April 2009 |
| GGOOSE 546 | 628546 | Galloping Goose Properties | Plume | 430 | NO | NO | Well not operational, unable to collect water level due to obstruction |
| GGOOSE 547 | 628547 | Galloping Goose Properties | Plume | 800 | YES | YES | Water quality sample collected in May 2009 |
| GL-03 | 539782 | Copper Queen Branch | Plume | 820 | YES | YES | Water quality sample collected in May 2009 |
| GOAR RANCH | 610695 | Goar | Well Inventory | 250 | YES | NO | Well identified for water level measurement only |
| GREGG | 630852 | Gregg | Plume | ND | NO | NO | Dry |
| HOBAN | 805290 | Hoban | Well Inventory | 316 | YES | YES | Water quality sample collected in April 2009 |
| HOWARD | NR | Howard | Well Inventory | 200 | YES | YES | Water quality sample collected in April 2009 |
| HULL 854 | 606854 | Hull | Plume | 25 | NO | NO | Well not located |
| KEEFER | 209744 | Keefer | Well Inventory | 245 | YES | YES | Water quality sample collected in April 2009 |
| MCCONNELL 265 | 539265 | McConnell, Virginia | Well Inventory | 216 | YES | YES | Water quality sample collected in April 2009 |
| METZLER | 35-71891 | Metzler | Well Inventory | 351 | YES | YES | Water quality sample collected in April 2009 |

# TABLE 1
## Summary of Groundwater Monitoring Second Quarter 2009

| Well Name | ADWR 55 Registry No. | Owner | Monitoring Purpose | Casing Depth (feet) | Water Level Measured? | Water Sample Collected? | Status |
|---|---|---|---|---|---|---|---|
| MILLER 340 | 641340 | Miller | Plume | 200 | NO | NO | Dry |
| MILLER 341 | 641341 | Miller | Plume | 100 | NO | NO | Dry |
| MINOR 317 | 063317 | Minor | Well Inventory | 155 | NO | NO | Owner declined participation in monitoring program |
| MOORE | 538847 | Moore | Well Inventory | 220 | NO | YES | Water quality sample collected in April 2009; unable to collect water level, sounder diameter too large for access port |
| MOROYOQUI | 647847 | Moroyoqui | Well Inventory | 280 | NO | NO | Dry |
| NESS | 509127 | Ness | Well Inventory | 812 | YES | YES | Water quality sample collected in May 2009 |
| NOTEMAN | 212483 | Noteman | Well Inventory | 400 | NO | YES | Water quality sample collected in April 2009; unable to collect water level due to obstruction |
| NWC-02 | 562944 | Naco Water Company | Plume | 312 | YES | YES | Water quality sample collected in April 2009 |
| NWC-03 | 203321 | Naco Water Company | Plume | 312 | YES | YES | Water quality sample collected in April 2009 |
| NWC-03 CAP | 627684 | Naco Water Company | Plume | 179 | YES | NO | Well identified for water level measurements only |
| NWC-04 | 551849 | Naco Water Company | Well Inventory / Sulfate Trend | 795 | YES | YES | Water quality samples collected in April, May and June 2009 |
| NWC 04 CAP | 627685 | Naco Water Company | Plume | 379 | NO | NO | Well Capped |
| NWC-06 | 575700 | Naco Water Company | Well Inventory | 410 | YES | YES | Water quality sample collected in April 2009 |
| OSBORN | 643436 | Osborn | Plume | 258 | YES | YES | Water quality sample collected in April 2009 |
| PALMER | 578819 | Palmer | Well Inventory | 220 | NO | YES | Water quality sample collected in April 2009; no access to well casing for water level measurement |
| PANAGAKOS | 35-76413 | Panagakos | Well Inventory | 200 | YES | YES | Water quality sample collected in April 2009 |
| PARRA | 576415 | Parra | Plume | 355 | YES | YES | Water quality sample collected in April 2009 |
| PIONKE | 613395 | Pionke | Well Inventory | 300 | YES | YES | Water quality sample collected in April 2009 |
| POOL | 509518 | Pool | Well Inventory | 313 | YES | YES | Water quality sample collected in April 2009 |
| RAMIREZ | 216425 | Ramirez | Well Inventory | 300 | YES | YES | Water quality sample collected in April 2009 |
| RAY | 803772 | Ray | Well Inventory | 100 | YES | YES | Water quality sample collected in April 2009 |
| ROGERS 803 | 641803 | Rogers, Ernest D | Plume | 140 | YES | YES | Water quality sample collected in April 2009 |
| ROGERS E | 216018 | Rogers, Ernest M | Well Inventory | 290 | YES | YES | Water quality sample collected in April 2009 |
| RUIZ | 531770 | Ruiz | Well Inventory | 312 | YES | YES | Water quality sample collected in April 2009 |
| SCHWARTZ | 210865 | Schwartz | Well Inventory | 305 | YES | YES | Water quality sample collected in April 2009 |
| STEPHENS | 808560 | Stephens | Well Inventory | NR | YES | NO | Well identified for water level measurement only |
| SUNBELT | 201531 | Sunbelt Marketing, Inc. | Well Inventory | 380 | YES | NO | Well identified for water level measurement only |
| SWAN | NR | Swan, Alan | Well Inventory | NR | YES | YES | Water quality sample collected in April 2009 |
| TM-02 | 522573 | Copper Queen Branch | Plume | 640 | NO | NO | Pump intake above water level; unable to collect water level due to obstruction |
| TM-02A | 522574 | Copper Queen Branch | Plume | 925 | YES | YES | Water quality sample collected in May 2009 |

# TABLE 1
## Summary of Groundwater Monitoring Second Quarter 2009

| Well Name | ADWR 55 Registry No. | Owner | Monitoring Purpose | Casing Depth (feet) | Water Level Measured? | Water Sample Collected? | Status |
|---|---|---|---|---|---|---|---|
| TM-03 | 522575 | Copper Queen Branch | Plume | 200 | YES | YES | Water quality sample collected in May 2009 |
| TM-06 MILLER | 522695 | Miller | Plume | 200 | YES | YES | Water quality sample collected in May 2009 |
| TM-07 | 522576 | Copper Queen Branch | Plume | 350 | NO | YES | Water quality sample collected in May 2009; unable to collect water level due to obstruction |
| TM-10 USBP | 522696 | U.S. Border Patrol | Plume | 290 | NO | NO | Owner declined participation in monitoring program |
| TM-11 PIONKE | 522815 | Pionke | Plume | 160 | NO | NO | Dry |
| TM-13 MILLER | 522698 | Miller | Plume | 200 | NO | NO | Dry |
| TM-15 MILLER | 522699 | Miller | Well Inventory | 325 | NO | YES | Water quality sample collected in May 2009; unable to collect water level due to obstruction |
| TM-16 | 522578 | Copper Queen Branch | Plume | 115 | YES | YES | Water quality sample collected in May 2009 |
| TM-17 | 522700 | Copper Queen Branch | Plume | 200 | NO | NO | Dry |
| TM-19 | 522581 | Copper Queen Branch | Plume | 210 | NO | NO | Dry |
| TM-19A | 522580 | Copper Queen Branch | Plume | 700 | YES | YES | Water quality sample collected in April 2009 |
| TM-41 | 562555 | Copper Queen Branch | Plume | 210 | NO | NO | Dry |
| TM-42 | 562554 | Copper Queen Branch | Plume | 250 | YES | YES | Water quality sample collected in May 2009 |
| TVI 236 | 802236 | Turquoise Valley, Inc. | Well Inventory | 222 | YES | YES | Water quality sample collected in April 2009 |
| TVI 713 | 567713 | Turquoise Valley, Inc. | Well Inventory | 200 | YES | NO | Well identified for water level measurements only |
| TVI 875 | 568875 | Turquoise Valley, Inc. | Plume | 330 | NO | YES | Water quality sample collected in April 2009, no access to well casing for water level measurement |
| WEED | 544535 | Weed | Plume | 320 | NO | YES | Water quality sample collected in April 2009, no access to well casing for water level measurement |
| WEISKOPF | 641802 | Weiskopf | Plume | 200 | YES | YES | Water quality sample collected in April 2009 |
| ZANDER | 205126 | Zander | Well Inventory | 280 | YES | YES | Water quality sample collected in April 2009 |

***Notes:***

***ADWR = Arizona Department of Water Resources***
***BIMA = Bisbee Municipal Airport***
***ft amsl = feet above mean sea level***
***NA = Not Applicable***
***ND = No Data***
***NR = No Record***
***35-71891 = ADWR 35 Database***
***[1] former owner ENGLUND***

**TABLE 2**
**Compilation of Analytical Results**
**For Inorganic Analytes and Field Parameters**

| Well Name | ADWR 55 Registry No. | Sample Date | pH (SU) | Temp (deg C) | SC (µS/cm) | Sulfate, dissolved | Chloride, dissolved | Fluoride, dissolved | Nitrate as N, dissolved | Nitrate/Nitrite as N, dissolved | Nitrite as N, dissolved | Calcium, dissolved | Magnesium, dissolved | Potassium, dissolved | Sodium, dissolved | Bicarbonate as CaCO3 | Carbonate as CaCO3 | Hydroxide as CaCO3 | Total Alkalinity | Residue, Filterable (TDS) @ 180ºC | TDS (calculated) | TDS Ratio (measured/ calculated) | Sum of Anions (meq/L) | Sum of Cations (meq/L) | Cation-Anion Balance (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANDERSON | 613396 | 03/20/08 | 7.25 | 21.1 | 1176 | 431 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ANDERSON | 613396 | 05/05/08 | 7.03 | 21.8 | 1231 | 452 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ANDERSON | 613396 | 07/14/08 | 7.11 | 21.6 | 1260 | 472 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ANDERSON | 613396 | 10/15/08 | 7.10 | 21.3 | 1252 | 475 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ANDERSON | 613396 | 01/27/09 | 7.27 | 21 | 965 | 488 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ANDERSON | 613396 | 04/14/09 | 7.12 | 21.8 | 1229 | 534 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-02 | 616586 | 01/07/08 | - | - | - | 14 | 14 | - | 2.04 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-02 | 616586 | 03/03/08 | - | - | - | 16 | 16 | - | 2.41 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-02 | 616586 | 05/05/08 | - | - | - | 13.3 | 15.9 | - | 2.22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-02 | 616586 | 08/12/08 | 7.01 | 22.3 | 630 | 14.3 | 17.8 | 0.2 | 2.42 | 2.42 | <0.01 | 66.4 | 9.1 | 2.1 | 20.0 | 181 | 5 | <2 | 186 | 280 | 255 | 1.10 | 4.7 | 5.0 | 3.1 |
| AWC-02 | 616586 | 10/23/08 | 7.31 | 23.1 | 464 | 15.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-02 | 616586 | 03/11/09 | 7.19 | 21.8 | 420 | 15.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-02 | 616586 | 04/22/09 | 7.17 | 22.6 | 430 | 14.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-03 | 616585 | 01/07/08 | - | - | - | 41 | 14 | - | 2.09 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-03 | 616585 | 03/03/08 | - | - | - | 38 | 14 | - | 2.12 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-03 | 616585 | 05/05/08 | - | - | - | 37.3 | 12.2 | - | 2.20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-03 | 616585 | 08/12/08 | 7.28 | 22.4 | 469 | 38.8 | 15.5 | 0.2 | 2.28 | 2.28 | <0.01 | 62.8 | 8.6 | 2.1 | 22.8 | 156 | 5 | <2 | 162 | 290 | 260 | 1.12 | 4.6 | 4.9 | 3.2 |
| AWC-03 | 616585 | 10/23/08 | 7.48 | 21.0 | 462 | 41.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-03 | 616585 | 03/11/09 | 7.25 | 21.2 | 445 | 64.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-03 | 616585 | 04/22/09 | 7.30 | 21.4 | 452 | 42.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-04 | 616584 | 02/04/08 | - | - | - | 18 | 40 | - | 2.26 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-04 | 616584 | 04/07/08 | - | - | - | 18 | 45 | - | 2.28 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-04 | 616584 | 06/02/08 | - | - | - | 14.3 | 48 | - | 2.18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-04 | 616584 | 08/12/08 | 7.08 | 22.5 | 458 | 21.6 | 47.5 | 0.1 | 1.94 | 1.94 | <0.01 | 88.7 | 11.6 | 2.6 | 22.8 | 206 | <2 | <2 | 206 | 380 | 328 | 1.16 | 6.0 | 6.4 | 3.2 |
| AWC-04 | 616584 | 10/23/08 | 6.91 | 22.2 | 616 | 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-04 | 616584 | 03/11/09 | 7.02 | 21.3 | 539 | 27.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-04 | 616584 | 04/22/09 | 6.93 | 22.1 | 560 | 26.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-05 | 590620 | 02/04/08 | - | - | - | 13 | 15 | - | 1.80 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-05 | 590620 | 04/07/08 | - | - | - | 14 | 14 | - | 1.94 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-05 | 590620 | 06/02/08 | - | - | - | 14.3 | 15.6 | - | 1.86 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-05 | 590620 | 08/12/08 | 6.74 | 23.3 | 425 | 14.9 | 16.1 | 0.1 | 2.02 | 2.02 | <0.01 | 50.6 | 6.2 | 2.2 | 35.6 | 164 | 8 | <2 | 172 | 280 | 242 | 1.16 | 4.3 | 4.6 | 3.4 |
| AWC-05 | 590620 | 10/23/08 | 7.45 | 21.0 | 422 | 15.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-05 | 590620 | 03/11/09 | 7.31 | 22.1 | 398 | 16.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AWC-05 | 590620 | 06/03/09 | 7.33 | 22.0 | 418 | 12.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BANKS 986 | 647986 | 02/27/08 | 7.53 | 21.8 | 980 | 44 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BANKS 986 | 647986 | 05/12/08 | 7.40 | 22.1 | 1021 | 65.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BANKS 986 | 647986 | 07/21/08 | 7.43 | 22.9 | 1034 | 82.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BANKS 986 | 647986 | 10/13/08 | 7.28 | 21.7 | 980 | 53 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BANKS 986 | 647986 | 01/21/09 | 7.66 | 21.6 | 872 | 164 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BANKS 986 | 647986 | 04/08/09 | 7.56 | 22.7 | 933 | 47 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BF-01 | 539783 | 03/04/08 | 6.46 | 21.9 | 2745 | 1320 | 30.4 | <0.1 | 0.92 | 0.92 | <0.01 | 621 | 100 | 4.5 | 60.2 | 610 | <2 | <2 | 610 | 2850 | 2510 | 1.14 | 40.8 | 42.0 | 1.4 |
| BF-01 | 539783 | 05/23/08 | 6.41 | 18.3 | 2698 | 1450 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BF-01 | 539783 | 08/05/08 | 6.11 | 22.4 | 3095 | 1330 | 30 | <2 | 1.09 | 1.09 | <0.01 | 624 | 107 | 4.5 | 61.3 | 579 | <2 | <2 | 579 | 2820 | 2510 | 1.12 | 40.4 | 42.8 | 2.9 |
| BF-01 | 539783 | 11/05/08 | 6.33 | 19.9 | 3027 | 1490 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BF-01 | 539783 | 02/20/09 | 6.42 | 19.2 | 1477 | 1330 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BF-01 | 539783 | 05/06/09 | 5.98 | 23.9 | 2632 | 1280 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIMA | 577927 | 02/06/08 | 6.69 | 22.2 | 1335 | 210 | 105 | 0.1 | 6.80 | 6.80 | <0.01 | 224.0 | 48.4 | 12.4 | 65.9 | 510 | <2 | <2 | 510 | 980 | 1000 | 0.98 | 18.0 | 18.4 | 1.1 |
| BIMA [1] | 577927 | 04/25/08 | 6.37 | 23.1 | 1521 | 190 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIMA [1] | 577927 | 05/13/08 | 6.58 | 22.7 | 1489 | 195 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIMA [1] | 577927 | 06/23/08 | 6.30 | 23.3 | 1572 | 225 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIMA DUP | 577927 | 06/23/08 | 6.30 | 23.3 | 1572 | 196 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIMA [1] | 577927 | 07/29/08 | 6.44 | 23.0 | 1647 | 204 | 101 | 0.1 | 7.85 | 7.85 | <0.01 | 209 | 46.5 | 12.2 | 63.6 | 456 | <2 | <2 | 456 | 1040 | 945 | 1.10 | 16.8 | 17.4 | 1.8 |
| BIMA [1] | 577927 | 08/28/08 | M | 23.0 | 1776 | 256 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIMA [1] | 577927 | 09/23/08 | 6.29 | 23.0 | 1741 | 296 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIMA | 577927 | 10/22/08 | 6.41 | 22.3 | 1801 | 285 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIMA | 577927 | 01/20/09 | 6.40 | 21.7 | 1233 | 190 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIMA DUP | 577927 | 01/20/09 | 6.40 | 21.7 | 1233 | 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BIMA | 577927 | 04/07/09 | 6.45 | 23.4 | 1436 | 212 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BLOMMER | 633472 | 02/05/08 | 7.43 | 20.2 | 714 | 206 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BLOMMER [1] | 633472 | 04/21/08 | 7.06 | 21.9 | 753 | 201 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BLOMMER [1] | 633472 | 05/15/08 | 7.16 | 22.2 | 845 | 211 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BLOMMER [1] | 633472 | 06/23/08 | 6.93 | 21.5 | 903 | 193 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BLOMMER [1] | 633472 | 07/29/08 | 7.21 | 22.2 | 921 | 203 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BLOMMER [1] | 633472 | 08/27/08 | 7.12 | 22.1 | 864 | 189 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BLOMMER [1] | 633472 | 09/23/08 | 7.16 | 22.3 | 818 | 193 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BLOMMER | 633472 | 10/22/08 | 7.17 | 21.3 | 873 | 200 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-1G | 909474 | 08/27/08 | 7.09 | 24.2 | 808 | 107 | 76.3 | 0.1 | 13.5 | 13.5 | <0.01 | 124 | 32.2 | 6.4 | 35.7 | 229 | 9 | <2 | 238 | 580 | 588 | 0.99 | 10.1 | 10.6 | 2.4 |
| BMO-2008-1G | 909474 | 11/11/08 | 7.00 | 20.8 | 721 | 143 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-1G | 909474 | 02/25/09 | 7.01 | 22.0 | 860 | 109 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-1G | 909474 | 04/28/09 | 7.04 | 22.2 | 762 | 198 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-3B | 909147 | 07/18/08 | 7.35 | 23.9 | 615 | 106 | 24 | 0.3 | 3.68 | 3.72 | 0.04 | 64.5 | 12 | 2.9 | 53.6 | 151 | 3 | <2 | 154 | 390 | 373 | 1.05 | 6.2 | 6.6 | 3.1 |
| BMO-2008-3B | 909147 | 11/04/08 | 7.36 | 21.4 | 599 | 179 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-3B DUP | 909147 | 11/04/08 | 7.36 | 21.4 | 599 | 177 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-3B | 909147 | 02/19/09 | 7.24 | 21.4 | 664 | 155 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-3B | 909147 | 05/11/09 | 7.23 | 22.1 | 631 | 149 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**TABLE 2**
**Compilation of Analytical Results**
**For Inorganic Analytes and Field Parameters**

| Well Name | ADWR 55 Registry No. | Sample Date | pH (SU) | Temp (deg C) | SC (µS/cm) | Sulfate, dissolved | Chloride, dissolved | Fluoride, dissolved | Nitrate as N, dissolved | Nitrate/Nitrite as N, dissolved | Nitrite as N, dissolved | Calcium, dissolved | Magnesium, dissolved | Potassium, dissolved | Sodium, dissolved | Bicarbonate as CaCO3 | Carbonate as CaCO3 | Hydroxide as CaCO3 | Total Alkalinity | Residue, Filterable (TDS) @ 180ºC | TDS (calculated) | TDS Ratio (measured/ calculated) | Sum of Anions (meq/L) | Sum of Cations (meq/L) | Cation-Anion Balance (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BMO-2008-4B | 910096 | 12/11/08 | 7.34 | 22.8 | 374 | 9.4 | 4.3 | 0.2 | 0.78 | 0.78 | <0.01 | 49.2 | 7.1 | 1.4 | 33.4 | 183 | <2 | <2 | 183 | 240 | 228 | 1.05 | 4.2 | 4.5 | 3.4 |
| BMO-2008-4B | 910096 | 02/18/09 | 7.17 | 23.2 | 370 | 13.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-4B | 910096 | 04/30/09 | 7.33 | 24.5 | 376 | 11.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-4B DUP | 910096 | 04/30/09 | 7.33 | 24.5 | 376 | 11.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-5B | 909653 | 09/30/08 | 7.08 | 22.0 | 688 | 193 | 15 | 0.3 | 2.02 | 2.02 | <0.01 | 108 | 17.0 | 2.8 | 40.1 | 155 | <2 | <2 | 155 | 510 | 478 | 1.07 | 7.7 | 8.6 | 5.5 |
| BMO-2008-5B | 909653 | 02/18/09 | 7.03 | 21.5 | 691 | 192 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-5B | 909653 | 04/27/09 | 7.32 | 22.1 | 605 | 177 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-5M | 909552 | 10/02/08 | 7.13 | 23.6 | 551 | 107 | 15.1 | 0.2 | 1.85 | 1.85 | <0.01 | 75.8 | 11.4 | 2.6 | 34.1 | 138 | <2 | <2 | 138 | 390 | 337 | 1.16 | 5.5 | 6.2 | 6.0 |
| BMO-2008-5M | 909552 | 02/18/09 | 7.06 | 22.5 | 562 | 122 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-5M | 909552 | 04/27/09 | 7.50 | 22.9 | 501 | 111 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-6B | 909146 | 07/16/08 | 7.36 | 24.1 | 475 | 53.3 | 13 | 0.4 | 1.97 | 1.97 | <0.01 | 59.7 | 10.2 | 3.0 | 26.2 | 151 | 9 | <2 | 160 | 300 | 274 | 1.09 | 4.8 | 5.0 | 2.0 |
| BMO-2008-6B | 909146 | 11/04/08 | 7.41 | 21.5 | 398 | 60.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-6B | 909146 | 02/19/09 | 7.23 | 21.1 | 444 | 54.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-6B | 909146 | 04/27/09 | 7.55 | 21.7 | 389 | 52.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-6M | 909019 | 07/10/08 | M | 22.1 | 702 | 182 | 16 | 0.3 | 1.98 | 1.98 | <0.01 | 104 | 17.9 | 3.60 | 32.5 | 144 | 9 | <2 | 153 | 480 | 460 | 1.04 | 7.4 | 8.1 | 4.5 |
| BMO-2008-6M | 909019 | 11/04/08 | 7.33 | 21.8 | 621 | 199 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-6M | 909019 | 02/20/09 | 7.11 | 22.0 | 702 | 193 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-6M | 909019 | 04/28/09 | 7.34 | 22.4 | 595 | 119 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-7M | 908794 | 07/14/08 | 7.63 | 25.2 | 500 | 31.4 | 10.4 | 0.3 | 1.55 | 1.55 | <0.01 | 32.4 | 11.4 | 2.70 | 60.8 | 188 | 13 | <2 | 201 | 290 | 282 | 1.03 | 5.1 | 5.3 | 1.9 |
| BMO-2008-7M | 908794 | 11/06/08 | 7.53 | 22.6 | 380 | 34.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-7M | 908794 | 02/18/09 | 7.31 | 23.3 | 452 | 27.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-7M | 908794 | 05/11/09 | 7.43 | 24.4 | 426 | 26.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-8B | 910097 | 12/05/08 | 6.47 | 20.1 | 2480 | 1890 | 80 | 0.1 | 2.91 | 2.93 | 0.02 | 529 | 195 | 14.4 | 46.4 | 630 | <2 | <2 | 630 | 3080 | 3150 | 0.98 | 54.7 | 44.9 | -9.8 |
| BMO-2008-8B | 910097 | 02/19/09 | 6.19 | 21.0 | 2958 | 1570 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-8B | 910097 | 05/05/09 | 6.18 | 21.3 | 2888 | 1370 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-8M | 909711 | 12/09/08 | 7.16 | 23.4 | 852 | 197 | 13 | 0.3 | 1.78 | 1.78 | <0.01 | 89 | 43.0 | 5.80 | 64.9 | 260 | <2 | <2 | 260 | 640 | 576 | 1.11 | 9.8 | 11.0 | 5.8 |
| BMO-2008-8M | 909711 | 02/19/09 | 7.27 | 23.5 | 758 | 147 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-8M DUP | 909711 | 02/19/09 | 7.27 | 23.5 | 758 | 149 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-8M | 909711 | 05/05/09 | 7.19 | 25.1 | 680 | 122 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-9M | 909255 | 08/08/08 | 7.72 | 25.7 | 415 | 47.3 | 14 | 0.10 | 1.90 | 1.93 | 0.03 | 28.0 | 17.8 | 3.4 | 64.6 | 193 | 6 | <2 | 199 | 320 | 306 | 1.05 | 5.5 | 5.7 | 1.8 |
| BMO-2008-9M | 909255 | 11/05/08 | 7.89 | 21.4 | 444 | 54.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-9M | 909255 | 02/26/09 | 7.71 | 24.5 | 482 | 28.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-9M | 909255 | 05/12/09 | 7.76 | 24.8 | 449 | 51.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-10GU | 909272 | 08/04/08 | 6.41 | 23.6 | 3660 | 2210 | 60 | <2 | 0.13 | 0.16 | <0.01 | 649 | 311 | 15.3 | 37.6 | 984 | <2 | <2 | 984 | 3810 | 3870 | 0.98 | 67.8 | 60.0 | -6.1 |
| BMO-2008-10GU | 909272 | 11/05/08 | 6.15 | 20.2 | 3343 | 1890 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-10GU | 909272 | 02/25/09 | 5.96 | 22.7 | 3426 | 1740 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-10GU | 909272 | 05/06/09 | 5.99 | 23.2 | 3359 | 1710 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-10GL | 909435 | 08/20/08 | 6.22 | 29.5 | 2924 | 1320 | 30 | <2 | <0.02 | <0.02 | <0.01 | 579 | 167 | 10.5 | 90.5 | 870 | <2 | <2 | 870 | 2970 | 2720 | 1.09 | 46.0 | 46.9 | 1.0 |
| BMO-2008-10GL | 909435 | 11/05/08 | 6.47 | 25.3 | 2573 | 1290 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-10GL | 909435 | 02/25/09 | 6.34 | 26.8 | 2646 | 1180 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-10GL | 909435 | 05/12/09 | 6.35 | 26.2 | 2402 | 1120 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-11G | 909434 | 08/22/08 | 8.02 | 28.2 | 359 | 14.2 | 2.8 | 0.2 | 0.56 | 0.56 | <0.01 | 10.7 | 5.1 | 1.7 | 64.2 | 149 | 14 | <2 | 163 | 220 | 205 | 1.07 | 3.6 | 3.8 | 2.7 |
| BMO-2008-11G | 909434 | 11/12/08 | 7.96 | 24.2 | 257 | 13.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-11G | 909434 | 02/26/09 | 7.92 | 25.1 | 319 | 12.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-11G | 909434 | 04/28/09 | 8.14 | 25.5 | 273 | 11.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-13B | 909551 | 10/03/08 | 6.49 | 21.6 | 2180 | 980 | 23 | <0.2 | 1.92 | 1.92 | <0.01 | 420 | 79.8 | 6.8 | 53.0 | 347 | <2 | <2 | 347 | 2040 | 1780 | 1.15 | 28.3 | 30.1 | 3.1 |
| BMO-2008-13B | 909551 | 02/17/09 | 6.51 | 20.9 | 1941 | 1000 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-13B | 909551 | 05/06/09 | 6.55 | 22.0 | 1891 | 930 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-13M | 909760 | 12/03/08 | 7.73 | 24.1 | 1463 | 494 | 20 | 0.7 | 0.02 | 0.02 | <0.01 | 35.1 | 13.2 | 3.4 | 286 | 259 | 3 | <2 | 262 | 970 | 1010 | 0.96 | 16.2 | 15.5 | -2.2 |
| BMO-2008-13M | 909760 | 02/17/09 | 8.21 | 22.7 | 1340 | 441 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BMO-2008-13M | 909760 | 04/29/09 | 8.04 | 24.8 | 1126 | 217 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BURKE | 212268 | 02/07/08 | 7.17 | 23.0 | 411 | 29.5 | 31.8 | 0.3 | 1.83 | 1.83 | <0.01 | 62.3 | 22.8 | 2.8 | 26.0 | 212 | <2 | <2 | 212 | 360 | 311 | 1.16 | 5.9 | 6.2 | 2.5 |
| BURKE | 212268 | 04/22/08 | 7.13 | 27.0 | 423 | 26 | 11 | 0.2 | 2.88 | 2.88 | <0.01 | 52.1 | 22 | 2.3 | 16.9 | 191 | <2 | <2 | 191 | 260 | - | - | - | - | - |
| BURKE | 212268 | 08/05/08 | 7.06 | 26.8 | 496 | 21.9 | 10 | 0.2 | 2.81 | 2.85 | <0.01 | 52.5 | 22.3 | 2.3 | 16.1 | 187 | <2 | <2 | 187 | 260 | 250 | 1.04 | 4.6 | 5.2 | 6.1 |
| BURKE | 212268 | 10/20/08 | 7.57 | 26.0 | 466 | 20.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BURKE | 212268 | 02/11/09 | 7.23 | 25.0 | 363 | 23.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BURKE | 212268 | 04/28/09 | 7.16 | 26.1 | 369 | 24.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CHAMBERS | 629807 | 03/06/08 | 7.73 | 17.8 | 408 | 7.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CHAMBERS | 629807 | 05/05/08 | 7.15 | 22.1 | 421 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CHAMBERS | 629807 | 07/14/08 | 7.43 | 23.2 | 434 | 5.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CHAMBERS | 629807 | 10/15/08 | 7.41 | 22.5 | 420 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CHAMBERS | 629807 | 01/27/09 | 7.57 | 21.5 | 312 | 5.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CHAMBERS | 629807 | 04/14/09 | 7.42 | 22.4 | 384 | 6.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**TABLE 2**
**Compilation of Analytical Results**
**For Inorganic Analytes and Field Parameters**

| Well Name | ADWR 55 Registry No. | Sample Date | pH (SU) | Temp (deg C) | SC (µS/cm) | Sulfate, dissolved | Chloride, dissolved | Fluoride, dissolved | Nitrate as N, dissolved | Nitrate/Nitrite as N, dissolved | Nitrite as N, dissolved | Calcium, dissolved | Magnesium, dissolved | Potassium, dissolved | Sodium, dissolved | Bicarbonate as CaCO3 | Carbonate as CaCO3 | Hydroxide as CaCO3 | Total Alkalinity | Residue, Filterable (TDS) @ 180ºC | TDS (calculated) | TDS Ratio (measured/ calculated) | Sum of Anions (meq/L) | Sum of Cations (meq/L) | Cation-Anion Balance (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COB MW-1 | 903992 | 02/22/08 | 6.93 | 21.2 | 1401 | 720 | 19.8 | 0.3 | 2.33 | 2.33 | <0.01 | 257.0 | 64.5 | 7.7 | 56.5 | 206 | 11 | <2 | 217 | 1360 | 1270 | 1.07 | 20.2 | 20.8 | 1.5 |
| COB MW-1 | 903992 | 05/20/08 | 6.88 | 22.0 | 2050 | 980 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COB MW-1 | 903992 | 07/30/08 | 6.88 | 21.7 | 1780 | 730 | 19.8 | 0.1 | 2.50 | 2.50 | <0.01 | 273 | 69.3 | 8.0 | 58.9 | 223 | <2 | <2 | 223 | 1500 | 1300 | 1.15 | 20.5 | 22.1 | 3.8 |
| COB MW-1 | 903992 | 10/23/08 | 6.95 | 21.2 | 1690 | 750 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COB MW-1 | 903992 | 02/12/09 | 6.92 | 21.1 | 1313 | 750 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COB MW-1 | 903992 | 04/21/09 | 7.15 | 22.7 | 1366 | 720 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COB MW-2 | 903984 | 02/22/08 | 7.28 | 20.2 | 417 | 41 | 19.4 | 0.3 | 6.49 | 6.49 | <0.01 | 66.4 | 9.0 | 2.1 | 25.5 | 156 | 12 | <2 | 168 | 340 | 298 | 1.14 | 5.2 | 5.2 | 0.0 |
| COB MW-2 | 903984 | 05/20/08 | 7.32 | 21.2 | 490 | 40.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COB MW-2 | 903984 | 07/30/08 | 7.34 | 20.8 | 511 | 37.6 | 19.9 | <0.1 | 6.80 | 6.80 | <0.01 | 66.3 | 9.0 | 2.1 | 26.6 | 158 | <2 | <2 | 158 | 330 | 286 | 1.15 | 4.9 | 5.2 | 3.0 |
| COB MW-2 | 903984 | 10/23/08 | 7.36 | 20.3 | 498 | 34.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COB MW-2 | 903984 | 02/12/09 | 7.35 | 20.2 | 379 | 35.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COB MW-2 | 903984 | 04/23/09 | 7.33 | 21.8 | 431 | 34 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COB MW-3 | 906823 | 02/28/08 | 7.39 | 21.0 | 416 | 57.8 | 16.2 | 0.2 | 2.0 | 2.0 | <0.01 | 62.2 | 8.9 | 2.2 | 25.5 | 159 | <2 | <2 | 159 | 300 | 277 | 1.08 | 5.0 | 5.0 | 0.0 |
| COB MW-3 | 906823 | 03/27/08 | - | - | - | 57.7 | 16.5 | 0.301 | - | 2.04 | - | - | 9.13 | 2.65 | 25.0 | 158 | 18 | <10 | 176 | 332 | - | - | - | - | - |
| COB MW-3 | 906823 | 04/30/08 | - | - | - | 37 | 14.5 | 0.12 | - | 2.05 | - | 62.8 | 8.87 | 3.13 | 24.1 | 184 | <10 | <10 | 184 | 68 | - | - | - | - | - |
| COB MW-3 | 906823 | 05/20/08 | 7.56 | 22.3 | 473 | 35.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COB MW-3 | 906823 | 07/24/08 | - | - | - | 64.9 | 16.4 | 0.354 | - | 2.03 | - | 61.1 | - | 2.13 | 21.9 | 176 | <10 | <10 | 176 | 318 | - | - | - | - | - |
| COB MW-3 | 906823 | 07/30/08 | 7.64 | 22.3 | 541 | 67.3 | 16.1 | 0.2 | 2.41 | 2.41 | <0.01 | 66.1 | 9.2 | 2.4 | 26.5 | 149 | <2 | <2 | 149 | 320 | 288 | 1.11 | 5.0 | 5.2 | 2.0 |
| COB MW-3 | 906823 | 10/09/08 | - | - | - | 52.5 | 17 | 0.463 | - | 1.83 | - | 60.7 | 8.55 | 2.68 | 23.1 | 162 | <10 | <10 | 162 | 355 | - | - | - | - | - |
| COB MW-3 | 906823 | 10/23/08 | 7.43 | 20.8 | 507 | 76.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COB MW-3 | 906823 | 02/12/09 | 7.35 | 21.1 | 432 | 112 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COB MW-3 | 906823 | 04/23/09 | 7.35 | 22.6 | 407 | 43.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COB WL | 593116 | 02/22/08 | 6.99 | 20.6 | 919 | 90 | 106 | 0.3 | 3.91 | 3.91 | <0.01 | 128 | 34.3 | 7.2 | 47.8 | 269 | 11 | <2 | 280 | 650 | 603 | 1.08 | 10.8 | 11.5 | 3.1 |
| COB WL | 593116 | 03/24/08 | - | - | - | 98.2 | 101 | 0.305 | - | 3.55 | - | - | - | 9.62 | 56.6 | 308 | <10 | <10 | 308 | 657 | - | - | - | - | - |
| COB WL | 593116 | 04/28/08 | - | - | - | 98.7 | 106 | 0.274 | - | 3.49 | - | - | 36.3 | 9.5 | 59.6 | 308 | <10 | <10 | 308 | 743 | - | - | - | - | - |
| COB WL | 593116 | 05/20/08 | 7.30 | 21.9 | 1053 | 98 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COB WL | 593116 | 07/30/08 | 7.17 | 22.0 | 1098 | 97.1 | 110 | 0.1 | 4.02 | 4.02 | <0.01 | 130 | 35 | 7.5 | 51.5 | 274 | <2 | <2 | 274 | 700 | 613 | 1.14 | 10.9 | 11.8 | 4.0 |
| COB WL | 593116 | 07/30/08 | - | - | - | 100 | 114 | 0.234 | - | 3.55 | - | 124 | 35.6 | 9.44 | 57.8 | 304 | <10 | <10 | 304 | 653 | - | - | - | - | - |
| COB WL | 593116 | 10/15/08 | - | - | - | 107 | 116 | 0.26 | - | 3.47 | - | 132 | 34.8 | 8.05 | 50.7 | 290 | <10 | <10 | 290 | 651 | - | - | - | - | - |
| COB WL | 593116 | 10/23/08 | 7.23 | 21.4 | 1075 | 104 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COB WL | 593116 | 02/12/09 | 6.98 | 20.6 | 814 | 94 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COB WL | 593116 | 04/23/09 | 7.29 | 22.2 | 923 | 98 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COLLINS | 565260 | 02/12/08 | 6.88 | 21.6 | 1470 | 520 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COLLINS | 565260 | 05/29/08 | 7.01 | 22.0 | 1459 | 520 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COLLINS | 565260 | 07/31/08 | 6.86 | 21.6 | 1502 | 536 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COLLINS | 565260 | 10/20/08 | 8.44 | 24.7 | 1510 | 518 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COLLINS | 565260 | 02/11/09 | 6.68 | 21.4 | 1147 | 567 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COLLINS | 565260 | 04/21/09 | 6.92 | 22.5 | 1150 | 499 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COOPER | 623564 | 02/14/08 | 7.02 | 20.8 | 371 | 33 | 17.5 | 0.3 | 2.82 | 2.82 | <0.01 | 47.9 | 13.8 | 2.2 | 25.3 | 154 | 9 | <2 | 163 | 270 | 254 | 1.06 | 4.6 | 4.7 | 1.1 |
| COOPER | 623564 | 05/14/08 | 8.08 | 22.1 | 419 | 34.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COOPER | 623564 | 07/31/08 | 7.81 | 28.4 | 455 | 33.7 | 16.9 | 0.2 | 2.68 | 2.68 | <0.01 | 48.9 | 13.3 | 2.1 | 24.6 | 150 | 7 | <2 | 157 | 260 | 249 | 1.04 | 4.5 | 4.6 | 1.1 |
| COOPER | 623564 | 10/20/08 | 8.44 | 24.7 | 448 | 31.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COOPER | 623564 | 02/11/09 | 7.32 | 19.2 | 333 | 34.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COOPER | 623564 | 04/21/09 | 8.19 | 24.9 | 346 | 33.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COOPER C | 637069 | 03/20/08 | 6.93 | 21.3 | 2081 | 880 | 49 | <0.1 | 3.09 | 3.10 | 0.01 | 393 | 59.8 | 6.0 | 45.0 | 229 | <2 | <2 | 229 | 1810 | 1690 | 1.07 | 27.0 | 26.7 | 0.6 |
| COOPER C | 637069 | 05/05/08 | 6.78 | 22.4 | 2139 | 990 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COOPER C | 637069 | 07/15/08 | 6.86 | 22.3 | 2162 | 1040 | 46.5 | <0.1 | 3.24 | 3.24 | <0.01 | 386 | 58.8 | 5.8 | 43.3 | 235 | <2 | <2 | 235 | 1860 | 1740 | 1.07 | 28.1 | 26.2 | -3.5 |
| COOPER C DUP | 637069 | 07/15/08 | 6.86 | 22.3 | 2162 | 960 | 46.4 | 0.1 | 3.25 | 3.25 | <0.01 | 398 | 61.7 | 6.1 | 46.2 | 234 | <2 | <2 | 234 | 1860 | 1670 | 1.11 | 26.4 | 27.2 | 1.5 |
| COOPER C | 637069 | 10/16/08 | 6.80 | 21.4 | 2078 | 1020 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COOPER C | 637069 | 01/27/09 | 6.92 | 20.5 | 1489 | 950 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| COOPER C | 637069 | 04/14/09 | 6.85 | 21.6 | 1833 | 930 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DODSON | 644927 | 02/20/08 | 7.61 | 17.3 | 857 | 54 | 129 | 0.3 | 10.70 | 10.70 | <0.01 | 111 | 37.5 | 12.3 | 41.2 | 252 | 14 | <2 | 266 | 590 | 598 | 0.99 | 10.8 | 10.8 | 0.0 |
| DODSON | 644927 | 05/12/08 | 7.11 | 21.1 | 1118 | 34.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DODSON | 644927 | 07/24/08 | 7.25 | 21.6 | 1233 | 49.3 | 160 | 0.2 | 13.10 | 13.10 | <0.01 | 124 | 43.3 | 13.7 | 51.3 | 223 | 12 | <2 | 235 | 740 | 646 | 1.15 | 11.2 | 12.4 | 5.1 |
| DODSON | 644927 | 10/13/08 | 7.15 | 20.5 | 1095 | 56.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DODSON | 644927 | 01/22/09 | 7.20 | 20.4 | 892 | 51.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DODSON | 644927 | 04/09/09 | 7.09 | 21.4 | 1103 | 50.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DURAZO | NR | 02/10/09 | 7.22 | 18.8 | 848 | 386 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DURAZO | NR | 04/20/09 | 7.37 | 22.7 | 901 | 367 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EAST | 599796 | 02/08/08 | 7.45 | 19.9 | 423 | 10.6 | 31.2 | 0.4 | 6.30 | 6.30 | <0.01 | 59.9 | 24.3 | 2.5 | 31.6 | 227 | <2 | <2 | 227 | 320 | 325 | 0.98 | 6.1 | 6.4 | 2.4 |
| EAST | 599796 | 05/14/08 | 7.31 | 20.9 | 595 | 14.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EAST | 599796 | 07/23/08 | 7.34 | 20.8 | 605 | 11.8 | 33.3 | 0.4 | 6.10 | 6.10 | <0.01 | 59.5 | 24.4 | 2.4 | 31.4 | 217 | 6 | <2 | 223 | 350 | 326 | 1.07 | 6.0 | 6.4 | 3.2 |
| EAST | 599796 | 10/14/08 | 7.33 | 20.3 | 531 | 8.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EAST | 599796 | 01/20/09 | 7.33 | 20.0 | 482 | 12.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EAST | 599796 | 04/08/09 | 7.32 | 20.6 | 555 | 15.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EPPELE 641 | 805641 | 03/11/08 | 7.98 | 21.4 | 646 | 21.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EPPELE 641 | 805641 | 05/12/08 | 7.21 | 21.7 | 667 | 24.7 | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EPPELE 641 | 805641 | 07/21/08 | 7.49 | 23.9 | 605 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EPPELE 641 | 805641 | 10/14/08 | 7.56 | 20.4 | 642 | 21.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EPPELE 641 | 805641 | 01/21/09 | 7.6 | 21.1 | 500 | 22.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EPPELE 641 | 805641 | 04/08/09 | 7.56 | 22.4 | 538 | 19.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FRANCO | 500101 | 02/06/08 | 7.47 | 19.6 | 1301 | 670 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FRANCO | 500101 | 05/05/08 | 6.93 | 23.1 | 1557 | 680 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FRANCO | 500101 | 07/14/08 | 7.00 | 22.7 | 1586 | 680 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FRANCO | 500101 | 10/15/08 | 7.20 | 20.5 | 1560 | 680 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FRANCO | 500101 | 01/22/09 | 7.19 | 20.1 | 1178 | 740 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FRANCO | 500101 | 04/14/09 | 7.24 | 23.1 | 1416 | 690 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**TABLE 2**
**Compilation of Analytical Results**
**For Inorganic Analytes and Field Parameters**

| Well Name | ADWR 55 Registry No. | Sample Date | pH (SU) | Temp (deg C) | SC (µS/cm) | Sulfate, dissolved | Chloride, dissolved | Fluoride, dissolved | Nitrate as N, dissolved | Nitrate/Nitrite as N, dissolved | Nitrite as N, dissolved | Calcium, dissolved | Magnesium, dissolved | Potassium, dissolved | Sodium, dissolved | Bicarbonate as CaCO3 | Carbonate as CaCO3 | Hydroxide as CaCO3 | Total Alkalinity | Residue, Filterable (TDS) @ 180ºC | TDS (calculated) | TDS Ratio (measured/ calculated) | Sum of Anions (meq/L) | Sum of Cations (meq/L) | Cation-Anion Balance (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FULTZ | 212447 | 02/27/08 | 6.76 | 21.1 | 1827 | 152 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FULTZ [1] | 212447 | 04/21/08 | 6.74 | 22.0 | 1739 | 137 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FULTZ [1] | 212447 | 05/14/08 | 6.88 | 22.3 | 1532 | 131 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FULTZ [1] | 212447 | 06/23/08 | 6.74 | 22.0 | 1788 | 111 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FULTZ [1] | 212447 | 07/29/08 | 6.74 | 22.2 | 1989 | 152 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FULTZ [1] | 212447 | 08/28/08 | M | 21.6 | 1889 | 137 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FULTZ [1] | 212447 | 09/23/08 | 6.82 | 21.9 | 1821 | 137 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FULTZ | 212447 | 10/22/08 | 6.80 | 21.4 | 1940 | 145 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FULTZ | 212447 | 01/21/09 | 6.74 | 21.2 | 1481 | 82 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| FULTZ | 212447 | 04/09/09 | 6.78 | 21.5 | 1695 | 138 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| GALLANT | 502527 | 02/11/08 | 7.46 | 20.2 | 604 | 17.9 | 12.7 | 0.2 | 3.04 | 3.04 | <0.01 | 106 | 15.9 | 4.3 | 25.6 | 344 | <2 | <2 | 344 | 400 | 402 | 1.00 | 7.8 | 7.8 | 0.0 |
| GALLANT | 502527 | 07/23/08 | 7.26 | 21.2 | 925 | 20.9 | 56.9 | 0.1 | 19.2 | 19.20 | <0.01 | 138 | 19.8 | 4.8 | 29.6 | 303 | <2 | <2 | 303 | 560 | 537 | 1.04 | 9.4 | 9.9 | 2.6 |
| GARNER 635 | 587635 | 02/04/08 | 7.61 | 22.7 | 479 | 37.8 | 13.7 | 0.2 | 1.68 | 1.69 | 0.01 | 39.2 | 8.2 | 2.8 | 65.0 | 182 | <2 | <2 | 182 | 290 | 284 | 1.02 | 4.9 | 5.5 | 5.8 |
| GARNER 635 | 587635 | 05/05/08 | 7.26 | 24.9 | 468 | 35.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| GARNER 635 | 587635 | 07/15/08 | 7.63 | 25.6 | 480 | 37.4 | 13.5 | 0.2 | 1.92 | 1.92 | <0.01 | 37.6 | 7.8 | 2.5 | 60.2 | 163 | 16 | <2 | 179 | 300 | 281 | 1.07 | 4.0 | 5.2 | 4.0 |
| GARNER 635 | 587635 | 10/15/08 | 7.65 | 24.1 | 472 | 36 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| GARNER 635 | 587635 | 01/28/09 | 7.69 | 23.4 | 368 | 37.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| GARNER 635 | 587635 | 04/15/09 | 7.83 | 24.1 | 412 | 36.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| GGOOSE 547 | 628547 | 05/21/08 | 7.08 | 22.7 | 856 | 199 | 37.1 | 0.1 | 7.14 | 7.14 | <0.01 | 113 | 32.9 | 5.5 | 25.6 | 194 | <2 | <2 | 194 | 600 | 561 | 1.07 | 9.6 | 9.6 | 0.0 |
| GGOOSE 547 | 628547 | 08/15/08 | 7.02 | 24.8 | 915 | 178 | 35.4 | 0.1 | 8.90 | 8.90 | <0.01 | 117 | 32.4 | 5.6 | 25.4 | 187 | <2 | <2 | 187 | 590 | 545 | 1.08 | 9.1 | 9.7 | 3.2 |
| GGOOSE 547 | 628547 | 10/29/08 | 7.27 | 22.6 | 897 | 216 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| GGOOSE 547 | 628547 | 02/24/09 | 7.06 | 23.8 | 851 | 186 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| GGOOSE 547 | 628547 | 05/14/09 | 7.15 | 23.9 | 743 | 174 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| GL 03 | 539782 | 03/04/08 | 7.43 | 25.7 | 417 | 20.3 | 20.3 | <0.1 | 0.75 | 0.77 | 0.02 | 46.7 | 22.8 | 2.6 | 18.7 | 192 | <2 | <2 | 192 | 260 | 250 | 1.04 | 4.8 | 5.1 | 3.0 |
| GL 03 | 539782 | 05/22/08 | 7.06 | 25.3 | 647 | 43.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| GL 03 | 539782 | 08/04/08 | 7.10 | 26.8 | 673 | 36.1 | 21.4 | <0.1 | 0.60 | 0.62 | 0.02 | 68.7 | 38.9 | 3.4 | 19.5 | 278 | <2 | <2 | 278 | 400 | 358 | 1.12 | 6.9 | 7.5 | 4.2 |
| GL 03 | 539782 | 11/12/08 | 7.21 | 25.2 | 478 | 34.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| GL 03 | 539782 | 02/26/09 | 7.05 | 26.5 | 603 | 54.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| GL 03 | 539782 | 05/05/09 | 6.91 | 28.1 | 682 | 43.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HOBAN | 805290 | 02/27/08 | 6.93 | 22.1 | 1359 | 510 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HOBAN | 805290 | 05/07/08 | 6.88 | 22.3 | 1532 | 670 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HOBAN | 805290 | 07/14/08 | 6.88 | 23.1 | 1719 | 690 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HOBAN | 805290 | 10/16/08 | 6.98 | 22.4 | 1624 | 692 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HOBAN | 805290 | 01/28/09 | 6.82 | 21.3 | 1220 | 580 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HOBAN | 805290 | 04/15/09 | 7.07 | 21.7 | 1423 | 700 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HOWARD | NR | 03/04/08 | 7.06 | 20.4 | 1280 | 571 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HOWARD | NR | 05/08/08 | 6.95 | 21.0 | 1494 | 673 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HOWARD | NR | 07/14/08 | 7.00 | 21.1 | 1566 | 610 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HOWARD | NR | 10/15/08 | 7.00 | 20.6 | 1598 | 683 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HOWARD | NR | 01/28/09 | 6.82 | 21.0 | 1203 | 640 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HOWARD DUP | NR | 01/28/09 | 6.82 | 21.0 | 1203 | 640 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| HOWARD | NR | 04/15/09 | 7.02 | 21.5 | 1397 | 620 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KEEFER | 209744 | 02/06/08 | 7.70 | 19.0 | 378 | 6.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KEEFER | 209744 | 05/06/08 | 7.19 | 20.3 | 512 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KEEFER | 209744 | 07/16/08 | 7.21 | 21.4 | 539 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KEEFER | 209744 | 10/28/08 | 7.32 | 20.1 | 534 | 21.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KEEFER | 209744 | 01/28/09 | 7.42 | 19.5 | 356 | 6.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| KEEFER | 209744 | 04/16/09 | 7.29 | 20.0 | 452 | 7.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MCCONNELL 265 | 539265 | 02/20/08 | 7.21 | 21.1 | 1435 | 720 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MCCONNELL 265 | 539265 | 05/06/08 | 6.77 | 21.6 | 1668 | 737 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MCCONNELL 265 | 539265 | 07/15/08 | 6.91 | 22.3 | 1775 | 700 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MCCONNELL 265 | 539265 | 10/15/08 | 6.82 | 21.3 | 1686 | 703 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MCCONNELL 265 | 539265 | 01/28/09 | 6.85 | 21 | 1274 | 660 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MCCONNELL 265 | 539265 | 04/15/09 | 7.04 | 21.3 | 1472 | 657 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| METZLER | 35-71891 | 03/05/08 | 7.27 | 21.6 | 1055 | 317 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| METZLER | 35-71891 | 05/15/08 | 7.12 | 22.8 | 1051 | 329 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| METZLER | 35-71891 | 07/31/08 | 7.16 | 22.5 | 1078 | 317 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| METZLER | 35-71891 | 10/20/08 | 7.24 | 22.2 | 1080 | 305 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| METZLER DUP | 35-71891 | 10/20/08 | 7.24 | 22.2 | 1080 | 326 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| METZLER | 35-71891 | 02/11/09 | 7.12 | 21.3 | 818 | 321 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| METZLER | 35-71891 | 04/20/09 | 7.22 | 23.2 | 845 | 313 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MOORE | 538847 | 02/20/08 | 7.69 | 22.2 | 362 | 7.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MOORE | 538847 | 05/08/08 | 7.09 | 22.4 | 432 | 7.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MOORE | 538847 | 07/16/08 | 7.34 | 23.0 | 482 | 9.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MOORE | 538847 | 10/29/08 | 7.32 | 22.4 | 452 | 19.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MOORE | 538847 | 01/29/09 | 7.11 | 21.7 | 328 | 6.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MOORE | 538847 | 04/16/09 | 7.40 | 22.1 | 374 | 6.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NESS | 509127 | 07/24/08 | 7.35 | 26.5 | 563 | 50.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NESS | 509127 | 10/16/08 | 7.47 | 21.4 | 542 | 48.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NESS | 509127 | 01/26/09 | 7.39 | 17.2 | 422 | 52.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NESS | 509127 | 05/11/09 | 7.52 | 28.8 | 472 | 45.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NOTEMAN | 212483 | 02/05/08 | 6.70 | 19.9 | 1317 | 310 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NOTEMAN | 212483 | 05/13/08 | 6.67 | 23.0 | 1445 | 272 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NOTEMAN | 212483 | 07/24/08 | 6.68 | 24.2 | 1539 | 274 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NOTEMAN | 212483 | 10/23/08 | 6.57 | 23.2 | 1643 | 356 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NOTEMAN | 212483 | 01/19/09 | 6.38 | 22.9 | 1098 | 322 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NOTEMAN | 212483 | 04/07/09 | 6.56 | 23.8 | 1375 | 303 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**TABLE 2**
**Compilation of Analytical Results**
**For Inorganic Analytes and Field Parameters**

| Well Name | ADWR 55 Registry No. | Sample Date | pH (SU) | Temp (deg C) | SC (µS/cm) | Sulfate, dissolved | Chloride, dissolved | Fluoride, dissolved | Nitrate as N, dissolved | Nitrate/Nitrite as N, dissolved | Nitrite as N, dissolved | Calcium, dissolved | Magnesium, dissolved | Potassium, dissolved | Sodium, dissolved | Bicarbonate as CaCO3 | Carbonate as CaCO3 | Hydroxide as CaCO3 | Total Alkalinity | Residue, Filterable (TDS) @ 180ºC | TDS (calculated) | TDS Ratio (measured/ calculated) | Sum of Anions (meq/L) | Sum of Cations (meq/L) | Cation-Anion Balance (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NSD-02 | 527587 | 02/05/08 | - | - | - | 43 | 52.5 | 0.201 | <1.00 | - | <0.01 | - | - | - | - | - | - | - | - | 388 | - | - | - | - | - |
| NSD-02 | 527587 | 07/07/08 | 8.02 | 21.0 | 609 | 44 | 42 | 0.0431 | 0.641 | - | 0.007 | - | - | - | - | - | - | - | - | 369 | - | - | - | - | - |
| NSD-03 | 527586 | 02/05/08 | - | - | - | 70.7 | 14.1 | 0.186 | 3.20 | - | <0.010 | - | - | - | - | - | - | - | - | 396 | - | - | - | - | - |
| NSD-03 | 527586 | 07/07/08 | 7.64 | 21.0 | 570 | 58.9 | 11.6 | 0.041 | 3.20 | - | 0.011 | - | - | - | - | - | - | - | - | 372 | - | - | - | - | - |
| NWC-02 | 562944 | 10/27/08 | 7.47 | 22.2 | 438 | 5.1 | 20.7 | 0.1 | 2.74 | 2.74 | <0.01 | 63.6 | 8.3 | 1.1 | 20.2 | 176 | <2 | <2 | 176 | 280 | 237 | 1.18 | 4.4 | 4.7 | 3.3 |
| NWC-02 | 562944 | 02/12/09 | 7.58 | 21.6 | 330 | 6.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-02 | 562944 | 04/23/09 | 7.39 | 23.8 | 373 | 6.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-03 | 203321 | 03/04/08 | - | - | - | 560 | 30 | - | 4.64 | - | <0.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-03 | 203321 | 06/09/08 | - | - | - | 524 | - | - | 4.75 | - | <0.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-03 | 203321 | 10/27/08 | 7.07 | 21.9 | 1374 | 489 | 30 | <0.1 | 4.41 | 4.41 | <0.01 | 222 | 34.1 | 3.5 | 47.2 | 181 | <2 | <2 | 181 | 1010 | 954 | 1.06 | 15.10 | 16.10 | 3.20 |
| NWC-03 | 203321 | 02/12/09 | 7.06 | 20.2 | 1023 | 412 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-03 | 203321 | 04/23/09 | 6.98 | 21.9 | 1129 | 466 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-03 DUP | 203321 | 04/23/09 | 6.98 | 21.9 | 1129 | 460 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-04 | 551849 | 03/04/08 | - | - | - | 240 | 41 | - | - | - | <0.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-04 | 551849 | 06/09/08 | - | - | - | 231 | 41.9 | - | 6.25 | - | <0.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-04 | 551849 | 10/27/08 | 7.32 | 25.0 | 856 | 162 | 41.4 | 0.1 | 6.54 | 6.54 | <0.01 | 91.5 | 36.7 | 6.2 | 41.5 | 182 | <2 | <2 | 182 | 540 | 518 | 1.04 | 8.6 | 9.5 | 5.0 |
| NWC-04 [1] | 551849 | 01/22/09 | 7.23 | 22.9 | 688 | 184 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-04 [1] | 551849 | 02/12/09 | 7.20 | 19.8 | 699 | 181 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-04 DUP | 551849 | 02/12/09 | 7.20 | 19.8 | 699 | 198 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-04 [1] | 551849 | 03/11/09 | 7.15 | 23.4 | 846 | 197 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-04 [1] | 551849 | 04/23/09 | 7.21 | 24.1 | 797 | 188 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-04 [1] | 551849 | 05/28/09 | 7.01 | 24.1 | 933 | 210 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-04 [1] | 551849 | 06/24/09 | 6.93 | 25.6 | 792 | 169 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-06 | 575700 | 03/04/08 | - | - | - | 7.9 | 13 | - | 1.71 | - | <0.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-06 | 575700 | 06/09/08 | - | - | - | 7.2 | 12.9 | - | 1.78 | - | <0.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-06 | 575700 | 10/27/08 | 7.35 | 23.3 | 414 | 6.4 | 13.4 | 0.2 | 1.86 | 1.86 | <0.01 | 54.5 | 7.4 | 1.4 | 26.4 | 173 | <2 | <2 | 173 | 260 | 222 | 1.17 | 4.1 | 4.5 | 4.7 |
| NWC-06 | 575700 | 02/12/09 | 7.54 | 21.8 | 306 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NWC-06 | 575700 | 04/23/09 | 7.30 | 24.5 | 354 | 7.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| OSBORN | 643436 | 02/25/08 | 7.35 | 22.4 | 508 | 16.4 | 18.2 | 0.3 | 3.76 | 3.76 | <0.01 | 84.4 | 15.4 | 4.3 | 25.2 | 246 | 29 | <2 | 275 | 370 | 357 | 1.04 | 6.6 | 6.7 | 0.8 |
| OSBORN | 643436 | 05/13/08 | 7.22 | 22.2 | 576 | 17.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| OSBORN | 643436 | 07/22/08 | 7.24 | 22.9 | 618 | 17.7 | 19.7 | 0.4 | 4.38 | 4.4 | <0.01 | 80.3 | 15 | 4.2 | 24.7 | 252 | 29 | <2 | 281 | 350 | 362 | 0.97 | 6.8 | 6.4 | -3.0 |
| OSBORN DUP | 643436 | 07/22/08 | 7.24 | 22.9 | 618 | 17.5 | 19.6 | 0.3 | 4.65 | 4.7 | <0.01 | 80.9 | 15.1 | 4.2 | 25.0 | 250 | 31 | <2 | 281 | 350 | 364 | 0.96 | 6.8 | 6.4 | -3.0 |
| OSBORN | 643436 | 10/16/08 | 7.39 | 22.4 | 595 | 15.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| OSBORN | 643436 | 01/20/09 | 7.33 | 22.4 | 469 | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| OSBORN | 643436 | 04/07/09 | 7.25 | 24.0 | 542 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PALMER | 578819 | 02/14/08 | 7.91 | 17.5 | 435 | 15.9 | 11.3 | 0.4 | 2.13 | 2.13 | <0.01 | 31.9 | 27.1 | 5.4 | 50.1 | 235 | 15 | < 2 | 251 | 300 | 308 | 0.97 | 5.8 | 6.1 | 2.5 |
| PALMER | 578819 | 05/13/08 | 7.92 | 22.9 | 508 | 16.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PALMER | 578819 | 07/22/08 | 7.64 | 25.8 | 548 | 16.2 | 11.3 | 0.4 | 2.34 | 2.34 | <0.01 | 30 | 25.4 | 5.1 | 47.9 | 226 | 39 | <2 | 265 | 300 | 321 | 0.93 | 6.1 | 5.8 | -2.5 |
| PALMER | 578819 | 10/16/08 | 7.61 | 17.0 | 527 | 15.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PALMER | 578819 | 01/20/09 | 7.33 | 19.4 | 441 | 14.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PALMER | 578819 | 04/08/09 | 7.65 | 19.1 | 475 | 15.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PANAGAKOS | 35-76413 | 04/21/08 | 6.80 | 20.5 | 1228 | 410 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PANAGAKOS | 35-76413 | 07/21/08 | 6.95 | 21.9 | 1390 | 444 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PANAGAKOS | 35-76413 | 10/13/08 | 6.86 | 21.2 | 1386 | 480 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PANAGAKOS DUP | 35-76413 | 10/13/08 | 6.86 | 21.2 | 1386 | 500 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PANAGAKOS | 35-76413 | 01/22/09 | 6.92 | 19.7 | 997 | 397 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PANAGAKOS | 35-76413 | 04/09/09 | 6.81 | 21.7 | 1228 | 431 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PANAGAKOS DUP | 35-76413 | 04/09/09 | 6.81 | 21.7 | 1228 | 426 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PARRA | 576415 | 02/11/08 | 7.08 | 21.8 | 1067 | 360 | 33.4 | 0.1 | 4.17 | < 0.04 | <0.01 | 178 | 50.4 | 4.4 | 31.6 | 177 | <2 | <2 | 177 | 880 | 783 | 1.12 | 12.3 | 14.5 | 8.2 |
| PARRA | 576415 | 05/15/08 | 7.10 | 21.8 | 1200 | 405 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PARRA | 576415 | 07/31/08 | 7.00 | 22.4 | 1248 | 423 | 33.5 | <0.1 | 4.23 | 4.23 | <0.01 | 181 | 49.8 | 4.5 | 32.4 | 213 | <2 | <2 | 213 | 930 | 871 | 1.07 | 14.4 | 14.7 | 1.0 |
| PARRA DUP | 576415 | 07/31/08 | 7.00 | 22.4 | 1248 | 404 | 33.5 | <0.1 | 4.33 | 4.33 | <0.01 | 177 | 48.5 | 4.3 | 30.9 | 212 | <2 | <2 | 212 | 920 | 845 | 1.09 | 14.0 | 14.3 | 1.1 |
| PARRA | 576415 | 10/20/08 | 7.07 | 22.9 | 1246 | 387 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PARRA | 576415 | 02/13/09 | 7.24 | 22.1 | 965 | 405 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PARRA | 576415 | 04/20/09 | 7.10 | 22.6 | 971 | 372 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PIONKE | 613395 | 02/06/08 | 7.53 | 19.9 | 910 | 394 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PIONKE | 613395 | 05/07/08 | 7.08 | 21.4 | 1100 | 391 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PIONKE | 613395 | 07/17/08 | 6.99 | 21.9 | 1209 | 420 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PIONKE | 613395 | 10/27/08 | 7.03 | 20.8 | 1175 | 460 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PIONKE | 613395 | 01/29/09 | 7.13 | 19.9 | 847 | 385 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PIONKE | 613395 | 04/14/09 | 7.58 | 20.7 | 1053 | 411 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| POOL | 509518 | 02/20/08 | 7.95 | 20.9 | 497 | 134 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| POOL | 509518 | 05/19/08 | 7.40 | 22.2 | 585 | 122 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| POOL | 509518 | 07/31/08 | 7.47 | 22.3 | 599 | 117 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| POOL | 509518 | 10/21/08 | 7.51 | 21.4 | 598 | 120 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| POOL | 509518 | 02/13/09 | 7.62 | 20.8 | 473 | 141 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| POOL | 509518 | 04/21/09 | 7.73 | 22.6 | 470 | 124 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| POWER | 624535 | 02/12/08 | 7.11 | 18.9 | 428 | 15.5 | 6.1 | 0.1 | 7.00 | 7.00 | <0.01 | 95 | 7.6 | 3.8 | 7.4 | 242 | <2 | < 2 | 242 | 310 | 312 | 0.99 | 5.8 | 5.8 | 0.0 |
| POWER | 624535 | 07/22/08 | 7.10 | 21.7 | 795 | 20.2 | 37.8 | <0.1 | 24.1 | 24.1 | <0.01 | 124 | 11 | 3.8 | 13.6 | 222 | 29 | <2 | 251 | 550 | 479 | 1.15 | 8.2 | 7.8 | -2.5 |
| RAMIREZ | 216425 | 02/04/08 | 7.47 | 21.7 | 408 | 7.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RAMIREZ | 216425 | 05/06/08 | 7.19 | 22.7 | 405 | 8.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RAMIREZ | 216425 | 07/17/08 | 7.32 | 24.5 | 439 | 8.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RAMIREZ | 216425 | 10/27/08 | 7.41 | 22.2 | 412 | 7.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RAMIREZ | 216425 | 01/29/09 | 7.24 | 22.2 | 301 | 8.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RAMIREZ | 216425 | 04/16/09 | 7.49 | 22.4 | 344 | 7.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**TABLE 2**
**Compilation of Analytical Results**
**For Inorganic Analytes and Field Parameters**

| Well Name | ADWR 55 Registry No. | Sample Date | pH (SU) | Temp (deg C) | SC (µS/cm) | Sulfate, dissolved | Chloride, dissolved | Fluoride, dissolved | Nitrate as N, dissolved | Nitrate/Nitrite as N, dissolved | Nitrite as N, dissolved | Calcium, dissolved | Magnesium, dissolved | Potassium, dissolved | Sodium, dissolved | Bicarbonate as CaCO3 | Carbonate as CaCO3 | Hydroxide as CaCO3 | Total Alkalinity | Residue, Filterable (TDS) @ 180ºC | TDS (calculated) | TDS Ratio (measured/ calculated) | Sum of Anions (meq/L) | Sum of Cations (meq/L) | Cation-Anion Balance (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RAY | 803772 | 02/15/08 | 7.30 | 19.1 | 1540 | 159 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RAY [1] | 803772 | 04/21/08 | 6.92 | 21.3 | 1418 | 125 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RAY [1] | 803772 | 05/13/08 | 7.05 | 20.9 | 1418 | 123 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RAY [1] | 803772 | 06/23/08 | 6.87 | 21.1 | 1593 | 130 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RAY [1] | 803772 | 07/29/08 | 6.98 | 21.8 | 1411 | 120 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RAY [1] | 803772 | 08/28/08 | M | 21.1 | 1519 | 129 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RAY [1] | 803772 | 09/23/08 | 6.90 | 22.2 | 1519 | 125 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RAY | 803772 | 10/22/08 | 6.96 | 20.8 | 1604 | 145 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RAY | 803772 | 01/20/09 | 6.92 | 20.6 | 1355 | 88 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RAY | 803772 | 04/08/09 | 6.85 | 21.4 | 1759 | 178 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ROGERS 803 | 641803 | 02/07/08 | 7.45 | 18.6 | 601 | 138 | 13.2 | 0.2 | 4.69 | 4.71 | 0.02 | 94 | 11.7 | 3.0 | 26.6 | 148 | <2 | <2 | 148 | 410 | 383 | 1.07 | 6.3 | 6.9 | 4.5 |
| ROGERS 803 [1] | 641803 | 04/21/08 | 7.32 | 21.4 | 552 | 128 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ROGERS 803 [1] | 641803 | 05/08/08 | 7.14 | 21.2 | 622 | 141 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ROGERS 803 [1] | 641803 | 06/23/08[1] | 7.06 | 22.9 | 660 | 129 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ROGERS 803 [1] | 641803 | 07/29/08 | 6.78 | 23.1 | 339 | 134 | 13.1 | 0.2 | 4.30 | 4.30 | <0.01 | 92.5 | 12.6 | 3.3 | 28.7 | 149 | <2 | <2 | 149 | 430 | 393 | 1.09 | 6.4 | 7.0 | 4.5 |
| ROGERS 803 [1] | 641803 | 08/28/08 | 7.18 | 21.6 | 635 | 128 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ROGERS 803 [1] | 641803 | 09/23/08 | 7.24 | 21.9 | 599 | 133 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ROGERS 803 | 641803 | 10/22/08 | 7.36 | 21.3 | 650 | 144 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ROGERS 803 | 641803 | 02/10/09 | 7.42 | 17.9 | 475 | 141 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ROGERS 803 | 641803 | 04/29/09 | 7.52 | 21.9 | 506 | 211 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ROGERS E | 216018 | 02/04/08 | 7.40 | 21.0 | 435 | 4.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ROGERS E | 216018 | 05/07/08 | 7.18 | 22.2 | 415 | 5.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ROGERS E | 216018 | 07/17/08 | 7.28 | 23.0 | 446 | 7.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ROGERS E | 216018 | 10/27/08 | 7.38 | 21.4 | 434 | 15.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ROGERS E | 216018 | 02/10/09 | 7.51 | 20.7 | 322 | 5.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ROGERS E | 216018 | 04/16/09 | 7.48 | 22.0 | 361 | 4.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RUIZ | 531770 | 02/05/08 | 7.73 | 18.2 | 445 | 263 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RUIZ | 531770 | 05/15/08 | 7.23 | 25.9 | 965 | 265 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RUIZ | 531770 | 07/30/08 | 6.99 | 22.1 | 999 | 243 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RUIZ | 531770 | 10/20/08 | 7.04 | 22.0 | 995 | 238 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RUIZ | 531770 | 02/12/09 | 6.94 | 20.9 | 748 | 254 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RUIZ | 531770 | 04/21/09 | 7.18 | 22.3 | 759 | 227 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SCHWARTZ | 210865 | 02/08/08 | 7.52 | 21.5 | 506 | 158 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SCHWARTZ [1] | 210865 | 04/21/08 | 7.23 | 21.7 | 563 | 122 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SCHWARTZ [1] | 210865 | 05/19/08 | 7.38 | 22.4 | 629 | 130 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SCHWARTZ [1] | 210865 | 06/23/08 | 7.02 | 22.1 | 674 | 129 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SCHWARTZ [1] | 210865 | 07/29/08 | 7.25 | 22.4 | 955 | 245 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SCHWARTZ [1] | 210865 | 08/28/08 | M | 22.3 | 669 | 131 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SCHWARTZ [1] | 210865 | 09/23/08 | 7.27 | 22.2 | 607 | 124 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SCHWARTZ [1] | 210865 | 10/22/08 | 7.31 | 22.0 | 653 | 135 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SCHWARTZ [1] | 210865 | 11/19/08 | 7.38 | 21.1 | 612 | 140 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SCHWARTZ [1] | 210865 | 12/17/08 | 6.78 | 21.6 | 472 | 144 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SCHWARTZ [1] | 210865 | 01/29/09 | 7.08 | 22.0 | 475 | 124 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SCHWARTZ [1] | 210865 | 02/23/09 | 7.33 | 22.1 | 610 | 123 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SCHWARTZ | 210865 | 04/17/09 | 7.46 | 22.2 | 520 | 120 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SRC | 211345 | 04/23/08 | 7.57 | 25.8 | 380 | 19 | 10 | 0.2 | 3.61 | 3.61 | <0.01 | 25.8 | 16.3 | 2.1 | 48.2 | 174 | <2 | <2 | 174 | 230 | - | - | - | - | - |
| SRC | 211345 | 08/05/08 | 7.40 | 27.2 | 452 | 15.4 | 10.4 | 0.2 | 3.74 | 3.74 | <0.01 | 26.8 | 17.8 | 2.0 | 44.6 | 173 | <2 | <2 | 173 | 250 | 238 | 1.05 | 4.3 | 4.8 | 5.5 |
| SWAN | NR | 02/13/08 | 7.28 | 20.7 | 467 | 24.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SWAN | NR | 05/14/08 | 7.24 | 21.2 | 479 | 23.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SWAN | NR | 07/24/08 | 7.35 | 22.4 | 506 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SWAN | NR | 10/16/08 | 7.32 | 20.7 | 488 | 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SWAN | NR | 01/20/09 | 7.05 | 20.4 | 391 | 19.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SWAN | NR | 04/07/09 | 7.21 | 21.5 | 447 | 19.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-02A | 522574 | 03/04/08 | 8.67 | 22.6 | 302 | 12.3 | 8.6 | 0.3 | <0.02 | 0.02 | 0.02 | 12.6 | 5.8 | 2.2 | 58.0 | 146 | 9 | <2 | 155 | 190 | 196 | 0.97 | 3.6 | 3.7 | 1.4 |
| TM-02A | 522574 | 05/23/08 | 7.75 | 22.9 | 321 | 14.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-02A | 522574 | 08/15/08 | 7.84 | 26.4 | 369 | 14.4 | 8.2 | 0.2 | 0.25 | 0.3 | <0.01 | 14.7 | 5.2 | 2.4 | 60.2 | 143 | 8 | <2 | 151 | 190 | 200 | 0.95 | 3.5 | 3.8 | 4.1 |
| TM-02A | 522574 | 10/30/08 | 8.07 | 23.9 | 375 | 21.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-02A | 522574 | 02/24/09 | 8.10 | 24.8 | 340 | 20.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-02A | 522574 | 05/06/09 | 8.06 | 26.7 | 320 | 18.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-03 | 522575 | 05/20/08 | 7.51 | 22.2 | 778 | 110 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-03 | 522575 | 08/06/08 | 7.08 | 21.6 | 828 | 97 | 40.7 | 0.2 | 7.68 | 7.68 | <0.01 | 94.3 | 36.6 | 3.5 | 27.8 | 221 | <2 | <2 | 221 | 510 | 467 | 1.09 | 8.1 | 9.0 | 5.3 |
| TM-03 | 522575 | 11/12/08 | 7.47 | 20.5 | 590 | 128 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-03 | 522575 | 02/26/09 | 7.21 | 21.8 | 737 | 107 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-03 DUP | 522575 | 02/26/09 | 7.21 | 21.8 | 737 | 102 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-03 | 522575 | 05/13/09 | 7.47 | 22.2 | 695 | 109 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-06 MILLER | 522695 | 02/27/08 | 7.44 | 19.6 | 457 | 13.9 | 7.1 | 0.3 | 0.96 | 0.96 | <0.01 | 42.2 | 19 | 1.7 | 54.3 | 218 | <2 | <2 | 218 | 310 | 274 | 1.13 | 4.9 | 6.1 | 10.9 |
| TM-06 MILLER | 522695 | 05/20/08 | 7.50 | 20.7 | 506 | 32.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-06 MILLER | 522695 | 08/04/08 | 7.41 | 20.7 | 529 | 31.3 | 18 | 0.7 | 0.89 | 0.89 | <0.01 | 37.8 | 19.5 | 1.9 | 52.1 | 210 | <2 | <2 | 210 | 300 | 291 | 1.03 | 5.4 | 5.8 | 3.6 |
| TM-06 MILLER | 522695 | 10/29/08 | 7.55 | 20.2 | 531 | 34.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-06 MILLER | 522695 | 02/26/09 | 7.18 | 20.4 | 574 | 32.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-06 MILLER | 522695 | 05/13/09 | 7.35 | 20.9 | 465 | 30.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-07 | 522576 | 03/06/08 | 7.54 | 20.8 | 726 | 22.5 | 9 | 0.2 | 3.04 | 3.04 | <0.01 | 49 | 15.8 | 2.0 | 22.6 | 133 | 9 | <2 | 142 | 220 | 223 | 0.10 | 3.7 | 4.7 | 11.9 |
| TM-07 | 522576 | 05/22/08 | 6.96 | 20.1 | 385 | 22.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-07 | 522576 | 08/06/08 | 7.04 | 22.8 | 519 | 22.2 | 8.9 | 0.2 | 2.52 | 2.52 | <0.01 | 45.8 | 14.7 | 1.9 | 20.5 | 157 | <2 | <2 | 159 | 240 | 220 | 1.09 | 4.0 | 4.4 | 4.8 |
| TM-07 | 522576 | 11/04/08 | 7.76 | 20.6 | 347 | 31.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-07 | 522576 | 02/20/09 | 7.77 | 19.9 | 376 | 22.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-07 | 522576 | 05/13/09 | 7.30 | 22.9 | 559 | 130 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**TABLE 2**
**Compilation of Analytical Results**
**For Inorganic Analytes and Field Parameters**

| Well Name | ADWR 55 Registry No. | Sample Date | pH (SU) | Temp (deg C) | SC (µS/cm) | Sulfate, dissolved | Chloride, dissolved | Fluoride, dissolved | Nitrate as N, dissolved | Nitrate/Nitrite as N, dissolved | Nitrite as N, dissolved | Calcium, dissolved | Magnesium, dissolved | Potassium, dissolved | Sodium, dissolved | Bicarbonate as CaCO3 | Carbonate as CaCO3 | Hydroxide as CaCO3 | Total Alkalinity | Residue, Filterable (TDS) @ 180ºC | TDS (calculated) | TDS Ratio (measured/ calculated) | Sum of Anions (meq/L) | Sum of Cations (meq/L) | Cation-Anion Balance (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TM-08 SWAN | 522817 | 02/13/08 | 7.63 | 25.2 | 511 | 12.6 | 32.1 | 0.3 | 5.30 | 5.30 | <0.01 | 43.4 | 21.4 | 4.9 | 35.5 | 204 | <2 | < 2 | 204 | 310 | 296 | 1.1 | 5.6 | 5.6 | 0.0 |
| TM-08 SWAN | 522817 | 05/14/08 | 7.44 | 24.4 | 480 | 12.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-08 SWAN | 522817 | 07/23/08 | 7.76 | 28.1 | 522 | 12.6 | 14.8 | 0.3 | 2.86 | 2.86 | <0.01 | <0.02 | <0.02 | 1.1 | 128 | 204 | 11 | <2 | 215 | 310 | 303 | 1.02 | 5.2 | 5.6 | 3.7 |
| TM-15 MILLER | 522699 | 02/27/08 | 7.66 | 21.9 | 344 | 14 | 7.1 | 0.4 | 1.56 | 1.56 | <0.01 | 32.9 | 18 | 2.0 | 32.4 | 181 | 2 | <2 | 183 | 220 | 224 | 0.98 | 4.2 | 4.6 | 4.5 |
| TM-15 MILLER | 522699 | 05/23/08 | 7.54 | 22.1 | 371 | 14.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-15 MILLER | 522699 | 08/05/08 | 7.42 | 23.3 | 413 | 13.7 | 7 | 0.3 | 1.99 | 1.99 | <0.01 | 29.8 | 18.9 | 2.0 | 32.0 | 173 | <2 | <2 | 174 | 210 | 216 | 0.97 | 4.1 | 4.5 | 4.7 |
| TM-15 MILLER | 522699 | 10/28/08 | 7.63 | 22.6 | 387 | 18.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-15 MILLER DUP | 522699 | 10/28/08 | 7.63 | 22.6 | 387 | 18.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-15 MILLER | 522699 | 02/26/09 | 7.57 | 22.0 | 373 | 14.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-15 MILLER | 522699 | 05/13/09 | 7.61 | 23.1 | 344 | 13.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-16 | 522578 | 03/05/08 | 7.17 | 20.6 | 1351 | 497 | 28.9 | <0.1 | 6.80 | 6.90 | <0.01 | 225 | 51.7 | 13.4 | 30.7 | 205 | <2 | <2 | 205 | 1030 | 1000 | 1.03 | 15.8 | 17.2 | 4.2 |
| TM-16 | 522578 | 05/22/08 | 7.05 | 20.5 | 1304 | 522 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-16 | 522578 | 08/06/08 | 6.67 | 20.9 | 1410 | 466 | 28.1 | <0.1 | 8.07 | 8.07 | <0.01 | 215 | 52.7 | 13.3 | 30.0 | 191 | <2 | <2 | 191 | 1070 | 955 | 1.12 | 15.0 | 16.7 | 5.4 |
| TM-16 | 522578 | 11/05/08 | 7.14 | 19.8 | 1162 | 547 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-16 | 522578 | 02/20/09 | 6.90 | 21.1 | 1292 | 492 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-16 | 522578 | 05/13/09 | 6.93 | 21.1 | 1179 | 484 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-19A | 522581 | 03/06/08 | 8.02 | 22.2 | 240 | 56.1 | 15.4 | 0.1 | 0.26 | 0.26 | <0.01 | 37.9 | 11.6 | 3.0 | 57.7 | 119 | 19 | <2 | 138 | 280 | 273 | 1.03 | 4.3 | 5.4 | 11.3 |
| TM-19A | 522581 | 05/22/08 | 7.36 | 24.0 | 501 | 64.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-19A | 522581 | 08/06/08 | 7.32 | 22.6 | 494 | 55.3 | 15.4 | 0.1 | 0.09 | 0.09 | <0.01 | 37.3 | 10.8 | 2.9 | 53.0 | 153 | 5 | <2 | 158 | 270 | 272 | 0.99 | 4.7 | 5.1 | 4.1 |
| TM-19A | 522581 | 11/18/08 | 7.79 | 24.3 | 365 | 66.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-19A | 522581 | 03/03/09 | 7.41 | 24.5 | 489 | 66.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-19A | 522581 | 04/22/09 | 7.44 | 24.3 | 494 | 62.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-42 | 562554 | 03/05/08 | 7.10 | 20.8 | 1342 | 482 | 27 | 0.2 | 6.55 | 6.55 | <0.01 | 185 | 55.8 | 10.4 | 37.9 | 186 | <2 | <2 | 186 | 980 | 939 | 1.04 | 15.1 | 15.8 | 2.3 |
| TM-42 | 562554 | 05/22/08 | 7.05 | 21.4 | 1270 | 483 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-42 | 562554 | 08/06/08 | 6.69 | 22.0 | 1388 | 467 | 27.3 | 0.2 | 7.20 | 7.20 | <0.01 | 191 | 60.7 | 10.1 | 38.7 | 208 | <2 | <2 | 208 | 1010 | 952 | 1.04 | 15.3 | 16.5 | 3.8 |
| TM-42 | 562554 | 11/06/08 | 6.90 | 21.0 | 1025 | 477 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-42 | 562554 | 02/18/09 | 6.72 | 22.3 | 1245 | 429 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-42 | 562554 | 05/07/09 | 6.88 | 24.5 | 1155 | 430 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-42 DUP | 562554 | 05/07/09 | 6.88 | 24.5 | 1155 | 445 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TM-43 | 564729 | 03/03/08 | 8.57 | 21.0 | 341 | 2.1 | 7.7 | 0.3 | 0.04 | 0.04 | <0.01 | 10.1 | 5.7 | 2.2 | 79.4 | 197 | 20 | <2 | 217 | 250 | 246 | 1.02 | 4.6 | 4.5 | -1.1 |
| TM-43 | 564729 | 08/04/08 | 8.14 | 25.7 | 436 | <5 | 12 | <1 | 0.25 | 0.25 | <0.01 | 10.4 | 5.8 | 2.0 | 79.7 | 174 | 12 | <2 | 186 | 270 | 227 | 1.19 | 4.0 | 4.5 | 5.9 |
| TM-43A | 564726 | 03/03/08 | 6.17 | 19.9 | 2788 | 1420 | 31 | <0.2 | 0.99 | 0.99 | <0.01 | 570 | 181 | 4.5 | 42.1 | 713 | <2 | <2 | 713 | 3000 | 2680 | 1.19 | 45.0 | 45.0 | 0.3 |
| TM-43A | 564726 | 08/04/08 | 6.03 | 21.6 | 3149 | 1320 | 30 | <0.2 | 1.31 | 1.31 | <0.01 | 577 | 188 | 4.7 | 40.5 | 658 | <2 | <2 | 658 | 2950 | 2560 | 1.15 | 41.8 | 46.2 | 5.0 |
| TM-43B | 565004 | 03/03/08 | 6.79 | 20.6 | 514 | 0.7 | 5 | <0.1 | 0.05 | 0.06 | 0.01 | 54.6 | 23.8 | 2.9 | 47.9 | 338 | <2 | <2 | 338 | 350 | 338 | 1.04 | 6.9 | 6.8 | -0.7 |
| TM-43B | 565004 | 08/05/08 | 6.89 | 21.0 | 507 | 31.8 | 4.7 | <0.1 | 0.03 | 0.03 | <0.01 | 47.5 | 21.5 | 2.6 | 44.9 | 231 | <2 | <2 | 231 | 300 | 292 | 1.03 | 5.4 | 6.1 | 6.1 |
| TM-43B DUP | 565004 | 08/05/08 | 6.89 | 21.0 | 507 | 32.5 | 4.7 | <0.1 | 0.11 | 0.11 | <0.01 | 47.9 | 21.7 | 2.5 | 44.9 | 234 | <2 | <2 | 234 | 310 | 295 | 1.05 | 5.5 | 6.2 | 6.0 |
| TVI 236 | 802236 | 03/20/08 | 7.48 | 20.0 | 488 | 31.3 | 26 | 0.1 | 3.90 | 3.93 | 0.03 | 70.5 | 9.3 | 1.9 | 25.6 | 178 | <2 | <2 | 178 | 310 | 289 | 1.07 | 5.2 | 5.4 | 1.9 |
| TVI 236 | 802236 | 05/07/08 | 7.13 | 20.4 | 494 | 32.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TVI 236 | 802236 | 07/15/08 | 7.39 | 21.9 | 532 | 37.6 | 23.5 | 0.2 | 3.46 | 3.46 | <0.01 | 70.4 | 9.3 | 1.8 | 26.3 | 161 | 11 | <2 | 173 | 310 | 292 | 1.06 | 5.1 | 5.4 | 2.9 |
| TVI 236 | 802236 | 10/15/08 | 7.45 | 22.3 | 490 | 36.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TVI 236 | 802236 | 02/11/09 | 7.32 | 20.1 | 391 | 27.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TVI 236 | 802236 | 04/17/09 | 7.36 | 19.3 | 418 | 28.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TVI 236 DUP | 802236 | 04/17/09 | 7.36 | 19.3 | 418 | 28.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TVI 875 | 568875 | 02/21/08 | 7.28 | 21.1 | 739 | 244 | 20.1 | 0.2 | 2.99 | 2.99 | <0.01 | 120 | 16.1 | 2.9 | 41.1 | 161 | 11 | <2 | 172 | 630 | 565 | 1.12 | 9.3 | 9.2 | -0.5 |
| TVI 875 | 568875 | 05/07/08 | 7.09 | 21.2 | 833 | 250 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TVI 875 | 568875 | 07/15/08 | 7.27 | 22.4 | 925 | 274 | 20.2 | 0.2 | 3.00 | 3.00 | <0.01 | 131 | 17.4 | 2.8 | 39.6 | 148 | 11 | <2 | 160 | 640 | 598 | 1.07 | 9.7 | 9.7 | 0.0 |
| TVI 875 | 568875 | 10/15/08 | 7.26 | 22.1 | 878 | 245 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TVI 875 | 568875 | 02/11/09 | 7.20 | 20.7 | 738 | 312 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TVI 875 | 568875 | 04/17/09 | 7.31 | 21.5 | 690 | 251 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WALKER | 200393 | 02/13/08 | 7.05 | 20.2 | 650 | 20 | 4 | 0.2 | 2.26 | 2.26 | <0.01 | 117 | 14.4 | 3.6 | 14.3 | 355 | <2 | <2 | 355 | 440 | 396 | 1.11 | 7.8 | 7.7 | -0.6 |
| WALKER | 200393 | 07/23/08 | 7.25 | 20.7 | 740 | 45.4 | 37.8 | 0.3 | 7.24 | 7.24 | <0.01 | 89 | 27.9 | 2.9 | 28.6 | 250 | 7 | <2 | 257 | 450 | 421 | 1.07 | 7.6 | 8.0 | 2.6 |
| WEED | 544535 | 02/14/08 | 7.74 | 21.7 | 323 | 11.1 | 9 | - | 1.72 | 1.72 | <0.02 | 35.6 | 14.5 | 2.2 | 30.0 | 162 | 5 | <2 | 168 | 230 | 212 | 1.08 | 3.9 | 4.3 | 4.9 |
| WEED | 544535 | 05/15/08 | 7.22 | 22.7 | 365 | 12.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WEED | 544535 | 07/30/08 | 7.42 | 32.0 | 407 | 11.5 | 10.1 | 0.3 | 1.92 | 1.92 | <0.01 | 34.1 | 13.6 | 2.2 | 29.4 | 163 | 2 | <2 | 165 | 230 | 209 | 1.10 | 3.9 | 4.1 | 2.5 |
| WEED | 544535 | 10/20/08 | 8.10 | 31.6 | 405 | 10.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WEED | 544535 | 02/13/09 | 7.66 | 21.0 | 303 | 12.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WEED | 544535 | 04/22/09 | 7.46 | 22.2 | 368 | 11.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WEISKOPF | 641802 | 02/15/08 | 7.48 | 20.0 | 1072 | 500 | 33.1 | 0.2 | 4.74 | 4.74 | <0.01 | 218 | 31.4 | 4.3 | 35.7 | 177 | <2 | <2 | 177 | 1010 | 950 | 1.06 | 15.3 | 15.2 | -0.3 |
| WEISKOPF | 641802 | 05/07/08 | 7.10 | 21.8 | 1251 | 483 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WEISKOPF | 641802 | 07/16/08 | 7.07 | 22.2 | 1399 | 560 | 26 | 0.1 | 4.29 | 4.29 | <0.01 | 248 | 34.3 | 4.4 | 38.6 | 170 | 3 | <2 | 173 | 1060 | 1040 | 1.0 | 16.3 | 17.0 | 2.1 |
| WEISKOPF | 641802 | 10/28/08 | 6.98 | 20.8 | 1401 | 602 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WEISKOPF | 641802 | 01/29/09 | 6.79 | 20.7 | 1014 | 503 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WEISKOPF | 641802 | 04/15/09 | 7.53 | 21.1 | 1164 | 503 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZANDER | 205126 | 02/04/08 | 7.24 | 19.7 | 392 | 5.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZANDER | 205126 | 05/06/08 | 7.26 | 21.2 | 404 | 6.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZANDER | 205126 | 07/16/08 | 6.92 | 22.9 | 441 | 6.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZANDER | 205126 | 10/28/08 | 7.40 | 21.2 | 415 | 15 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZANDER | 205126 | 02/10/09 | 7.50 | 20.4 | 317 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZANDER | 205126 | 04/16/09 | 7.47 | 21.7 | 352 | 5.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

*Notes:*
*All units are in milligrams per liter (mg/L) unless otherwise noted*
*deg C = degrees Celsius*
*meq/l = milliequivalent per liter*
*M = pH Meter Malfunction*
*NA = Not Applicable*
*NR = No Record*
*- = Not Analyzed*
*ND = No Data*
*SC = Specific Conductance*
*SU = Standard Units*
*TDS = Total Dissolved Solids*
*µS/cm = microsiemens per centimeter*
[1] *Verified drinking water supply well, sample collected for sulfate trend analysis for interim action evaluation*

**TABLE 3**
**Compilation of Groundwater Elevation Data**

| Well Name | ADWR 55 Registry No. | UTM East | UTM North | Date | Measuring Point Elevation[1] (ft amsl) | Depth To Water (feet) | Groundwater Elevation (ft amsl) |
|---|---|---|---|---|---|---|---|
| ANDERSON | 613396 | 601134.729 | 3468816.065 | 03/20/08 | 4580.34 | 145.46 | 4434.88 |
| ANDERSON | 613396 | 601134.729 | 3468816.065 | 05/05/08 | 4580.34 | 145.84 | 4434.50 |
| ANDERSON | 613396 | 601134.729 | 3468816.065 | 07/14/08 | 4580.34 | 146.16 | 4434.18 |
| ANDERSON | 613396 | 601134.729 | 3468816.065 | 10/15/08 | 4580.34 | 146.21 | 4434.13 |
| ANDERSON | 613396 | 601134.729 | 3468816.065 | 01/27/09 | 4580.34 | 145.97 | 4434.37 |
| ANDERSON | 613396 | 601134.729 | 3468816.065 | 04/14/09 | 4580.34 | 146.21 | 4434.13 |
| AWC-02 [2] | 616586 | 598907.911 | 3468549.357 | 04/08/08 | 4547.64 | 116 | 4431.64 |
| AWC-02 | 616586 | 598907.911 | 3468549.357 | 08/27/08 | 4547.64 | 121.12 | 4426.52 |
| AWC-02 [3] | 616586 | 598907.911 | 3468549.357 | 10/23/08 | 4547.64 | 115 | 4432.64 |
| AWC-02 [3] | 616586 | 598907.911 | 3468549.357 | 04/22/09 | 4547.64 | 118 | 4429.64 |
| AWC-03 [2] | 616585 | 599090.322 | 3468681.898 | 04/08/08 | 4539.52 | 112 | 4427.52 |
| AWC-03 | 616585 | 599090.322 | 3468681.898 | 08/27/08 | 4539.52 | 119.40 | 4420.12 |
| AWC-03 [3] | 616585 | 599090.322 | 3468681.898 | 10/23/08 | 4539.52 | 106 | 4433.52 |
| AWC-03 [3] | 616585 | 599090.322 | 3468681.898 | 04/22/09 | 4539.52 | 114 | 4425.52 |
| AWC-04 [2] | 616584 | 598949.929 | 3468717.084 | 04/08/08 | 4540.48 | 108 | 4432.48 |
| AWC-04 | 616584 | 598949.929 | 3468717.084 | 08/18/08 | 4540.48 | 112.56 | 4427.92 |
| AWC-04 [3] | 616584 | 598949.929 | 3468717.084 | 10/23/08 | 4540.48 | 111.31 | 4429.17 |
| AWC-04 [3] | 616584 | 598949.929 | 3468717.084 | 04/22/09 | 4540.48 | 110 | 4430.48 |
| AWC-05 [2] | 590620 | 599269.904 | 3468541.692 | 04/08/08 | 4542.51 | 284 | 4258.51 |
| AWC-05 | 590620 | 599269.904 | 3468541.692 | 08/27/08 | 4542.51 | 299.65 | 4242.86 |
| AWC-05 [3] | 590620 | 599269.904 | 3468541.692 | 10/23/08 | 4542.51 | 284 | 4258.51 |
| AWC-05 [3] | 590620 | 599269.904 | 3468541.692 | 04/22/09 | 4542.51 | 286 | 4256.51 |
| AWC-05 [3] | 590620 | 599269.904 | 3468541.692 | 06/03/09 | 4542.51 | 125 | 4417.51 |
| BANKS 987 | 647987 | 606981.921 | 3469206.175 | 02/27/08 | 4648.18 | 208.00 | 4440.18 |
| BANKS 987 | 647987 | 606981.921 | 3469206.175 | 05/12/08 | 4648.18 | 216.30 | 4431.88 |
| BANKS 987 | 647987 | 606981.921 | 3469206.175 | 07/21/08 | 4648.18 | 228.95 | 4419.23 |
| BANKS 987 | 647987 | 606981.921 | 3469206.175 | 10/13/08 | 4648.18 | 228.20 | 4419.98 |
| BANKS 987 | 647987 | 606981.921 | 3469206.175 | 01/21/09 | 4648.18 | 206.64 | 4441.54 |
| BANKS 987 | 647987 | 606981.921 | 3469206.175 | 04/08/09 | 4648.18 | 205.50 | 4442.68 |
| BARTON 010 | 085010 | 606201.084 | 3469047.469 | 05/12/08 | 4688.95 | 227.50 | 4461.45 |
| BARTON 010 | 085010 | 606201.084 | 3469047.469 | 07/23/08 | 4688.95 | 276.06 | 4412.89 |
| BARTON 010 | 085010 | 606201.084 | 3469047.469 | 10/16/08 | 4688.95 | Dry | <4372 |
| BARTON 010 | 085010 | 606201.084 | 3469047.469 | 03/11/09 | 4688.95 | Dry | <4372 |
| BARTON 919 | 644919 | 606243.850 | 3469076.689 | 05/12/08 | 4692.36 | 113.71 | 4578.65 |
| BARTON 919 | 644919 | 606243.850 | 3469076.689 | 07/23/08 | 4692.36 | 113.56 | 4578.80 |
| BARTON 919 | 644919 | 606243.850 | 3469076.689 | 10/16/08 | 4692.36 | 113.20 | 4579.16 |
| BARTON 919 | 644919 | 606243.850 | 3469076.689 | 03/11/09 | 4692.36 | 112.92 | 4579.44 |
| BARTON 919 | 644919 | 606243.850 | 3469076.689 | 04/10/09 | 4692.36 | 112.89 | 4579.47 |
| BF-01 | 539783 | 604169.077 | 3472151.593 | 03/04/08 | 4835.23 | 348.99 | 4486.24 |
| BF-01 | 539783 | 604169.077 | 3472151.593 | 05/23/08 | 4835.23 | 348.80 | 4486.43 |
| BF-01 | 539783 | 604169.077 | 3472151.593 | 08/05/08 | 4835.23 | 348.66 | 4486.57 |
| BF-01 | 539783 | 604169.077 | 3472151.593 | 11/05/08 | 4835.23 | 348.94 | 4486.29 |
| BF-01 | 539783 | 604169.077 | 3472151.593 | 02/20/09 | 4835.23 | 348.78 | 4486.45 |
| BF-01 | 539783 | 604169.077 | 3472151.593 | 05/06/09 | 4835.23 | 348.73 | 4486.50 |
| BIMA | 577927 | 606001.245 | 3471852.804 | 05/13/08 | 4802.05 | 367.31 | 4434.74 |
| BIMA | 577927 | 606001.245 | 3471852.804 | 08/18/08 | 4802.05 | 370.24 | 4431.81 |
| BIMA | 577927 | 606001.245 | 3471852.804 | 10/23/08 | 4802.05 | 353.96 | 4448.09 |
| BIMA | 577927 | 606001.245 | 3471852.804 | 01/20/09 | 4802.05 | 353.07 | 4448.98 |
| BIMA | 577927 | 606001.245 | 3471852.804 | 04/07/09 | 4802.05 | 357.76 | 4444.29 |
| BMO-2008-1G | 909474 | 606467.681 | 3471723.644 | 08/27/08 | 4805.10 | 62.05 | 4743.05 |
| BMO-2008-1G | 909474 | 606467.681 | 3471723.644 | 11/11/08 | 4805.10 | 60.95 | 4744.15 |
| BMO-2008-1G | 909474 | 606467.681 | 3471723.644 | 02/25/09 | 4805.10 | 61.43 | 4743.67 |
| BMO-2008-1G | 909474 | 606467.681 | 3471723.644 | 04/28/09 | 4805.10 | 62.01 | 4743.09 |
| BMO-2008-3B | 909147 | 602012.923 | 3467919.582 | 07/18/08 | 4583.97 | 138.05 | 4445.92 |
| BMO-2008-3B | 909147 | 602012.923 | 3467919.582 | 11/04/08 | 4583.97 | 137.95 | 4446.02 |
| BMO-2008-3B | 909147 | 602012.923 | 3467919.582 | 02/19/09 | 4583.97 | 138.19 | 4445.78 |
| BMO-2008-3B | 909147 | 602012.923 | 3467919.582 | 05/11/09 | 4583.97 | 138.46 | 4445.51 |
| BMO-2008-4B | 910096 | 601099.405 | 3468383.430 | 12/11/08 | 4573.17 | 130.77 | 4442.40 |
| BMO-2008-4B | 910096 | 601099.405 | 3468383.430 | 02/18/09 | 4573.17 | 130.58 | 4442.59 |
| BMO-2008-4B | 910096 | 601099.405 | 3468383.430 | 04/30/09 | 4573.17 | 131.24 | 4441.93 |
| BMO-2008-5B | 909653 | 600438.159 | 3468994.715 | 09/30/08 | 4585.10 | 145.10 | 4440.00 |
| BMO-2008-5B | 909653 | 600438.159 | 3468994.715 | 02/18/09 | 4585.10 | 144.35 | 4440.75 |
| BMO-2008-5B | 909653 | 600438.159 | 3468994.715 | 04/27/09 | 4585.10 | 144.78 | 4440.32 |
| BMO-2008-5M | 909552 | 600445.071 | 3468994.282 | 10/02/08 | 4585.02 | 146.65 | 4438.37 |
| BMO-2008-5M | 909552 | 600445.071 | 3468994.282 | 02/18/09 | 4585.02 | 145.97 | 4439.05 |
| BMO-2008-5M | 909552 | 600445.071 | 3468994.282 | 04/27/09 | 4585.02 | 146.46 | 4438.56 |
| BMO-2008-6B | 909146 | 600366.523 | 3469820.644 | 07/16/08 | 4627.44 | 190.13 | 4437.31 |
| BMO-2008-6B | 909146 | 600366.523 | 3469820.644 | 11/04/08 | 4627.44 | 190.23 | 4437.21 |
| BMO-2008-6B | 909146 | 600366.523 | 3469820.644 | 02/19/09 | 4627.44 | 189.71 | 4437.73 |
| BMO-2008-6B | 909146 | 600366.523 | 3469820.644 | 04/27/09 | 4627.44 | 189.99 | 4437.45 |
| BMO-2008-6M | 909019 | 600367.943 | 3469813.885 | 07/10/08 | 4626.90 | 191.63 | 4435.27 |
| BMO-2008-6M | 909019 | 600367.943 | 3469813.885 | 11/04/08 | 4626.90 | 190.25 | 4436.65 |
| BMO-2008-6M | 909019 | 600367.943 | 3469813.885 | 02/20/09 | 4626.90 | 190.70 | 4436.20 |
| BMO-2008-6M | 909019 | 600367.943 | 3469813.885 | 04/28/09 | 4626.90 | 190.98 | 4435.92 |
| BMO-2008-7M | 908794 | 603099.165 | 3470029.283 | 07/14/08 | 4688.33 | 238.31 | 4450.02 |
| BMO-2008-7M | 908794 | 603099.165 | 3470029.283 | 11/06/08 | 4688.33 | 239.69 | 4448.64 |
| BMO-2008-7M | 908794 | 603099.165 | 3470029.283 | 02/18/09 | 4688.33 | 238.90 | 4449.43 |
| BMO-2008-7M | 908794 | 603099.165 | 3470029.283 | 05/11/09 | 4688.33 | 239.03 | 4449.30 |
| BMO-2008-8B | 910097 | 604171.347 | 3471141.719 | 12/05/08 | 4753.25 | 297.94 | 4455.31 |
| BMO-2008-8B | 910097 | 604171.347 | 3471141.719 | 02/19/09 | 4753.25 | 297.63 | 4455.62 |
| BMO-2008-8B | 910097 | 604171.347 | 3471141.719 | 05/05/09 | 4753.25 | 297.37 | 4455.88 |
| BMO-2008-8M | 909711 | 604167.912 | 3471127.902 | 12/09/08 | 4752.45 | 299.79 | 4452.66 |
| BMO-2008-8M | 909711 | 604167.912 | 3471127.902 | 02/19/09 | 4752.45 | 298.32 | 4454.13 |
| BMO-2008-8M | 909711 | 604167.912 | 3471127.902 | 05/05/09 | 4752.45 | 298.27 | 4454.18 |

**TABLE 3**
**Compilation of Groundwater Elevation Data**

| Well Name | ADWR 55 Registry No. | UTM East | UTM North | Date | Measuring Point Elevation[1] (ft amsl) | Depth To Water (feet) | Groundwater Elevation (ft amsl) |
|---|---|---|---|---|---|---|---|
| BMO-2008-9M | 909255 | 604668.669 | 3471121.675 | 08/08/08 | 4762.61 | 287.17 | 4475.44 |
| BMO-2008-9M | 909255 | 604668.669 | 3471121.675 | 11/05/08 | 4762.61 | 287.65 | 4474.96 |
| BMO-2008-9M | 909255 | 604668.669 | 3471121.675 | 02/26/09 | 4762.61 | 285.65 | 4476.96 |
| BMO-2008-9M | 909255 | 604668.669 | 3471121.675 | 05/12/09 | 4762.61 | 285.28 | 4477.33 |
| BMO-2008-10GU | 909272 | 605267.551 | 3471731.866 | 08/04/08 | 4793.45 | 299.28 | 4494.17 |
| BMO-2008-10GU | 909272 | 605267.551 | 3471731.866 | 11/05/08 | 4793.45 | 295.89 | 4497.56 |
| BMO-2008-10GU | 909272 | 605267.551 | 3471731.866 | 02/25/09 | 4793.45 | 289.84 | 4503.61 |
| BMO-2008-10GU | 909272 | 605267.551 | 3471731.866 | 05/06/09 | 4793.45 | 289.35 | 4504.10 |
| BMO-2008-10GL | 909435 | 605264.072 | 3471702.043 | 08/20/08 | 4792.21 | 521.75 | 4270.46 |
| BMO-2008-10GL | 909435 | 605264.072 | 3471702.043 | 11/05/08 | 4792.21 | 520.50 | 4271.71 |
| BMO-2008-10GL | 909435 | 605264.072 | 3471702.043 | 02/25/09 | 4792.21 | 516.72 | 4275.49 |
| BMO-2008-10GL | 909435 | 605264.072 | 3471702.043 | 05/12/09 | 4792.21 | 514.68 | 4277.53 |
| BMO-2008-11G | 909434 | 603800.995 | 3472626.482 | 08/22/08 | 4844.67 | 577.76 | 4266.91 |
| BMO-2008-11G | 909434 | 603800.995 | 3472626.482 | 11/12/08 | 4844.67 | 576.80 | 4267.87 |
| BMO-2008-11G | 909434 | 603800.995 | 3472626.482 | 02/26/09 | 4844.67 | 575.91 | 4268.76 |
| BMO-2008-11G | 909434 | 603800.995 | 3472626.482 | 04/08/09 | 4844.67 | 575.46 | 4269.21 |
| BMO-2008-13B | 909551 | 601657.612 | 3470076.358 | 10/03/08 | 4649.21 | 206.42 | 4442.79 |
| BMO-2008-13B | 909551 | 601657.612 | 3470076.358 | 02/17/09 | 4649.21 | 206.11 | 4443.10 |
| BMO-2008-13B | 909551 | 601657.612 | 3470076.358 | 05/06/09 | 4649.21 | 206.32 | 4442.89 |
| BMO-2008-13M | 909760 | 601650.495 | 3470040.455 | 12/03/08 | 4647.15 | 206.00 | 4441.15 |
| BMO-2008-13M | 909760 | 601650.495 | 3470040.455 | 02/17/09 | 4647.15 | 208.74 | 4438.41 |
| BMO-2008-13M | 909760 | 601650.495 | 3470040.455 | 04/29/09 | 4647.15 | 208.53 | 4438.62 |
| BURKE | 212268 | 602230.087 | 3473029.816 | 04/22/08 | 4856.30 | 606.55 | 4249.75 |
| BURKE | 212268 | 602230.087 | 3473029.816 | 08/05/08 | 4856.30 | 605.86 | 4250.44 |
| BURKE | 212268 | 602230.087 | 3473029.816 | 10/28/08 | 4856.30 | 604.88 | 4251.42 |
| BURKE | 212268 | 602230.087 | 3473029.816 | 02/19/09 | 4856.30 | 603.91 | 4252.39 |
| BURKE | 212268 | 602230.087 | 3473029.816 | 04/28/09 | 4856.30 | 603.70 | 4252.60 |
| CAMPBELL | 215509 | 606420.836 | 3469320.340 | 02/05/08 | 4694.29 | 180.60 | 4513.69 |
| CAMPBELL | 215509 | 606420.836 | 3469320.340 | 05/13/08 | 4694.29 | 181.80 | 4512.49 |
| CAMPBELL | 215509 | 606420.836 | 3469320.340 | 10/16/08 | 4694.29 | 200.00 | 4494.29 |
| COB MW-1 | 903992 | 603153.259 | 3469889.889 | 02/22/08 | 4683.26 | 232.47 | 4450.79 |
| COB MW-1 | 903992 | 603153.259 | 3469889.889 | 05/20/08 | 4683.26 | 233.12 | 4450.14 |
| COB MW-1 | 903992 | 603153.259 | 3469889.889 | 07/30/08 | 4683.26 | 233.37 | 4449.89 |
| COB MW-1 | 903992 | 603153.259 | 3469889.889 | 10/23/08 | 4683.26 | 233.62 | 4449.64 |
| COB MW-1 | 903992 | 603153.259 | 3469889.889 | 02/12/09 | 4683.26 | 234.05 | 4449.21 |
| COB MW-1 | 903992 | 603153.259 | 3469889.889 | 04/21/09 | 4683.26 | 234.99 | 4448.27 |
| COB MW-2 | 903984 | 600973.257 | 3468114.836 | 02/22/08 | 4566.21 | 122.85 | 4443.36 |
| COB MW-2 | 903984 | 600973.257 | 3468114.836 | 05/20/08 | 4566.21 | 123.00 | 4443.21 |
| COB MW-2 | 903984 | 600973.257 | 3468114.836 | 07/30/08 | 4566.21 | 123.53 | 4442.68 |
| COB MW-2 | 903984 | 600973.257 | 3468114.836 | 10/23/08 | 4566.21 | 124.02 | 4442.19 |
| COB MW-2 | 903984 | 600973.257 | 3468114.836 | 02/12/09 | 4566.21 | 123.39 | 4442.82 |
| COB MW-2 | 903984 | 600973.257 | 3468114.836 | 04/23/09 | 4566.21 | 124.16 | 4442.05 |
| COB MW-3 | 906823 | 599169.225 | 3468726.000 | 02/28/08 | 4538.63 | 120.84 | 4417.79 |
| COB MW-3 | 906823 | 599169.225 | 3468726.000 | 05/20/08 | 4538.63 | 125.00 | 4413.63 |
| COB MW-3 | 906823 | 599169.225 | 3468726.000 | 07/30/08 | 4538.63 | 118.50 | 4420.13 |
| COB MW-3 | 906823 | 599169.225 | 3468726.000 | 10/23/08 | 4538.63 | 117.93 | 4420.70 |
| COB MW-3 | 906823 | 599169.225 | 3468726.000 | 02/12/09 | 4538.63 | 110.91 | 4427.72 |
| COB MW-3 | 906823 | 599169.225 | 3468726.000 | 04/23/09 | 4538.63 | 125.13 | 4413.50 |
| COB WL | 593116 | 606357.506 | 3472502.012 | 02/22/08 | 4832.06 | 56.50 | 4775.56 |
| COB WL | 593116 | 606357.506 | 3472502.012 | 05/20/08 | 4832.06 | 57.50 | 4774.56 |
| COB WL | 593116 | 606357.506 | 3472502.012 | 07/30/08 | 4832.06 | 58.64 | 4773.42 |
| COB WL | 593116 | 606357.506 | 3472502.012 | 10/23/08 | 4832.06 | 58.76 | 4773.30 |
| COB WL | 593116 | 606357.506 | 3472502.012 | 02/12/09 | 4832.06 | 58.89 | 4773.17 |
| COB WL | 593116 | 606357.506 | 3472502.012 | 04/23/09 | 4832.06 | 59.73 | 4772.33 |
| COLLINS | 565260 | 602551.286 | 3471341.335 | 02/12/08 | 4733.72 | 289.47 | 4444.25 |
| COLLINS | 565260 | 602551.286 | 3471341.335 | 05/29/08 | 4733.72 | 288.53 | 4445.19 |
| COLLINS | 565260 | 602551.286 | 3471341.335 | 07/31/08 | 4733.72 | 290.08 | 4443.64 |
| COLLINS | 565260 | 602551.286 | 3471341.335 | 10/20/08 | 4733.72 | 290.15 | 4443.57 |
| COLLINS | 565260 | 602551.286 | 3471341.335 | 04/21/09 | 4733.72 | 290.66 | 4443.06 |
| COOPER C | 637069 | 601349.987 | 3468913.011 | 03/04/08 | 4595.06 | 155.08 | 4439.98 |
| COOPER C | 637069 | 601349.987 | 3468913.011 | 05/05/08 | 4595.06 | 155.34 | 4439.72 |
| COOPER C | 637069 | 601349.987 | 3468913.011 | 07/15/08 | 4595.06 | 156.01 | 4439.05 |
| COOPER C | 637069 | 601349.987 | 3468913.011 | 10/16/08 | 4595.06 | 155.85 | 4439.21 |
| COOPER C | 637069 | 601349.987 | 3468913.011 | 01/27/09 | 4595.06 | 155.62 | 4439.44 |
| COOPER C | 637069 | 601349.987 | 3468913.011 | 04/14/09 | 4595.06 | 155.86 | 4439.20 |
| DODSON | 644927 | 605594.560 | 3469063.772 | 05/12/08 | 4686.34 | 81.38 | 4604.96 |
| DODSON | 644927 | 605594.560 | 3469063.772 | 07/24/08 | 4686.34 | 82.20 | 4604.14 |
| DODSON | 644927 | 605594.560 | 3469063.772 | 10/13/08 | 4686.34 | 81.82 | 4604.52 |
| DODSON | 644927 | 605594.560 | 3469063.772 | 01/22/09 | 4686.34 | 82.33 | 4604.01 |
| DODSON | 644927 | 605594.560 | 3469063.772 | 04/09/09 | 4686.34 | 82.84 | 4603.50 |
| DOUGLASS 791 | 592791 | 607632.993 | 3470222.677 | 02/13/08 | 4703.27 | 22.11 | 4681.16 |
| DOUGLASS 791 | 592791 | 607632.993 | 3470222.677 | 05/13/08 | 4703.27 | 24.60 | 4678.67 |
| DOUGLASS 791 | 592791 | 607632.993 | 3470222.677 | 07/22/08 | 4703.27 | 27.00 | 4676.27 |
| DOUGLASS 791 | 592791 | 607632.993 | 3470222.677 | 10/16/08 | 4703.27 | 23.60 | 4679.67 |
| DOUGLASS 791 | 592791 | 607632.993 | 3470222.677 | 01/19/09 | 4703.27 | 26.51 | 4676.76 |
| DOUGLASS 791 | 592791 | 607632.993 | 3470222.677 | 04/08/09 | 4703.27 | 28.53 | 4674.74 |
| DOUGLASS 792 | 592792 | 607607.541 | 3469829.115 | 02/13/08 | 4681.73 | 87.76 | 4593.97 |
| DOUGLASS 792 | 592792 | 607607.541 | 3469829.115 | 05/13/08 | 4681.73 | 87.21 | 4594.52 |
| DOUGLASS 792 | 592792 | 607607.541 | 3469829.115 | 07/22/08 | 4681.73 | 86.90 | 4594.83 |
| DOUGLASS 792 | 592792 | 607607.541 | 3469829.115 | 10/16/08 | 4681.73 | 86.45 | 4595.28 |
| DOUGLASS 792 | 592792 | 607607.541 | 3469829.115 | 01/20/09 | 4681.73 | 86.26 | 4595.47 |
| DOUGLASS 792 | 592792 | 607607.541 | 3469829.115 | 04/08/09 | 4681.73 | 86.04 | 4595.69 |

**TABLE 3**
**Compilation of Groundwater Elevation Data**

| Well Name | ADWR 55 Registry No. | UTM East | UTM North | Date | Measuring Point Elevation[1] (ft amsl) | Depth To Water (feet) | Groundwater Elevation (ft amsl) |
|---|---|---|---|---|---|---|---|
| EAST | 599796 | 607076.365 | 3468712.215 | 02/08/08 | 4626.01 | 50.20 | 4575.81 |
| EAST | 599796 | 607076.365 | 3468712.215 | 05/14/08 | 4626.01 | 52.45 | 4573.56 |
| EAST | 599796 | 607076.365 | 3468712.215 | 07/23/08 | 4626.01 | 52.16 | 4573.85 |
| EAST | 599796 | 607076.365 | 3468712.215 | 10/14/08 | 4626.01 | 52.19 | 4573.82 |
| EAST | 599796 | 607076.365 | 3468712.215 | 01/20/09 | 4626.01 | 50.52 | 4575.49 |
| EAST | 599796 | 607076.365 | 3468712.215 | 04/08/09 | 4626.01 | 51.91 | 4574.10 |
| EPPELE 641 | 805641 | 607165.354 | 3469229.942 | 03/11/08 | 4642.86 | 29.52 | 4613.34 |
| EPPELE 641 | 805641 | 607165.354 | 3469229.942 | 05/12/08 | 4642.86 | 30.64 | 4612.22 |
| EPPELE 641 | 805641 | 607165.354 | 3469229.942 | 07/21/08 | 4642.86 | 25.59 | 4617.27 |
| EPPELE 641 | 805641 | 607165.354 | 3469229.942 | 10/14/08 | 4642.86 | 24.53 | 4618.33 |
| EPPELE 641 | 805641 | 607165.354 | 3469229.942 | 01/21/09 | 4642.86 | 27.35 | 4615.51 |
| EPPELE 641 | 805641 | 607165.354 | 3469229.942 | 04/08/09 | 4642.86 | 29.08 | 4613.78 |
| FLEMING | 218386 | 605565.701 | 3469342.523 | 02/18/09 | 4693.68 | 299.30 | 4394.38 |
| FLEMING | 218386 | 605565.701 | 3469342.523 | 04/08/09 | 4693.68 | 301.81 | 4391.87 |
| FULTZ | 212447 | 607153.306 | 3469063.892 | 10/22/08 | 4642.92 | 40.59 | 4602.33 |
| FULTZ | 212447 | 607153.306 | 3469063.892 | 01/21/09 | 4642.92 | 40.66 | 4602.26 |
| FULTZ | 212447 | 607153.306 | 3469063.892 | 04/09/09 | 4642.92 | 42.88 | 4600.04 |
| GALLANT | 502527 | 607769.640 | 3468524.363 | 02/11/08 | 4599.58 | 28.32 | 4571.26 |
| GALLANT | 502527 | 607769.640 | 3468524.363 | 07/23/08 | 4599.58 | 33.05 | 4566.53 |
| GALLANT | 502527 | 607769.640 | 3468524.363 | 10/16/08 | 4599.58 | 30.70 | 4568.88 |
| GALLANT | 502527 | 607769.640 | 3468524.363 | 03/03/09 | 4599.58 | 31.59 | 4567.99 |
| GARNER 557 | 558557 | 602659.240 | 3468962.415 | 02/21/08 | 4626.44 | 191.05 | 4435.39 |
| GARNER 557 | 558557 | 602659.240 | 3468962.415 | 05/05/08 | 4626.44 | 191.28 | 4435.16 |
| GARNER 557 | 558557 | 602659.240 | 3468962.415 | 07/15/08 | 4626.44 | 191.44 | 4435.00 |
| GARNER 557 | 558557 | 602659.240 | 3468962.415 | 10/16/08 | 4626.44 | 191.83 | 4434.61 |
| GARNER 557 | 558557 | 602659.240 | 3468962.415 | 01/28/09 | 4626.44 | 191.92 | 4434.52 |
| GARNER 557 | 558557 | 602659.240 | 3468962.415 | 04/15/09 | 4626.44 | 192.09 | 4434.35 |
| GARNER 635 | 587635 | 602665.352 | 3468967.902 | 02/04/08 | 4628.29 | 193.20 | 4435.09 |
| GARNER 635 | 587635 | 602665.352 | 3468967.902 | 05/05/08 | 4628.29 | 195.90 | 4432.39 |
| GARNER 635 | 587635 | 602665.352 | 3468967.902 | 07/15/08 | 4628.29 | 193.58 | 4434.71 |
| GARNER 635 | 587635 | 602665.352 | 3468967.902 | 10/15/08 | 4628.29 | 194.35 | 4433.94 |
| GARNER 635 | 587635 | 602665.352 | 3468967.902 | 01/28/09 | 4628.29 | 194.80 | 4433.49 |
| GARNER 635 | 587635 | 602665.352 | 3468967.902 | 04/15/09 | 4628.29 | 195.54 | 4432.75 |
| GGOOSE 547 | 628547 | 606256.657 | 3469820.260 | 05/21/08 | 4717.11 | 220.91 | 4496.20 |
| GGOOSE 547 | 628547 | 606256.657 | 3469820.260 | 08/15/08 | 4717.11 | 238.48 | 4478.63 |
| GGOOSE 547 | 628547 | 606256.657 | 3469820.260 | 10/29/08 | 4717.11 | 235.90 | 4481.21 |
| GGOOSE 547 | 628547 | 606256.657 | 3469820.260 | 02/24/09 | 4717.11 | 236.13 | 4480.98 |
| GGOOSE 547 | 628547 | 606256.657 | 3469820.260 | 05/14/09 | 4717.11 | 236.17 | 4480.94 |
| GL-03 | 539782 | 604386.940 | 3473747.943 | 05/22/08 | 4924.31 | 660.15 | 4264.16 |
| GL-03 | 539782 | 604386.940 | 3473747.943 | 08/04/08 | 4924.31 | 659.79 | 4264.52 |
| GL-03 | 539782 | 604386.940 | 3473747.943 | 12/02/08 | 4924.31 | 658.25 | 4266.06 |
| GL-03 | 539782 | 604386.940 | 3473747.943 | 02/26/09 | 4924.31 | 658.62 | 4265.69 |
| GL-03 | 539782 | 604386.940 | 3473747.943 | 05/05/09 | 4924.31 | 657.23 | 4267.08 |
| GOAR RANCH | 610695 | 602454.751 | 3468892.471 | 02/21/08 | 4631.13 | 183.90 | 4447.23 |
| GOAR RANCH | 610695 | 602454.751 | 3468892.471 | 05/05/08 | 4631.13 | 188.11 | 4443.02 |
| GOAR RANCH | 610695 | 602454.751 | 3468892.471 | 07/16/08 | 4631.13 | 184.41 | 4446.72 |
| GOAR RANCH | 610695 | 602454.751 | 3468892.471 | 10/22/08 | 4631.13 | 184.68 | 4446.45 |
| GOAR RANCH | 610695 | 602454.751 | 3468892.471 | 01/27/09 | 4631.13 | 184.87 | 4446.26 |
| GOAR RANCH | 610695 | 602454.751 | 3468892.471 | 04/15/09 | 4631.13 | 184.96 | 4446.17 |
| HOBAN | 805290 | 601705.848 | 3468880.329 | 02/27/08 | 4597.21 | 163.05 | 4434.16 |
| HOBAN | 805290 | 601705.848 | 3468880.329 | 05/07/08 | 4597.21 | 163.28 | 4433.93 |
| HOBAN | 805290 | 601705.848 | 3468880.329 | 07/14/08 | 4597.21 | 163.87 | 4433.34 |
| HOBAN | 805290 | 601705.848 | 3468880.329 | 10/16/08 | 4597.21 | 163.95 | 4433.26 |
| HOBAN | 805290 | 601705.848 | 3468880.329 | 01/28/09 | 4597.21 | 163.82 | 4433.39 |
| HOBAN | 805290 | 601705.848 | 3468880.329 | 04/15/09 | 4597.21 | 164.16 | 4433.05 |
| HOWARD | NR | 601281.936 | 3468768.622 | 03/04/08 | 4589.70 | 150.10 | 4439.60 |
| HOWARD | NR | 601281.936 | 3468768.622 | 05/08/08 | 4589.70 | 150.70 | 4439.00 |
| HOWARD | NR | 601281.936 | 3468768.622 | 07/14/08 | 4589.70 | 150.91 | 4438.79 |
| HOWARD | NR | 601281.936 | 3468768.622 | 10/15/08 | 4589.70 | 150.67 | 4439.03 |
| HOWARD | NR | 601281.936 | 3468768.622 | 01/28/09 | 4589.70 | 150.67 | 4439.03 |
| HOWARD | NR | 601281.936 | 3468768.622 | 04/15/09 | 4589.70 | 151.15 | 4438.55 |
| KEEFER | 209744 | 599879.175 | 3468119.015 | 02/06/08 | 4572.03 | 134.67 | 4437.36 |
| KEEFER | 209744 | 599879.175 | 3468119.015 | 05/06/08 | 4572.03 | 135.28 | 4436.75 |
| KEEFER | 209744 | 599879.175 | 3468119.015 | 07/16/08 | 4572.03 | 136.24 | 4435.79 |
| KEEFER | 209744 | 599879.175 | 3468119.015 | 10/28/08 | 4572.03 | 135.87 | 4436.16 |
| KEEFER | 209744 | 599879.175 | 3468119.015 | 01/28/09 | 4572.03 | 134.88 | 4437.15 |
| KEEFER | 209744 | 599879.175 | 3468119.015 | 04/16/09 | 4572.03 | 135.00 | 4437.03 |
| MCCONNELL 265 | 539265 | 601463.094 | 3468840.139 | 02/20/08 | 4600.70 | 156.15 | 4444.55 |
| MCCONNELL 265 | 539265 | 601463.094 | 3468840.139 | 05/06/08 | 4600.70 | 156.40 | 4444.30 |
| MCCONNELL 265 | 539265 | 601463.094 | 3468840.139 | 07/15/08 | 4600.70 | 157.07 | 4443.63 |
| MCCONNELL 265 | 539265 | 601463.094 | 3468840.139 | 11/19/08 | 4600.70 | 157.17 | 4443.53 |
| MCCONNELL 265 | 539265 | 601463.094 | 3468840.139 | 01/28/09 | 4600.70 | 156.70 | 4444.00 |
| MCCONNELL 265 | 539265 | 601463.094 | 3468840.139 | 04/15/09 | 4600.70 | 157.22 | 4443.48 |
| METZLER | 35-71891 | 602091.308 | 3471381.176 | 03/05/08 | 4728.53 | 288.30 | 4440.23 |
| METZLER | 35-71891 | 602091.308 | 3471381.176 | 05/15/08 | 4728.53 | 286.53 | 4442.00 |
| METZLER | 35-71891 | 602091.308 | 3471381.176 | 07/31/08 | 4728.53 | 286.82 | 4441.71 |
| METZLER | 35-71891 | 602091.308 | 3471381.176 | 10/20/08 | 4728.53 | 287.09 | 4441.44 |
| METZLER | 35-71891 | 602091.308 | 3471381.176 | 02/11/09 | 4728.53 | 287.74 | 4440.79 |
| METZLER | 35-71891 | 602091.308 | 3471381.176 | 04/20/09 | 4728.53 | 287.47 | 4441.06 |
| NESS | 509127 | 607866.391 | 3471419.494 | 07/24/08 | 4761.23 | 557.90 | 4203.33 |
| NESS | 509127 | 607866.391 | 3471419.494 | 10/16/08 | 4761.23 | 549.30 | 4211.93 |
| NESS | 509127 | 607866.391 | 3471419.494 | 02/25/09 | 4761.23 | 536.40 | 4224.83 |
| NESS | 509127 | 607866.391 | 3471419.494 | 05/11/09 | 4761.23 | 544.64 | 4216.59 |
| NOTEMAN | 212483 | 606053.800 | 3471576.400 | 05/13/08 | 4800.68 | 339.77 | 4460.91 |
| NOTEMAN | 212483 | 606053.800 | 3471576.400 | 08/27/08 | 4800.68 | 344.34 | 4456.34 |
| NOTEMAN | 212483 | 606053.800 | 3471576.400 | 11/22/08 | 4800.68 | 322.26 | 4478.42 |
| NOTEMAN | 212483 | 606053.800 | 3471576.400 | 02/25/09 | 4800.68 | 327.54 | 4473.14 |

**TABLE 3**
**Compilation of Groundwater Elevation Data**

| Well Name | ADWR 55 Registry No. | UTM East | UTM North | Date | Measuring Point Elevation[1] (ft amsl) | Depth To Water (feet) | Groundwater Elevation (ft amsl) |
|---|---|---|---|---|---|---|---|
| NWC-02 | 562944 | 600177.435 | 3467474.673 | 10/27/08 | 4600.44 | 160.51 | 4439.93 |
| NWC-02 | 562944 | 600177.435 | 3467474.673 | 04/29/09 | 4600.44 | 160.5 | 4439.94 |
| NWC-03 | 203321 | 601153.857 | 3468350.838 | 11/03/08 | 4574.99 | 131.48 | 4443.51 |
| NWC-03 | 203321 | 601153.857 | 3468350.838 | 04/29/09 | 4574.99 | 130 | 4444.99 |
| NWC-03 CAP | 627684 | 601153 | 3468350 | 02/02/09 | 4572 | 130.03 | 4441.97 |
| NWC-03 CAP [4] | 627684 | 601151.704 | 3468343.653 | 04/23/09 | 4572.82 | 130.62 | 4442.20 |
| NWC-04 | 551849 | 605829.808 | 3469071.959 | 12/02/08 | 4690.77 | 352.11 | 4338.66 |
| NWC-04 | 551849 | 605829.808 | 3469071.959 | 04/29/09 | 4690.77 | 328 | 4362.77 |
| NWC-06 | 575700 | 599822.821 | 3467749.954 | 04/29/09 | 4592.50 | 156 | 4436.50 |
| OSBORN | 643436 | 607031.823 | 3470270.548 | 05/13/08 | 4711.95 | 68.65 | 4643.30 |
| OSBORN | 643436 | 607031.823 | 3470270.548 | 08/05/08 | 4711.95 | 69.53 | 4642.42 |
| OSBORN | 643436 | 607031.823 | 3470270.548 | 10/16/08 | 4711.95 | 69.83 | 4642.12 |
| OSBORN | 643436 | 607031.823 | 3470270.548 | 01/20/09 | 4711.95 | 69.23 | 4642.72 |
| OSBORN | 643436 | 607031.823 | 3470270.548 | 04/07/09 | 4711.95 | 69.60 | 4642.35 |
| PANAGAKOS | 35-76413 | 605304.234 | 3469323.140 | 01/22/09 | 4691.40 | 155.28 | 4536.12 |
| PANAGAKOS | 35-76413 | 605304.234 | 3469323.140 | 04/09/09 | 4691.40 | 156.15 | 4535.25 |
| PARRA | 576415 | 602170.716 | 3471263.549 | 05/15/08 | 4727.21 | 279.78 | 4447.43 |
| PARRA | 576415 | 602170.716 | 3471263.549 | 08/18/08 | 4727.21 | 280.06 | 4447.15 |
| PARRA | 576415 | 602170.716 | 3471263.549 | 11/03/08 | 4727.21 | 280.39 | 4446.82 |
| PARRA | 576415 | 602170.716 | 3471263.549 | 02/13/09 | 4727.21 | 280.75 | 4446.46 |
| PARRA | 576415 | 602170.716 | 3471263.549 | 04/28/09 | 4727.21 | 280.88 | 4446.33 |
| PIONKE | 613395 | 601045.471 | 3468960.981 | 07/17/08 | 4592.13 | 149.88 | 4442.25 |
| PIONKE | 613395 | 601045.471 | 3468960.981 | 11/03/08 | 4592.13 | 150.99 | 4441.14 |
| PIONKE | 613395 | 601045.471 | 3468960.981 | 02/25/09 | 4592.13 | 149.68 | 4442.45 |
| PIONKE | 613395 | 601045.471 | 3468960.981 | 04/14/09 | 4592.13 | 150.01 | 4442.12 |
| POOL | 509518 | 599683.603 | 3470013.823 | 02/20/08 | 4639.09 | 204.22 | 4434.87 |
| POOL | 509518 | 599683.603 | 3470013.823 | 05/19/08 | 4639.09 | 204.72 | 4434.37 |
| POOL | 509518 | 599683.603 | 3470013.823 | 07/31/08 | 4639.09 | 205.56 | 4433.53 |
| POOL | 509518 | 599683.603 | 3470013.823 | 10/21/08 | 4639.09 | 205.06 | 4434.03 |
| POOL | 509518 | 599683.603 | 3470013.823 | 02/13/09 | 4639.09 | 204.74 | 4434.35 |
| POOL | 509518 | 599683.603 | 3470013.823 | 04/21/09 | 4639.09 | 204.87 | 4434.22 |
| POWER | 624535 | 608379.424 | 3472738.941 | 02/12/08 | 4840.37 | 42.30 | 4798.07 |
| POWER | 624535 | 608379.424 | 3472738.941 | 07/22/08 | 4840.37 | 42.82 | 4797.55 |
| POWER | 624535 | 608379.424 | 3472738.941 | 10/21/08 | 4840.37 | 32.66 | 4807.71 |
| POWER | 624535 | 608379.424 | 3472738.941 | 03/03/09 | 4840.37 | 44.31 | 4796.06 |
| RAMIREZ | 216425 | 599730.649 | 3467584.363 | 10/27/08 | 4596.61 | 159.45 | 4437.16 |
| RAMIREZ | 216425 | 599730.649 | 3467584.363 | 01/29/09 | 4596.61 | 158.74 | 4437.87 |
| RAMIREZ | 216425 | 599730.649 | 3467584.363 | 04/16/09 | 4596.61 | 158.66 | 4437.95 |
| RAY | 803772 | 607083.422 | 3469195.147 | 02/15/08 | 4647.91 | 40.85 | 4607.06 |
| RAY | 803772 | 607083.422 | 3469195.147 | 05/13/08 | 4647.91 | 43.82 | 4604.09 |
| RAY | 803772 | 607083.422 | 3469195.147 | 07/29/08 | 4647.91 | 45.25 | 4602.66 |
| RAY | 803772 | 607083.422 | 3469195.147 | 10/22/08 | 4647.91 | 44.54 | 4603.37 |
| RAY | 803772 | 607083.422 | 3469195.147 | 01/20/09 | 4647.91 | 44.31 | 4603.60 |
| RAY | 803772 | 607083.422 | 3469195.147 | 04/08/09 | 4647.91 | 44.68 | 4603.23 |
| ROGERS E | 216018 | 600449.648 | 3467636.029 | 07/17/08 | 4590.66 | 149.65 | 4441.01 |
| ROGERS E | 216018 | 600449.648 | 3467636.029 | 11/03/08 | 4590.66 | 150.15 | 4440.51 |
| ROGERS E | 216018 | 600449.648 | 3467636.029 | 02/10/09 | 4590.66 | 149.02 | 4441.64 |
| ROGERS E | 216018 | 600449.648 | 3467636.029 | 04/16/09 | 4590.66 | 149.53 | 4441.13 |
| ROGERS 803 | 641803 | 600977.690 | 3468417.386 | 02/07/08 | 4579.02 | 129.85 | 4449.17 |
| ROGERS 803 | 641803 | 600977.690 | 3468417.386 | 07/29/08 | 4579.02 | 131.86 | 4447.16 |
| ROGERS 803 | 641803 | 600977.690 | 3468417.386 | 10/22/08 | 4579.02 | 132.08 | 4446.94 |
| ROGERS 803 | 641803 | 600977.690 | 3468417.386 | 02/10/09 | 4579.02 | 130.62 | 4448.40 |
| ROGERS 803 | 641803 | 600977.690 | 3468417.386 | 04/29/09 | 4579.02 | 131.33 | 4447.69 |
| RUIZ | 531770 | 602857.357 | 3471424.219 | 02/05/08 | 4735.18 | 293.29 | 4441.89 |
| RUIZ | 531770 | 602857.357 | 3471424.219 | 05/15/08 | 4735.18 | 293.57 | 4441.61 |
| RUIZ | 531770 | 602857.357 | 3471424.219 | 07/30/08 | 4735.18 | 293.86 | 4441.32 |
| RUIZ | 531770 | 602857.357 | 3471424.219 | 10/20/08 | 4735.18 | 294.18 | 4441.00 |
| RUIZ | 531770 | 602857.357 | 3471424.219 | 02/12/09 | 4735.18 | 294.62 | 4440.56 |
| RUIZ | 531770 | 602857.357 | 3471424.219 | 04/21/09 | 4735.18 | 294.66 | 4440.52 |
| SCHWARTZ | 210865 | 600811.529 | 3468268.057 | 02/08/08 | 4551.58 | 121.80 | 4429.78 |
| SCHWARTZ | 210865 | 600811.529 | 3468268.057 | 05/19/08 | 4551.58 | 123.49 | 4428.09 |
| SCHWARTZ | 210865 | 600811.529 | 3468268.057 | 07/29/08 | 4551.58 | 122.64 | 4428.94 |
| SCHWARTZ | 210865 | 600811.529 | 3468268.057 | 10/22/08 | 4551.58 | 123.39 | 4428.19 |
| SCHWARTZ | 210865 | 600811.529 | 3468268.057 | 01/29/09 | 4551.58 | 122.87 | 4428.71 |
| SCHWARTZ | 210865 | 600811.529 | 3468268.057 | 04/17/09 | 4551.58 | 123.53 | 4428.05 |
| SRC | 211345 | 599723.300 | 3472505.400 | 04/23/08 | 4807.37 | 541.10 | 4266.27 |
| SRC | 211345 | 599723.300 | 3472505.400 | 08/05/08 | 4807.37 | 543.70 | 4263.67 |
| SRC | 211345 | 599723.300 | 3472505.400 | 10/16/08 | 4807.37 | 545.15 | 4262.22 |
| SRC | 211345 | 599723.300 | 3472505.400 | 02/26/09 | 4807.37 | 543.83 | 4263.54 |
| STEPHENS | 808560 | 606981.766 | 3469072.799 | 05/13/08 | 4651.22 | 44.94 | 4606.28 |
| STEPHENS | 808560 | 606981.766 | 3469072.799 | 08/05/08 | 4651.22 | 46.61 | 4604.61 |
| STEPHENS | 808560 | 606981.766 | 3469072.799 | 10/16/08 | 4651.22 | 46.60 | 4604.62 |
| STEPHENS | 808560 | 606981.766 | 3469072.799 | 01/21/09 | 4651.22 | 47.19 | 4604.03 |
| STEPHENS | 808560 | 606981.766 | 3469072.799 | 04/08/09 | 4651.22 | 48.45 | 4602.77 |
| SUNBELT | 201531 | 605998.250 | 3471735.149 | 02/06/08 | 4806.52 | 352.10 | 4454.42 |
| SUNBELT | 201531 | 605998.250 | 3471735.149 | 05/15/08 | 4806.52 | 358.97 | 4447.55 |
| SUNBELT | 201531 | 605998.250 | 3471735.149 | 08/05/08 | 4806.52 | Dry | <4426 |
| SUNBELT | 201531 | 605998.250 | 3471735.149 | 10/16/08 | 4806.52 | 347.00 | 4459.52 |
| SUNBELT | 201531 | 605998.250 | 3471735.149 | 01/21/09 | 4806.52 | 344.78 | 4461.74 |
| SUNBELT | 201531 | 605998.250 | 3471735.149 | 04/10/09 | 4806.52 | 349.64 | 4456.88 |
| SWAN | NR | 607378.547 | 3470648.298 | 02/13/08 | 4716.59 | 26.50 | 4690.09 |
| SWAN | NR | 607378.547 | 3470648.298 | 05/14/08 | 4716.59 | 30.69 | 4685.90 |
| SWAN | NR | 607378.547 | 3470648.298 | 07/24/08 | 4716.59 | 32.06 | 4684.53 |
| SWAN | NR | 607378.547 | 3470648.298 | 10/16/08 | 4716.59 | 27.53 | 4689.06 |
| SWAN | NR | 607378.547 | 3470648.298 | 01/20/09 | 4716.59 | 29.77 | 4686.82 |
| SWAN | NR | 607378.547 | 3470648.298 | 04/07/09 | 4716.59 | 31.47 | 4685.12 |

**TABLE 3**
**Compilation of Groundwater Elevation Data**

| Well Name | ADWR 55 Registry No. | UTM East | UTM North | Date | Measuring Point Elevation[1] (ft amsl) | Depth To Water (feet) | Groundwater Elevation (ft amsl) |
|---|---|---|---|---|---|---|---|
| TM-02A | 522574 | 604152.059 | 3472008.794 | 03/04/08 | 4808.43 | 346.62 | 4461.81 |
| TM-02A | 522574 | 604152.059 | 3472008.794 | 05/23/08 | 4808.43 | 346.16 | 4462.27 |
| TM-02A | 522574 | 604152.059 | 3472008.794 | 08/15/08 | 4808.43 | 353.91 | 4454.52 |
| TM-02A | 522574 | 604152.059 | 3472008.794 | 10/30/08 | 4808.43 | 349.45 | 4458.98 |
| TM-02A | 522574 | 604152.059 | 3472008.794 | 02/24/09 | 4808.43 | 348.64 | 4459.79 |
| TM-02A | 522574 | 604152.059 | 3472008.794 | 05/06/09 | 4808.43 | 349.38 | 4459.05 |
| TM-03 | 522575 | 606366.130 | 3473711.046 | 03/12/08 | 4897.85 | 127.14 | 4770.71 |
| TM-03 | 522575 | 606366.130 | 3473711.046 | 05/20/08 | 4897.85 | 127.40 | 4770.45 |
| TM-03 | 522575 | 606366.130 | 3473711.046 | 08/06/08 | 4897.85 | 128.02 | 4769.83 |
| TM-03 | 522575 | 606366.130 | 3473711.046 | 11/12/08 | 4897.85 | 128.00 | 4769.85 |
| TM-03 | 522575 | 606366.130 | 3473711.046 | 02/26/09 | 4897.85 | 126.94 | 4770.91 |
| TM-03 | 522575 | 606366.130 | 3473711.046 | 05/13/09 | 4897.85 | 113.86 | 4783.99 |
| TM-06 MILLER | 522695 | 606055.975 | 3468376.658 | 02/26/08 | 4707.88 | 158.78 | 4549.10 |
| TM-06 MILLER | 522695 | 606055.975 | 3468376.658 | 05/20/08 | 4707.88 | 158.76 | 4549.12 |
| TM-06 MILLER | 522695 | 606055.975 | 3468376.658 | 08/04/08 | 4707.88 | 158.80 | 4549.08 |
| TM-06 MILLER | 522695 | 606055.975 | 3468376.658 | 10/29/08 | 4707.88 | 158.85 | 4549.03 |
| TM-06 MILLER | 522695 | 606055.975 | 3468376.658 | 02/16/09 | 4707.88 | 159.28 | 4548.60 |
| TM-06 MILLER | 522695 | 606055.975 | 3468376.658 | 05/13/09 | 4707.88 | 158.81 | 4549.07 |
| TM-14 NELSON | 522816 | 599624.302 | 3470111.613 | 02/08/08 | 4643.48 | 211.79 | 4431.69 |
| TM-14 NELSON | 522816 | 599624.302 | 3470111.613 | 07/16/08 | 4643.48 | Dry | <4433 |
| TM-15 MILLER | 522699 | 599617.331 | 3471427.504 | 02/26/09 | 4729.26 | 295.11 | 4434.15 |
| TM-16 | 522578 | 605588.075 | 3469842.199 | 03/05/08 | 4717.71 | 81.00 | 4636.71 |
| TM-16 | 522578 | 605588.075 | 3469842.199 | 05/22/08 | 4717.71 | 81.24 | 4636.47 |
| TM-16 | 522578 | 605588.075 | 3469842.199 | 08/06/08 | 4717.71 | 81.65 | 4636.06 |
| TM-16 | 522578 | 605588.075 | 3469842.199 | 11/05/08 | 4717.71 | 81.75 | 4635.96 |
| TM-16 | 522578 | 605588.075 | 3469842.199 | 02/26/09 | 4717.71 | 81.88 | 4635.83 |
| TM-16 | 522578 | 605588.075 | 3469842.199 | 05/13/09 | 4717.71 | 82.01 | 4635.70 |
| TM-19A | 522581 | 602458.710 | 3469197.426 | 03/06/08 | 4645.87 | 199.85 | 4446.02 |
| TM-19A | 522581 | 602458.710 | 3469197.426 | 05/22/08 | 4645.87 | 199.50 | 4446.37 |
| TM-19A | 522581 | 602458.710 | 3469197.426 | 08/06/08 | 4645.87 | 199.19 | 4446.68 |
| TM-19A | 522581 | 602458.710 | 3469197.426 | 11/18/08 | 4645.87 | 199.46 | 4446.41 |
| TM-19A | 522581 | 602458.710 | 3469197.426 | 03/03/09 | 4645.87 | 199.81 | 4446.06 |
| TM-19A | 522581 | 602458.710 | 3469197.426 | 04/22/09 | 4645.87 | 200.57 | 4445.30 |
| TM-42 | 562554 | 603698.271 | 3469104.903 | 03/05/08 | 4666.67 | 211.04 | 4455.63 |
| TM-42 | 562554 | 603698.271 | 3469104.903 | 05/22/08 | 4666.67 | 210.98 | 4455.69 |
| TM-42 | 562554 | 603698.271 | 3469104.903 | 08/06/08 | 4666.67 | 211.55 | 4455.12 |
| TM-42 | 562554 | 603698.271 | 3469104.903 | 11/06/08 | 4666.67 | 207.05 | 4459.62 |
| TM-42 | 562554 | 603698.271 | 3469104.903 | 02/18/09 | 4666.67 | 212.31 | 4454.36 |
| TM-42 | 562554 | 603698.271 | 3469104.903 | 05/07/09 | 4666.67 | 212.37 | 4454.30 |
| TM-43 | 564729 | 605365.062 | 3474670.811 | 03/03/08 | 4971.44 | 149.05 | 4822.39 |
| TM-43 | 564729 | 605365.062 | 3474670.811 | 08/04/08 | 4971.44 | 148.70 | 4822.74 |
| TM-43 | 564729 | 605365.062 | 3474670.811 | 10/30/08 | 4971.44 | 148.72 | 4822.72 |
| TM-43A | 564726 | 605358.451 | 3474661.168 | 03/03/08 | 4969.95 | 133.71 | 4836.24 |
| TM-43A | 564726 | 605358.451 | 3474661.168 | 08/04/08 | 4969.95 | 133.71 | 4836.24 |
| TM-43A | 564726 | 605358.451 | 3474661.168 | 10/30/08 | 4969.95 | 133.46 | 4836.49 |
| TM-43B | 565004 | 605814.018 | 3474379.892 | 03/03/08 | 4922.18 | 64.00 | 4858.18 |
| TM-43B | 565004 | 605814.018 | 3474379.892 | 08/05/08 | 4922.18 | 65.21 | 4856.97 |
| TM-43B | 565004 | 605814.018 | 3474379.892 | 10/30/08 | 4922.18 | 62.89 | 4859.29 |
| TVI 236 | 802236 | 600552.215 | 3467978.431 | 05/07/08 | 4561.98 | 123.30 | 4438.68 |
| TVI 236 | 802236 | 600552.215 | 3467978.431 | 07/15/08 | 4561.98 | 121.55 | 4440.43 |
| TVI 236 | 802236 | 600552.215 | 3467978.431 | 10/15/08 | 4561.98 | 122.35 | 4439.63 |
| TVI 236 | 802236 | 600552.215 | 3467978.431 | 02/11/09 | 4561.98 | 121.28 | 4440.70 |
| TVI 236 | 802236 | 600552.215 | 3467978.431 | 04/17/09 | 4561.98 | 122.73 | 4439.25 |
| TVI 713 | 567713 | 600729.095 | 3468412.946 | 05/07/08 | 4567.22 | 127.10 | 4440.12 |
| TVI 713 | 567713 | 600729.095 | 3468412.946 | 07/14/08 | 4567.22 | 126.30 | 4440.92 |
| TVI 713 | 567713 | 600729.095 | 3468412.946 | 10/15/08 | 4567.22 | 130.00 | 4437.22 |
| TVI 713 | 567713 | 600729.095 | 3468412.946 | 02/11/09 | 4567.22 | 149.87 | 4417.35 |
| TVI 713 | 567713 | 600729.095 | 3468412.946 | 04/17/09 | 4567.22 | 126.73 | 4440.49 |
| WALKER | 200393 | 607564.689 | 3468577.472 | 02/13/08 | 4601.55 | 25.20 | 4576.35 |
| WALKER | 200393 | 607564.689 | 3468577.472 | 07/23/08 | 4601.55 | 42.65 | 4558.90 |
| WALKER | 200393 | 607564.689 | 3468577.472 | 10/21/08 | 4601.55 | 47.18 | 4554.37 |
| WALKER | 200393 | 607564.689 | 3468577.472 | 03/03/09 | 4601.55 | 28.19 | 4573.36 |
| WEISKOPF | 641802 | 601154.951 | 3468658.855 | 02/15/08 | 4586.89 | 143.31 | 4443.58 |
| WEISKOPF | 641802 | 601154.951 | 3468658.855 | 05/07/08 | 4586.89 | 143.90 | 4442.99 |
| WEISKOPF | 641802 | 601154.951 | 3468658.855 | 07/16/08 | 4586.89 | 144.22 | 4442.67 |
| WEISKOPF | 641802 | 601154.951 | 3468658.855 | 10/28/08 | 4586.89 | 145.81 | 4441.08 |
| WEISKOPF | 641802 | 601154.951 | 3468658.855 | 01/29/09 | 4586.89 | 143.99 | 4442.90 |
| WEISKOPF | 641802 | 601154.951 | 3468658.855 | 04/15/09 | 4586.89 | 144.38 | 4442.51 |
| ZANDER | 205126 | 599678.880 | 3467998.486 | 02/04/08 | 4580.94 | 144.85 | 4436.09 |
| ZANDER | 205126 | 599678.880 | 3467998.486 | 05/06/08 | 4580.94 | 145.33 | 4435.61 |
| ZANDER | 205126 | 599678.880 | 3467998.486 | 07/16/08 | 4580.94 | 146.40 | 4434.54 |
| ZANDER | 205126 | 599678.880 | 3467998.486 | 10/28/08 | 4580.94 | 146.01 | 4434.93 |
| ZANDER | 205126 | 599678.880 | 3467998.486 | 02/10/09 | 4580.94 | 144.83 | 4436.11 |
| ZANDER | 205126 | 599678.880 | 3467998.486 | 04/16/09 | 4580.94 | 144.94 | 4436.00 |

***Notes:***

***UTM = Universal Transverse Mercator Zone 12, North American Datum 1983 (NAD83)***

***ft amsl = feet above mean sea level***

***NA = Not Applicable***

***NR = No Record***

[1] ***Survey Source: Hydro Geo Chem, Inc. (measuring point elevation = top of well casing)***

[2] ***Measuring point elevation for third quarter 2008 changed to reflect well survey completed on September 18, 2008***

[3] ***Depth to Water measurement provided by Arizona Water Company***

[4] ***Measuring point elevation for second quarter 2009 changed to reflect well survey completed on April 27, 2009***

# TABLE 4
## Well Completion Depth, Screen Interval and Screened Lithology

| Well Name | ADWR 55 Registry No. | Top of Casing Elevation (ft amsl) | Casing Depth (ft bgs) | Screen Interval (ft bgs) | Screened Formation Lithology | Depth to Bedrock (ft bgs) | Comment |
|---|---|---|---|---|---|---|---|
| ANDERSON | 613396 | 4580.34 | 236 | ND | QTbf | ND | No Log |
| AWC-02 | 616585 | 4547.64 | 330 | 100-215 | QTbf | NA | Geologic Log |
| AWC-03 | 616585 | 4539.52 | 269 | 83-269 | QTbf | NA | Geologic Log |
| AWC-04 | 590620 | 4540.38 | 250 | ND | QTbf | NA | Geologic Log |
| AWC-05 | 590620 | 4542.51 | 1183 | 163-603 623-1163 | UBG / Volcanics | 400 | Geologic Log |
| BANKS 986 | 647986 | ND | 445 | ND | UBG [2] | 31 | No Log |
| BANKS 987 | 647987 | 4648.18 | 339 | ND | UBG [2] | ND | No Log |
| BARTON 010 | 085010 | 4688.95 | 300 | 180-300 | UBG [2, 3] | ND | Geologic Log |
| BARTON 919 | 644919 | 4692.36 | 130 | ND | QTbf [2] | NA | Geologic Log |
| BF-01 | 539783 | 4835.23 | 400 | 325-385 | QTbf / UBG | 350 | Geologic Log |
| BIMA | 577927 | 4802.05 | 465 | 345-465 | UBG [2, 3] | ND | Red Rock, Red Shale |
| BLOMMER | 633472 | 4753.69 | 380 | ND | UBG [2] | 245 | No Log |
| BMO-2008-1G | 909474 | 4805.10 | 310 | 180-300 | Kg | 50 | Geologic Log |
| BMO-2008-3B | 909147 | 4583.97 | 260 | 150-250 | QTbf | 470 | Geologic Log |
| BMO-2008-4B | 910096 | 4573.17 | 610 | 500-600 | QTbf | 636 | Geologic Log |
| BMO-2008-5B | 909653 | 4585.10 | 285 | 140-280 | QTbf | NA | Geologic Log |
| BMO-2008-5M | 909552 | 4585.02 | 450 | 340-440 | UBG | 290 | Geologic Log |
| BMO-2008-6B | 909146 | 4627.44 | 265 | 195-255 | QTbf | NA | Geologic Log |
| BMO-2008-6M | 909019 | 4626.90 | 450 | 340-440 | UBG | 240 | Geologic Log |
| BMO-2008-7M | 908794 | 4688.33 | 670 | 560-660 | UBG | 490 | Geologic Log |
| BMO-2008-8B | 910097 | 4753.25 | 480 | 370-470 | QTbf | NA | Geologic Log |
| BMO-2008-8M | 909711 | 4752.45 | 1210 | 1100-1200 | UBG | 495 | Geologic Log |
| BMO-2008-9M | 909255 | 4762.61 | 775 | 665-765 | UBG | 130 | Geologic Log |
| BMO-2008-10GU | 909272 | 4793.45 | 449 | 239-439 | Kg | 130 | Geologic Log |
| BMO-2008-10GL | 909435 | 4792.21 | 810 | 700-800 | Kg | 110 | Geologic Log |
| BMO-2008-11G | 909434 | 4844.67 | 760 | 650-750 | Kg | 240 | Geologic Log |
| BMO-2008-13B | 909551 | 4649.21 | 474 | 264-464 | QTbf | 520 | Geologic Log |
| BMO-2008-13M | 909760 | 4647.15 | 1030 | 920-1020 | UBG | 520 | Geologic Log |
| BULLARD | 602134 | 4730 [3] | 300 | 215-300 | QTbf | NA | No Log |
| BURKE | 212268 | 4856.30 | 781 | 661-781 | UBG | 150 | Red shale |
| CAMPBELL | 215509 | 4694.29 | 350 | 20-350 | UBG [2, 3] | ND | No Log |
| CHAMBERS | 629807 | ND | 245 | ND | QTbf | NA | No Log |
| COB MW-1 | 903992 | 4883.26 | 420 | 350-410 | QTbf | NA | Geologic Log |
| COB MW-2 | 903984 | 4566.21 | 170 | 92-152 | QTbf | NA | Geologic Log |
| COB MW-3 | 906823 | 4538.63 | 269 | 83-269 | QTbf | NA | Geologic Log |
| COB WL | 593116 | 4832.06 | 150 | 90-150 | UBG [2, 3] | 36 | Geologic Log |
| COLLINS | 565260 | 4733.72 | 320 | 260-320 | UBG [2] | ND | Conglomerate |
| COOPER | 623564 | ND | 325 | ND | QTbf | NA | No Log |
| COOPER C | 637069 | 4595.06 | 220 | ND | QTbf | NA | No Log |
| DODSON | 644927 | 4686.34 | 200 | ND | UBG | ND | No Log |
| DOUGLASS 791 | 592791 | 4703.27 | 200 | 0-200 | Kg [2, 3] | 4 | Conglomerate |
| DOUGLASS 792 | 529792 | 4681.73 | 200 | 0-200 | Kg [2, 3] | 4 | Conglomerate |
| EAST | 599796 | 4626.01 | 125 | 85-125 | UBG [2] | 20 | Geologic Log |
| EPPELE 641 | 805641 | 4642.86 | 265 | ND | UBG [2] | ND | Geologic Log |
| FLEMING | 218386 | 4693.68 | 400 | ND | ND | ND | No Log |

## TABLE 4
## Well Completion Depth, Screen Interval and Screened Lithology

| Well Name | ADWR 55 Registry No. | Top of Casing Elevation (ft amsl) | Casing Depth (ft bgs) | Screen Interval (ft bgs) | Screened Formation Lithology | Depth to Bedrock (ft bgs) | Comment |
|---|---|---|---|---|---|---|---|
| FRANCO | 500101 | 4620.51 [3] | 200 | 180-200 | QTbf | NA | Geologic Log |
| FULTZ | 212447 | 4642.92 | 300 | 200-300 | UBG [2, 3] | 10 | Sand, Volcanic |
| GALLANT | 502527 | 4599.58 | 190 | 40-60 80-140 | UBG [2, 3] | 5 | Brown and Red Sandstone |
| GARNER 557 | 558557 | 4626.44 | 300 | 180-300 | QTbf | NA | Geologic Log |
| GARNER 635 | 587635 | 4628.29 | 680 | 580-660 | UBG | 540 | Geologic Log |
| GGOOSE 546 | 628546 | 4700.51 [3] | 430 | ND | UBG [2] | ND | No Log |
| GGOOSE 547 | 628547 | 4717.11 | 800 | ND | UBG [2] | ND | No Log |
| GL-03 | 539782 | 4924.31 | 820 | 780-820 | Kg [3] | 175 | Geologic Log |
| GOAR RANCH | 610695 | 4631.13 | 250 | ND | QTbf | NA | No Log |
| HOBAN | 805290 | 4597.21 | 316 | ND | QTbf | NA | No Log |
| HOWARD | NR | 4589.70 | 200 | ND | QTbf | NA | No ADWR Record |
| KEEFER | 209744 | 4572.03 | 245 | 185-245 | QTbf | NA | Geologic Log |
| MCCONNELL 265 | 539265 | 4600.7 | 216 | 174-216 | QTbf | NA | Geologic Log |
| METZLER | 35-71891 | 4728.53 | 351 | 245-345 | UBG [2] | ND | No Log |
| MINOR 317 | 063317 | 4578.86 | 155 | ND | QTbf | NA | No Log |
| MOORE | 538847 | ND | 220 | 180-220 | QTbf | NA | Geologic Log |
| MOROYOQUI | 647847 | ND | 285 | ND | ND | ND | No Log |
| NESS | 509127 | 4761.23 | 812 | 20-812 [5] | UBG | 20 | Limestone, Shale and Sandstone |
| NOTEMAN | 212483 | 4800.68 | 400 | 0-400 | UBG [2] | ND | No Log |
| NSD-02 | 527587 | 4527 [5] | 120 | 75-115 | QTbf | NA | Geologic Log |
| NSD-03 | 527586 | 4515 [5] | 100 | 55-95 | QTbf | NA | Geologic Log |
| NWC-01 | 627682 | ND | 215 | ND | QTbf | NA | Geologic Log |
| NWC-02 | 562944 | 4600.06 | 312 | 212-312 | QTbf | NA | Geologic Log |
| NWC-03 | 203321 | 4574.99 | 312 | 252-312 | QTbf | NA | Geologic Log |
| NWC-04 | 551849 | 4690.77 | 795 | 540-580 755/795 | UBG | NA | Geologic Log |
| NWC-05 | 627696 | 4687.71 | 175 | ND | QTbf | NA | Geologic Log |
| NWC-06 | 575700 | 4592.50 | 410 | 180-340 | QTbf | NA | Geologic Log |
| OSBORN | 643436 | 4711.95 | 258 | 122-258 | Kg | 150 | Geologic Log |
| PALMER | 578819 | ND | 220 | 200-220 | UBG [2, 3] | 80 | Geologic Log |
| PANAGAKOS | 35-76413 | 4691.4 | 200 | 141-200 | UBG [2, 3] | NA | Geologic Log |
| PARRA | 576415 | 4727.21 | 355 | 255-355 | UBG [2] | ND | Gravel, Rock, Sand, Clay |
| PIONKE | 613395 | 4592.13 | 300 | ND | QTbf | NA | No Log |
| POOL | 509518 | 4639.09 | 313 | 213-300 | QTbf | NA | Geologic Log |
| POWER | 624535 | 4840.37 | 100 | 60-99 | UBG [2] | ND | No Log |
| RAMIREZ | 216425 | 4596.61 | 300 | 250-300 | QTbf | NA | No Log |
| RAY | 803772 | 4647.91 | 100 | ND | UBG 2 | ND | No Log |
| ROGERS 803 | 641803 | 4579.02 | 140 | ND | QTbf [1] | NA | No Log |
| ROGERS E | 216018 | 4590.66 | 290 | 240-285 | QTbf [1] | NA | Brown Rock |
| RUIZ | 531770 | 4735.18 | 312 | 252-312 | QTbf / UBG | 265 | Reddish Brown Sedimentary |
| SCHWARTZ | 210865 | 4551.58 | 305 | 260-305 | QTbf | NA | Geologic Log |
| SRC | 211345 | 4810.12 | 965 | 845-965 | UBG [2] | 500 | Red Shale |
| STEPHENS | 808560 | 4651.22 | ND | ND | UBG / Kg [2] | ND | No ADWR Record |
| SUNBELT | 201531 | 4806.52 | 380 | 300-380 | UBG / Kg [2] | 2 | Red Clay and Conglomerate |
| SWAN | NR | 4716.59 | NR | NR | Kg [2] | ND | No ADWR Record |
| TM-02A | 522574 | 4808.43 | 925 | 825-925 | Kg [3] | 345 | Geologic Log |

## TABLE 4
## Well Completion Depth, Screen Interval and Screened Lithology

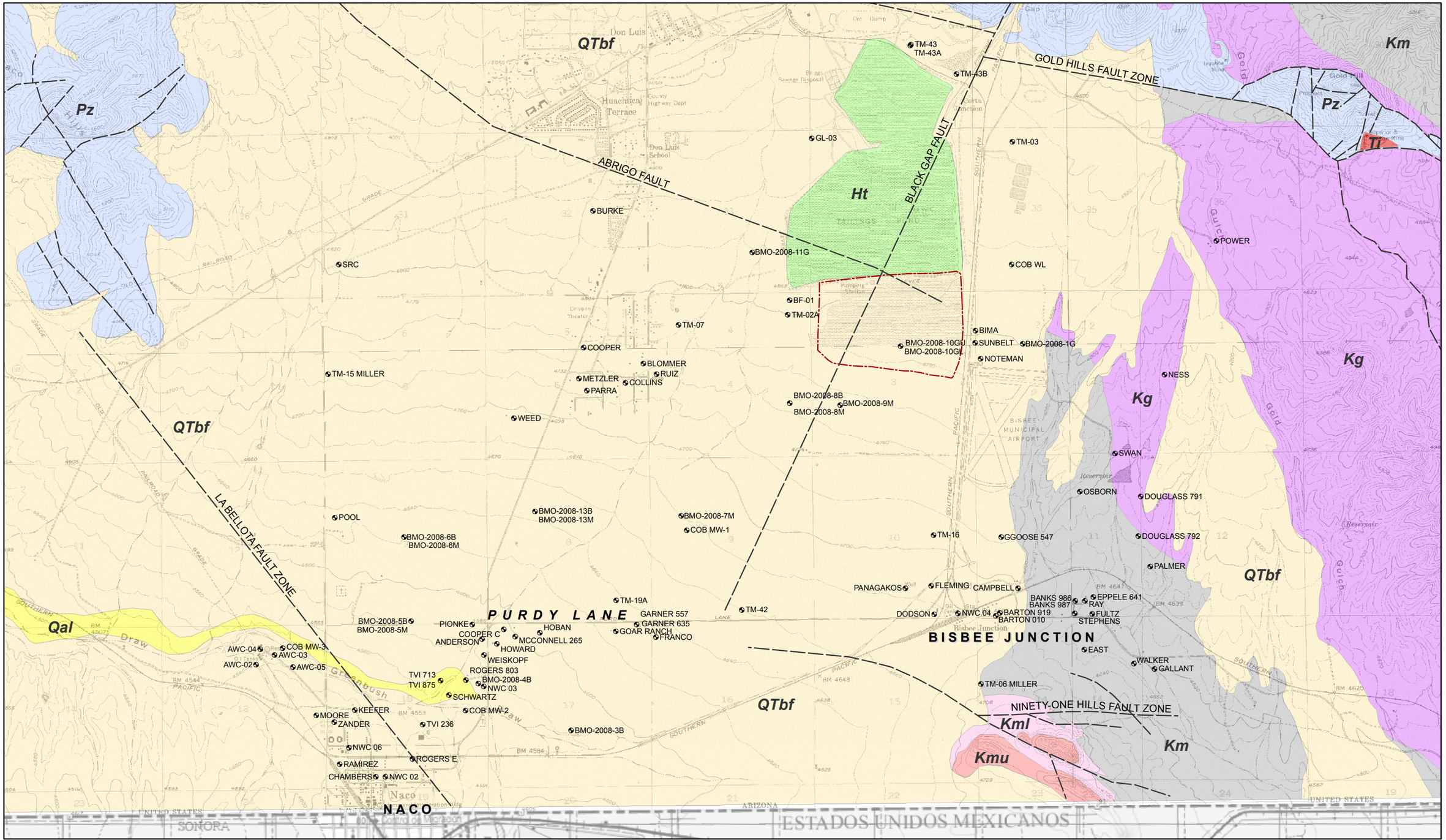
| Well Name | ADWR 55 Registry No. | Top of Casing Elevation (ft amsl) | Casing Depth (ft bgs) | Screen Interval (ft bgs) | Screened Formation Lithology | Depth to Bedrock (ft bgs) | Comment |
|---|---|---|---|---|---|---|---|
| TM-03 | 522575 | 4897.85 | 200 | 150-200 | Kg | 32 | Geologic Log |
| TM-05 MILLER | 522694 | 4598.06 [3] | 160 | 120-160 | QTbf [3, 4] | NA | Geologic Log |
| TM-06 MILLER | 522695 | 4707.88 | 200 | 150-200 | UBG [4, 5] | 15 | Geologic Log |
| TM-07 | 522576 | 4768.93 [3] | 350 | 259-349 | UBG [4, 5] | 195 | Geologic Log |
| TM-08 SWAN | 522817 | 4725.44 | 817 | 757-817 | Kg [3] | 60 | Geologic Log |
| TM-11 PIONKE | 522815 | 4573.1 [3] | 160 | 99-159 | QTbf [3, 4] | NA | Geologic Log |
| TM-12 MILLER | 522697 | 4589.44 [3] | 175 | 121-171 | QTbf [3, 4] | NA | Geologic Log |
| TM-13 MILLER | 522698 | 4617.29 [3] | 200 | 140-200 | QTbf [3, 4] | NA | Geologic Log |
| TM-14 NELSON | 522816 | 4643.48 | 215 | 165-215 | QTbf [3, 4] | NA | Geologic Log |
| TM-15 MILLER | 522699 | 4729.26 | 325 | 260-320 | UBG [4, 5] | 220 | Geologic Log |
| TM-16 | 522578 | 4717.71 | 115 | 65-115 | UBG [3, 4, 5] | 40 | Geologic Log |
| TM-19A | 522581 | 4645.87 | 700 | 585-695 | UBG [2, 3] | 535 | Geologic Log |
| TM-41 | 562555 | 4774.58 | 210 | 145-200 | UBG [4] | 95 | Geologic Log |
| TM-42 | 562554 | 4666.67 | 250 | 180-240 | UBG [4] | 65 | Geologic Log |
| TM-43 | 564729 | 4971.44 | 830 | 720-800 | UBG [4] | 170 | Geologic Log |
| TM-43A | 564726 | 4969.95 | 215 | 130-190 | QTbf / UBG [2] | 150 | Geologic Log |
| TM-43B | 565004 | 4922.18 | 215 | 150-190 | UBG [4] | 80 | Geologic Log |
| TVI 236 | 802236 | 4561.98 | 222 | ND | QTbf | NA | No Log |
| TVI CAP 713 | 567713 | 4567.22 | 200 | 80-144 | QTbf [1] | NA | Geologic Log |
| TVI 875 | 568875 | ND | 330 | 166-320 | QTbf | NA | Geologic Log |
| WALKER | 200393 | 4601.55 | 120 | 80-100 | UBG [2, 3] | 18 | Geologic Log |
| WEED | 544535 | 4675 [3] | 320 | 280-320 | UBG / Kg | 270 | Geologic Log |
| WEISKOPF | 641802 | 4586.89 | 200 | ND | QTbf [1] | NA | No Log |
| ZANDER | 205126 | 4580.94 | 280 | 220-260 | QTbf | NA | Geologic Log |

***Notes:***

***ADWR = Arizona Department of Water Resources***
***ft amsl = feet above mean sea level***
***ft bgs = feet below ground surface***
***QTbf = Quaternary-Tertiary basin fill***
***UBG = Undifferentiated Bisbee Group (Cretaceous Cintura Formation, Upper Mural Limestone, Lower Mural Limestone and Morita Formation)***
***Kg = Cretaceous Glance Conglomerate***
***ND = No Data***
***NA = Not Applicable***
***NR = No Record***

[1] ***Formation estimated based on well completion depth and lithology of nearby wells***
[2] ***Based on Well Depth and Geology Map, Hayes and Landis (1964)***
[3] ***Based on Well Drillers Report to ADWR (1994)***
[4] ***Based on Geologic Log in Phelps Dodge, Aquifer Protection Permit Application, Cochise County, Arizona. (1990)***
[5] ***Open hole***

# FIGURES


QTbf
Pz
Km
Pz
Ti
Ht
Kg
Kg
QTbf
QTbf
QTbf
Qal
Kml
Kmu
Km
GOLD HILLS FAULT ZONE
ABRIGO FAULT
BLACK GAP FAULT
LA BELLOTA FAULT ZONE
NINETY-ONE HILLS FAULT ZONE
PURDY LANE
BISBEE JUNCTION
NACO
Don Luis
Huachuca Terrace
Don Luis School
Bisbee Junction
BISBEE MUNICIPAL AIRPORT
Gold Gulch
Green Gulch
Draw
Greenbush Draw
Reservoir
SOUTHERN PACIFIC
UNITED STATES
MEXICO
SONORA
ARIZONA
ESTADOS UNIDOS MEXICANOS
TM-43
TM-43A
TM-43B
GL-03
TM-03
BURKE
SRC
BMO-2008-11G
BF-01
TM-02A
TM-07
COOPER
BLOMMER
TM-15 MILLER
METZLER
RUIZ
COLLINS
PARRA
WEED
BMO-2008-8B
BMO-2008-9M
BMO-2008-8M
BIMA
BMO-2008-10GU
BMO-2008-10GL
SUNBELT
BMO-2008-1G
NOTEMAN
COB WL
POWER
NESS
SWAN
OSBORN
DOUGLASS 791
DOUGLASS 792
PALMER
TM-16
GGOOSE 547
POOL
BMO-2008-6B
BMO-2008-6M
BMO-2008-13B
BMO-2008-13M
BMO-2008-7M
COB MW-1
TM-19A
TM-42
PANAGAKOS
FLEMING
CAMPBELL
DODSON
NWC 04
BARTON 919
BARTON 010
BANKS 986
BANKS 987
EPPELE 641
RAY
FULTZ
STEPHENS
EAST
WALKER
GALLANT
TM-06 MILLER
BMO-2008-5B
BMO-2008-5M
PIONKE
COOPER C
ANDERSON
HOBAN
MCCONNELL 265
HOWARD
WEISKOPF
GARNER 557
GARNER 635
GOAR RANCH
FRANCO
AWC-04
AWC-03
AWC-02
AWC-05
COB MW-3
TVI 713
TVI 875
ROGERS 803
BMO-2008-4B
NWC 03
SCHWARTZ
COB MW-2
TVI 236
BMO-2008-3B
MOORE
KEEFER
ZANDER
NWC 06
RAMIREZ
ROGERS E
CHAMBERS
NWC 02
Legend
AWC-05 Well ID
Faults (inferred)
Former Evaporation Ponds
Recent Alluvium
Ht Holocene Tailings
Qal Quaternary Alluvium
Basin Fill
QTbf Quaternary - Tertiary Basin Fill
Bedrock Complex
Ti Tertiary Intrusive
Kc Cintura Formation
Kmu Upper Mural Limestone
Kml Lower Mural Limestone
Km Morita Formation
Kg Glance Conglomerate
Pz Paleozoic Sedimentary Formations, Undifferentiated
Undifferentiated Bisbee Group
0 1500 3000 4500 Feet
PROJECTION: UTM Zone 12 NAD83
N
HYDRO GEO CHEM, INC.
GENERALIZED GEOLOGY AND WELL LOCATIONS
Approved DRS
Date 07/09/09
Author AMC
Date 07/09/09
File Name 8720314G
Figure 1

Screened Formation
- Basin Fill
- Basin Fill and Undifferentiated Bisbee Group
- Undifferentiated Bisbee Group
- Undifferentiated Bisbee Group - Estimated
- Undifferentiated Bisbee Group and Glance Conglomerate
- Glance Conglomerate
- Glance Conglomerate-Estimated

Undifferentiated Bisbee Group: Cintura Formation, Upper Mural Limestone, Lower Mural Limestone, and Morita Formation

GL-03, 43.9
TM-03, 109
BURKE, 24.2
BMO-2008-11G, 11.8
COB WL, 98
BF-01, 1280
TM-02A, 18.7
1500
TM-07, 130
BIMA, 212
BMO-2008-10GU,1710
BMO-2008-10GL, 1120
BMO-2008-1G, 198
COOPER, 33.4
NOTEMAN, 303
TM-15 MILLER, 13.7
RUIZ, 227
METZLER, 313
COLLINS, 499
DURAZO, 367
PARRA, 372
NESS, 45.9
BMO-2008-8B,1370
BMO-2008-8M, 122
BMO-2008-9M, 51.7
WEED, 11.6
1000
SWAN, 19.9
OSBORN, 17
BMO-2008-13B, 930
BMO-2008-13M,217
BMO-2008-7M, 26
POOL, 124
COB MW-1, 720
TM-16, 484
GGOOSE 547, 174
BMO-2008-6B, 52.7
BMO-2008-6M,119
500
PALMER, 15.4
PANAGAKOS, 431 / 426
TM-19A, 62.5
BANKS 986, 47
EPPELE 641, 19.7
PIONKE, 411
TM-42, 430 / 445
RAY, 178
FULTZ, 138
BMO-2008-5B, 177
BMO-2008-5M, 111
COOPER C, 930
DODSON, 50.1
NWC 04, 210
GARNER 635, 36.9
HOBAN, 700
ANDERSON, 534
FRANCO, 690
MCCONNELL 265, 657
EAST, 15.9
AWC-04, 26.1
COB MW-3, 43.7
WEISKOPF, 503
HOWARD, 620
AWC-03, 42.4
AWC-02, 14.7
AWC-05, 0
ROGERS 803, 211
TVI 875, 251
BMO-2008-4B, 11.4 / 11.8
250
TM-06 MILLER, 30.6
SCHWARTZ, 120
NWC 03, 466 / 460
KEEFER, 7.7
COB MW-2, 34
MOORE, 6.4
ZANDER, 5.5
TVI 236, 28.1 / 28.3
BMO-2008-3B, 149
NWC 06, 7.3
ROGERS E, 4.9
RAMIREZ, 7.6
CHAMBERS, 6.8
NWC 02, 6.4

**Legend**

TM-19A, 62.5 Well ID, Sulfate Concentration (mg/L)
(Duplicate results separated by "/")

250 Sulfate Isoline (mg/L)

Faults (inferred)

0 1250 2500 3750 Feet

PROJECTION: UTM Zone 12 NAD83

HYDRO GEO CHEM, INC.

**SULFATE CONCENTRATIONS IN GROUNDWATER SECOND QUARTER 2009**

| Approved | Date | Author | Date | File Name | Figure |
|---|---|---|---|---|---|
| DRS | 07/09/09 | AMC | 07/09/09 | 8720315G | 2 |

Screened Formation
- Basin Fill
- Basin Fill and Undifferentiated Bisbee Group
- Undifferentiated Bisbee Group
- Undifferentiated Bisbee Group - Estimated
- Undifferentiated Bisbee Group and Glance Conglomerate
- Glance Conglomerate
- Glance Conglomerate-Estimated

Undifferentiated Bisbee Group: Cintura, Mural Limestone, and Morita Formations

GL-03 4267.08
TM-03 4783.99
BURKE 4252.6
AREA OF LOW WATER ELEVATIONS
BMO-2008-11G 4269.21
BMO-2008-10GU, GL
239-439: 4504.10
700-800: 4277.53
COB WL 4772.33
BF-01 4486.5
TM-02A 4459.05
BIMA 4444.29
SUNBELT 4456.88
BMO-2008-1G 4743.09
NESS 4216.59
METZLER 4441.06
RUIZ 4440.52
COLLINS 4443.06
PARRA 4446.33
BMO-2008-8B,M
370-470: 4455.88
1100-1200: 4454.18
BMO-2008-9M 4477.33
AREA OF LOW WATER ELEVATIONS
SWAN 4685.12
OSBORN 4642.35
DOUGLASS 791 4674.74
TM-16 4635.7
GGOOSE 547 4480.94
DOUGLASS 792 4595.69
POOL 4434.22
BMO-2008-6B,M
195-255: 4437.45
340-440: 4435.92
BMO-2008-13B,M
264-464: 4442.89
920-1020: 4438.62
COB MW-1 4448.27
BMO-2008-7M 4449.3
PANAGAKOS 4535.25
FLEMING 4391.87
NWC 04 4362.77
RAY 4603.23
EPPELE 641 4613.78
BANKS 987 4442.66
DODSON 4603.5
STEPHENS 4602.77
FULTZ 4600.04
BARTON 919 4579.47
EAST 4574.1
ANDERSON 4434.13
TM-19A 4445.3
TM-42 4454.3
BMO-2008-5B,M
140-280: 4440.32
340-440: 4438.56
PIONKE 4442.12
COOPER C 4439.2
GARNER 635 4432.75
GARNER 557 4434.35
GOAR RANCH 4446.17
AWC-03 4425.52
COB MW-3 4413.5
AWC-04 4430.48
AWC-02 4429.64
AWC-05 4417.51
HOBAN 4433.05
MCCONNELL 265 4443.48
HOWARD 4438.55
ROGERS 803 4447.69
WEISKOPF 4442.51
TVI 713 4440.49
BMO-2008-4B 4441.93
NWC-03 CAP 4442.20
SCHWARTZ 4428.05
KEEFER 4437.03
COB MW-2 4442.05
TVI 236 4439.25
ZANDER 4436
BMO-2008-3B 4445.51
TM-06 MILLER 4549.07
AREA OF WIDELY VARYING WATER ELEVATIONS
NWC 06 4436.5
ROGERS E 4441.13
RAMIREZ 4437.95
NWC-02 4439.94

4450 4500 4475 4440 4430 4420 4440 4440 4775 4750 4725 4700 4675 4650 4625 4600

Don Tarbis School
ABRIGO FAULT
BLACK GAP FAULT
TAILINGS
Pumping Station
Drive-in Theater
BISBEE MUNICIPAL AIRPORT
Reservoir
NINETY-ONE HILLS FAULT ZONE
Naco
Greenbush Draw
Gulch
RAILROAD
SOUTHERN PACIFIC
PURDY LANE
BM 4544
BM 4553
BM 4584
BM 4648
BM 4639

**Legend**

POOL 4434.22 — Well ID; Groundwater Elevation (ft amsl)

Groundwater Elevation Contours (dashed where inferred)

Groundwater Depression

Faults (inferred)

Co-Located Wells: Well ID; Screen (ft bgs): Water Elevation (ft amsl)

0 1250 2500 3750 Feet

PROJECTION: UTM Zone 12 NAD83

N

HYDRO GEO CHEM, INC.

**GROUNDWATER ELEVATIONS SECOND QUARTER 2009**

| Approved | Date | Author | Date | File Name | Figure |
|---|---|---|---|---|---|
| DRS | 07/09/09 | AMC | 07/09/09 | 8720316G | 3 |

# APPENDIX A

# SECOND QUARTER 2009
# DATA VERIFICATION REPORT

# APPENDIX A

# SECOND QUARTER 2009
# DATA VERIFICATION REPORT

Prepared for:

**FREEPORT-MCMORAN**
**COPPER QUEEN BRANCH**
36 West Highway 92
Bisbee, Arizona 85603

Prepared by:

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

July 9, 2009

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## APPENDIX


A.1 Arizona Land Specialists, Inc. Well Survey

# 1. INTRODUCTION

This report summarizes the data verification review of groundwater samples collected and analyzed during the second quarter 2009 (Q2-2009) by Hydro Geo Chem, Inc. (HGC) pursuant to Mitigation Order on Consent Docket No. P-121-07 (MO) (ADEQ, 2007). HGC collected groundwater samples from wells identified in Tasks 1.0 and 2.2 of the Work Plan (HGC, 2008a). All analytical results for groundwater samples collected for this project during the second quarter of 2009 were provided to HGC by ACZ Laboratories, Inc. (ACZ) for preparation of the Q2-2009 Groundwater Monitoring Report.

Quality assurance (QA) and quality control (QC) procedures are specified in the *Quality Assurance Project Plan for Aquifer Characterization Plan* (QAPP) (Appendix F of HGC, 2008a) for field sampling, chain-of-custody (COC) documentation, laboratory analysis, and reporting. This report reviews field sampling for samples collected by HGC. Additionally, sample handling and laboratory QA/QC data are evaluated according to the data quality indicators (DQIs) given in the QAPP.

Appendix C of the main text contains laboratory reports for Q2-2009 samples including COC forms, laboratory correspondence, QC summaries, data qualifiers, and any case narratives. The Q2-2009 analytical results for all 82 samples collected by HGC are contained in 17 reports having the ACZ Project numbers identified in the following table.

| ACZ Project ID | Wells Reported |
|---|---|
| *Number of wells sampled: 80*<br>*Number of duplicate samples collected: 5*<br>*Number of field blank samples collected: 10* | |
| L75230 | BIMA, NOTEMAN, OSBORN, SWAN, PALMER, BANKS 986, RAY, EPPELE 641, EAST |
| L75251 | PANAGAKOS, DODSON, FULTZ, DUP040909, EQB040909, FB040909 |
| L75350 | FRANCO, ANDERSON, PIONKE, COOPER C, CHAMBERS, HOBAN, HOWARD WEISKOPF, GARNER 635 |
| L75369 | MCCONNELL 265, KEEFER, ZANDER, MOORE, RAMIREZ, ROGERS E, SCHWARTZ TVI 236, TVI 875, DUP041709, EQB 041709, FB 041709 |
| L75406 | DURAZO, METZLER, PARRA, COB MW-1, POOL, RUIZ, COLLINS |
| L75421 | AWC-02, AWC-03, AWC-04 |
| L75449R | COOPER, WEED, TM-19A, COB MW-2, COB MW-3, COB WL |
| L75450 | NWC-02, NWC-03, NWC-04, NWC-06, DUP 042309, EQB 042309, FB 042309 |
| L75529 | BMO-2008-5B, BMO-2008-5M, BMO-2008-6B, BMO-2008-6M, BMO-2008-1G, BMO-2008-11G |
| L75553 | BURKE, BMO-2008-13M, BMO-2008-4B, ROGERS 803, FB 043009, EQB 043009 DUP 043009 |
| L75686 | GL-03, TM-02A, BF-01, TM-42, BMO-2008-8B, BMO-2008-8M, BMO-2008-10GU, BMO-2008-13B |
| L75781 | BMO-2008-3B, BMO-2008-7M, BMO-2008-9M, BMO-2008-10GL, NESS |
| L75808 | TM-07 |
| L75822 | TM-03, TM-06 MILLER, TM-15 MILLER, TM-16, GGOOSE 547 |
| L76091 | NWC-04 |
| L76197 | AWC-05 |
| L76609 | NWC-04 |

The results of the internal QA/QC tests performed by ACZ are presented with the laboratory reports included in Appendix B. Based on the results of surrogate spike recoveries, matrix spike/recovery and matrix spike duplicate tests, ACZ did not advise HGC of any modifications that should be made regarding the usability and data validation status of the laboratory test results.

# 2. HGC FIELD OPERATIONS

Field operations for this project consisted of the following for all monitoring wells sampled by HGC:

- Static water level measurement,
- Well purging,
- Collection of water quality field parameters (pH in standard units [SU], specific conductance [SC] in microsiemens per centimeter [µS/cm], and temperature in degrees Celsius [°C]),
- Collection of groundwater samples for water quality analysis,
- Collection of groundwater quality assurance and quality control samples, and
- Equipment decontamination.

Documentation of the field activities was evaluated for quality assurance and has been deemed to have met the documentation requirements stated in the QAPP.

## 2.1 Water Level Monitoring

Static water level measurements were attempted at each well that was sampled and at all wells where water level monitoring was conducted by HGC. Water levels were measured while the well pump was off. However, it was not always possible to ascertain from the well owners how long the pump had been off. Before measuring the water level at each well, the battery on the water level indicator was checked and the sensitivity level was adjusted, if necessary. Each measurement was collected and verified by measuring the depth to water multiple times in order to obtain a consistent reading and accurate measurement.

## 2.2 Groundwater Sampling

During this monitoring period groundwater samples were collected from wells designated for sampling for Task 1.0 (well inventory) and Task 2.2 (groundwater monitoring) of the Work Plan. More detailed information regarding the wells sampled for water quality and water level measurements is listed in Table 1 of the main text.

### 2.2.1 Pre-Sampling Field Activities

On each day of sampling, the pH[1] and SC[2] multipurpose probe was calibrated. In addition, the water level indicator was checked for a signal which indicates a working meter and sufficient battery strength. On each day where sampling extended for more than half a day, a mid-day calibration check was performed on the pH and SC probe to ensure accurate measurement. In addition to calibrating the instruments each day, measures were taken to 1) properly decontaminate field equipment, 2) ensure the appropriate storage and transport temperature of the samples, and 3) document activities related to the collection of groundwater samples as part of this project. These objectives were met by 1) replenishing or obtaining supplies of deionized water and ice daily, 2) use of the proper preservative and sample collection containers, 3) properly packing the samples on ice during field activities, 4) using deionized water to properly decontaminate field equipment prior to the start of sampling each day and after sampling at each well, and 5) obtaining the appropriate field notebook in order to document field activities related to the groundwater monitoring program.

[1] Field pH meter was calibrated using a two point calibration and pH buffers 4 and 7
[2] Field SC meter was calibrated using a standard stock solution of 1413 µS/cm

### 2.2.2 Well Purging, Field Measurements, and Sample Collection

Ideally, three wetted casing volumes were purged from each well prior to sampling. However, when three casing volumes could not be purged, this information was noted on the groundwater sampling form (Appendix C) at each well for which this was the case. Purge water was discharged to the ground surface.

Field measurements were collected at varying intervals during well purging at each well where a water quality sample was collected. Field parameters were monitored until a consistent measurement was obtained.

During this monitoring period, filtered groundwater samples were collected for analysis from 80 plume and well inventory monitor wells. Groundwater samples were collected by filtering the sample into a 250 mL bottle using clean filtration apparatus and one unused disposable 0.45-micron filter. All bottles were provided by ACZ and maintained in a clean and secure work area until used in the field.

### 2.2.3 Post-Sampling Field Activities

Post sampling field activities consisted of equipment decontamination, sample storage, and sample shipping. Field equipment that comes into contact with the sample was decontaminated using a small amount of Alconox® detergent and deionized water. After washing, the equipment was rinsed with deionized water.

After sample collection, samples from each well were placed into a plastic bag and stored on ice until they could be packed securely for shipping to ACZ. In addition, each set of samples collected from each well was individually bagged (without ice) to prevent the label from getting soaked with water and rubbing off or becoming illegible.

## 2.3 Well Survey

On April 23, 2009 a measuring point elevation survey was completed for Naco Water Company well NWC-03 CAP. The survey was conducted by Arizona Land Specialists, Inc. These data are shown in Table 3 and Figure 2 of the main report. A copy of the survey report is included as Appendix A.1.

## 3. SAMPLE HANDLING

All samples collected by HGC were shipped to ACZ for analysis. COC documentation accompanied all samples submitted and included the sample name, collection date and time. COCs contained in laboratory reports included the date and time the samples were received by ACZ. As noted on the analytical data reports from ACZ, all of the sample bottles were received intact, properly preserved, and in good condition.

The temperature of the following shipping container (identified by its laboratory login number) exceeded 4 °C upon receipt at the laboratory.

| ACZ Project ID | Sample Collection Date | Sample Relinquished Date | Sample Received Date by ACZ | Temperature Upon Receipt (°C) |
|---|---|---|---|---|
| L75781 | 05/11/09, 05/12/09 | 05/13/09 | 05/14/09 | 4.2 |

As noted in the above table, the samples were shipped within one to two days of sample collection and the time between sample collection and receipt of samples by ACZ was two to three days. This temperature exceedance is not considered to have a significant impact on the analytical results pertaining to the sulfate analysis for these samples.

# 4. LABORATORY QUALITY CONTROL

As specified in the QAPP, laboratory QC was maintained for all analyses through proper licensure, the use of approved analytical methods, QC measurements, appropriate turn-around-time for analysis (timeliness), method detection limits (MDLs), and practical quantitation limits (PQLs). Each of these controls is discussed in the following subsections.

The review of laboratory QC included a review to identify any qualified data and an assessment to determine their significance. Additionally, the laboratory QC summaries were reviewed to verify that results met QA criteria.

## 4.1 Licensure

ACZ is licensed with the Arizona Department of Health Services (license number AZ0102) and is accredited in accordance with the National Environmental Laboratory Accreditation Conference.

## 4.2 Analytical Method

United States Environmental Protection Agency (EPA) method 300.0 was used for sulfate analysis during this monitoring period.

## 4.3 Method Detection Limit (MDL) and Practical Quantification Limit (PQL)

The MDL and PQL of the analytical method used by ACZ are shown in the following table. The MDL for analyses of samples was equal to or less than the target MDL identified in the QAPP.

| Method | MDL (mg/L) | PQL (mg/L) | Target MDL[1] (mg/L) |
|---|---|---|---|
| EPA 300.0 | 0.5 | 3 | 10 |

mg/L = milligrams per liter
[1] Target MDL from Table F.2 of QAPP

## 4.4 Timeliness

All samples submitted for sulfate analysis were analyzed within the twenty-eight day holding time specified by EPA Method 300.0.

## 4.5 Quality Control Measurements

The following QC samples were prepared and analyzed:

- Calibration blanks and calibration verification standards
- Analytical spike samples
- Laboratory duplicate samples
- Field blank samples

### 4.5.1 Calibration Blanks, and Calibration Verification Standards

Results from the analyses of the initial calibration blanks and initial calibration verification standards conducted by EPA Method 300.0 also were reviewed. The results of each initial calibration blank analyzed showed no detections of the target analyte. All analytical results for the initial calibration verification standards and laboratory fortified blanks that were analyzed showed percent recoveries that were within the acceptance criteria specified by the ACZ QA plan and the QAPP.

### 4.5.2 Analytical Spike

Analytical spike samples also were analyzed for the EPA Method 300.0. Spike recoveries for most analytes were within the range of acceptability based on the acceptance criteria set by ACZ. Instances in which analytical spike recoveries were high or low were qualified with an"M1" or "M2" flag, respectively. However, in each case the method control sample recoveries were acceptable.

### 4.5.3 Laboratory Duplicate Samples

Analyses of laboratory duplicate samples were also reviewed as part of this quality data verification report. Field duplicate samples are discussed in Section 5.1. The RPDs for most laboratory duplicate samples were within 20 percent, which is the tolerance range set by the laboratory. In many instances, the data were qualified with an "RA" flag indicating that the RPD was not used for data validation because the sample concentration was less than ten times the MDL, which is too low for accurate evaluation according to ACZ. In all cases where the RPD could be calculated, the results met QA criteria and demonstrate an appropriate level of precision in laboratory analysis of these samples.

### 4.5.4 Field Blank Samples

During the second quarter of 2009, ten field blank samples were collected. Five field blank samples using unfiltered deionized water (FB040909, FB041709, FB042309, FB043009, and FB050709) and five equipment blanks using filtered deionized water (EQB040909, EQB041709, EQB042309, EQB043009, and EQB050709). Field blank samples were collected in the field and submitted along with other samples to evaluate the potential for contaminant introduction under field conditions. As required by Section 4.2.1.5 of the QAPP, a minimum of one field blank and one equipment blank sample was collected for every twenty samples. Analytical results from field blank and equipment blank samples showed no detections.

# 5. DATA QUALITY INDICATORS

The QAPP provides several DQIs for assessing the overall quality of the data. These DQIs include the following:

- Precision
- Bias
- Accuracy
- Representativeness
- Comparability
- Completeness
- Sensitivity

Each of these DQIs is discussed below in relation to the Q2-2009 groundwater sampling and analysis conducted by HGC.

## 5.1 Precision

Precision indicates how well a measurement can be reproduced. Precision is quantified by calculating the RPD between duplicate samples. For the purposes of QA/QC, precision was quantified by calculating the RPDs between duplicates among the following groups of duplicate samples:

- Laboratory duplicate samples
- Field duplicate samples

As discussed in Sections 4.5.2 and 4.5.4, there were no exceedances of RPD QA criteria for any laboratory duplicates. During this monitoring period five field filtered duplicate samples (DUP040909, DUP041709, DUP042309, DUP043009, and DUP050709) were collected by HGC for analysis. The collection of five duplicate samples exceeds the QA/QC goal of collecting one duplicate sample for every twenty groundwater samples collected, as stated in Section 4.2.1.5 of the QAPP.

Results for the five duplicate samples collected are provided in the table below. The range of RPD values was between 0.71 and 3.45 percent, all within the 20 percent acceptance criteria for field duplicates, as stated in Section 3.3.1 of the QAPP. Overall, the DQI for precision is deemed to be met.

| Well ID | Duplicate Sample ID | ACZ Project ID | Sulfate (mg/L) | Sulfate Duplicate (mg/L) | RPD (%) |
|---|---|---|---|---|---|
| PANAGAKOS | DUP040909 | L75230 | 431 | 426 | 1.17 |
| TVI 236 | DUP041709 | L75369 | 28.1 | 28.3 | 0.71 |
| NWC-03 | DUP042309 | L75450 | 460 | 466 | 1.30 |
| BMO-2008-4B | DUP043009 | L75553 | 11.4 | 11.8 | 3.45 |
| TM-42 | DUP050709 | L75686 | 430 | 445 | 3.43 |

*mg/L = milligrams per liter*
*RPD = Relative Percent Difference*

## 5.2 Bias

Bias is a systematic distortion of measurements causing consistent errors in one direction. Bias is managed in this data set by the consistent application of standardized sample collection and analysis procedures.

## 5.3 Accuracy

Accuracy is a measure of the agreement of a measurement to a known value and is measured using the recoveries from laboratory control samples. As discussed in Sections 4.5.1, 4.5.2, and 4.5.3 respectively, there were no significant exceedances of the recovery QA criteria for any of the calibration standards, analytical spikes, or laboratory control standards. Based on this information, the overall accuracy of the data is judged sufficient for the purpose of aquifer characterization.

## 5.4 Representativeness

All samples were taken from locations specified in the Work Plan (HGC, 2008) using sampling procedures specified in the QAPP. Therefore, the samples are judged to provide a good representation of groundwater quality at the sampled locations. The analytical data are judged to be representative of groundwater conditions because the analyses used standard procedures and methods that met QA/QC guidelines of the QAPP.

## 5.5 Comparability

All samples were collected using standardized procedures (HGC, 2008) and were analyzed by ACZ using standardized methods. Insofar as standardized sample collection and analytical methods are adhered to, the sample results should be comparable.

## 5.6 Completeness

All samples collected and subsequently analyzed and reported by ACZ are judged to satisfy the QA/QC criteria for this project and are deemed usable for aquifer characterization. Thus, the completeness of analytical results is 100 percent.

## 5.7 Sensitivity

The analytical methods used to analyze the samples meet the MDL requirements specified in Table F.2 of the QAPP. Therefore, the analytical sensitivity is considered acceptable for use in aquifer characterization.

## 6. REFERENCES

Arizona Department of Environmental Quality. 2007. Mitigation Order on Consent, Docket No. P-121-07, In the Matter of: Phelps Dodge Corporation, Copper Queen Branch, located at 36 West Highway 92, Bisbee, Arizona, ADEQ Identification Number 100531. November 14, 2007.

Hydro Geo Chem, Inc. 2008. Revision 1, Work Plan to Characterize and Mitigate Sulfate with Respect to Drinking Water Supplies in the Vicinity of the Concentrator Tailing Storage Area, Cochise County, Arizona. July 3, 2008.

# APPENDIX A.1

# ARIZONA LAND SPECIALISTS, INC. WELL SURVEY

## ARIZONA LAND SPECIALISTS, INC.

FREEPORT-MCMORAN COPPER QUEEN BRANCH

April 27, 2009

| ALS POINT No. | DESCRIPTION | ELEVATION NAVD88 (FEET) | UTM NORTHING NAD83 | UTM EASTING NAD83 |
|---|---|---|---|---|
| 7100 | NWC-03 Cap | 4572.82 | 3468343.653 | 601151.704 |

COPY

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
30365
DAVID L.
SUTHERLAND
Date Signed 4/30/09
ARIZONA U.S.A.

Exp 9/30/11

# APPENDIX B

# ANALYTICAL REPORTS FROM ACZ LABORATORIES, INC.

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

# Analytical Report

April 20, 2009

Report to:
Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tuscon, AZ 85705

Bill to:
Accounts Payable
Hydro Geo Chem, Inc.
P. O. Box 97220
Phoenix, AZ 85060

cc: Jim Norris

Project ID: 8720002.2
ACZ Project ID: L75230

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 10, 2009. This project has been assigned to ACZ's project number, L75230. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L75230. 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 May 20, 2009. 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.

Sue Webber has reviewed and approved this report.

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BIMA

ACZ Sample ID: ***L75230-01***
Date Sampled: *04/07/09 11:38*
Date Received: *04/10/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 212 | | * | mg/L | 5 | 30 | 04/17/09 17:36 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: NOTEMAN

ACZ Sample ID: ***L75230-02***
Date Sampled: *04/07/09 13:04*
Date Received: *04/10/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 303 | | * | mg/L | 5 | 30 | 04/17/09 17:57 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: OSBORN

ACZ Sample ID: ***L75230-03***
Date Sampled: *04/07/09 14:46*
Date Received: *04/10/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 17.0 | | * | mg/L | 0.5 | 3 | 04/16/09 20:03 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: SWAN

ACZ Sample ID: ***L75230-04***
Date Sampled: *04/07/09 15:23*
Date Received: *04/10/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 19.9 | | * | mg/L | 0.5 | 3 | 04/16/09 20:24 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: PALMER

ACZ Sample ID: ***L75230-05***
Date Sampled: *04/08/09 09:50*
Date Received: *04/10/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 15.4 | | * | mg/L | 0.5 | 3 | 04/16/09 20:45 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BANKS 986

ACZ Sample ID: ***L75230-06***
Date Sampled: *04/08/09 11:36*
Date Received: *04/10/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 47 | | * | mg/L | 5 | 30 | 04/17/09 18:18 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: RAY

ACZ Sample ID: ***L75230-07***
Date Sampled: *04/08/09 12:39*
Date Received: *04/10/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 178 | | * | mg/L | 5 | 30 | 04/17/09 20:04 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: EPPELLE 641

ACZ Sample ID: ***L75230-08***
Date Sampled: *04/08/09 14:41*
Date Received: *04/10/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 19.7 | | * | mg/L | 0.5 | 3 | 04/16/09 22:31 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: EAST

ACZ Sample ID: ***L75230-09***
Date Sampled: *04/08/09 16:02*
Date Received: *04/10/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 15.9 | | * | mg/L | 0.5 | 3 | 04/16/09 22:52 | aml |

**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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. |
| | The associated value is either the sample quantitation limit or the sample detection limit. |

## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2

ACZ Project ID: ***L75230***

**Sulfate** 300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG262217** | | | | | | | | | | | | | |
| WG262217ICV | ICV | 04/15/09 11:40 | WI090316-1 | 50 | | 49.82 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB | ICB | 04/15/09 12:01 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV1 | ICV | 04/16/09 14:47 | WI090316-1 | 50 | | 49.78 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB1 | ICB | 04/16/09 15:08 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV2 | ICV | 04/17/09 14:26 | WI090316-1 | 50 | | 50.76 | mg/L | 101.5 | 90 | 110 | | | |
| WG262217ICB2 | ICB | 04/17/09 14:47 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217LFB | LFB | 04/17/09 15:08 | WI081125-2 | 30 | | 29.19 | mg/L | 97.3 | 90 | 110 | | | |
| L75200-01AS | AS | 04/17/09 15:50 | WI081125-2 | 600 | 1420 | 1922 | mg/L | 83.7 | 90 | 110 | | | M2 |
| L75200-01DUP | DUP | 04/17/09 16:11 | | | 1420 | 1551 | mg/L | | | | 8.8 | 20 | |
| L75230-06AS | AS | 04/17/09 19:21 | WI081125-2 | 300 | 47 | 325.2 | mg/L | 92.7 | 90 | 110 | | | |
| L75230-06DUP | DUP | 04/17/09 19:43 | | | 47 | 45.7 | mg/L | | | | 2.8 | 20 | RA |

**Hydro Geo Chem, Inc.**

ACZ Project ID: ***L75230***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L75230-01** | WG262217 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75230-02** | WG262217 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75230-03** | WG262217 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75230-04** | WG262217 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75230-05** | WG262217 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75230-06** | WG262217 | Sulfate | 300.0 - Ion Chromatography | D1 | Sample required dilution due to matrix. |
| | | | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| **L75230-07** | WG262217 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| **L75230-08** | WG262217 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| **L75230-09** | WG262217 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |

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.**
8720002.2

ACZ Project ID: L75230
Date Received: 4/10/2009
Received By:
Date Printed: 4/10/2009

## 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) Is the trip blank for Cyanide present? | | | X |
| 12) Is the trip blank for VOA present? | | | X |
| 13) Are samples requiring no headspace, headspace free? | | | X |
| 14) 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) |
|---|---|---|
| NA8203 | 0.8 | 15 |
| | | |
| | | |
| | | |

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.**
8720002.2

ACZ Project ID: L75230
Date Received: 4/10/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75230-01 | BIMA | | | | | | | | | X | | |
| L75230-02 | NOTEMAN | | | | | | | | | X | | |
| L75230-03 | OSBORN | | | | | | | | | X | | |
| L75230-04 | SWAN | | | | | | | | | X | | |
| L75230-05 | PALMER | | | | | | | | | X | | |
| L75230-06 | BANKS 986 | | | | | | | | | X | | |
| L75230-07 | RAY | | | | | | | | | X | | |
| L75230-08 | EPPELLE 641 | | | | | | | | | X | | |
| L75230-09 | EAST | | | | | | | | | X | | |

## 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. L75230

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

## CHAIN of CUSTODY

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:

Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc

E-mail: jimn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:

Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

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 [X] 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 #: 504-IC
Project/PO #: 8720002.2
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material?

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC |
|---|---|---|---|---|
| BIMA | 4-7-09:1138 | GW | 1 | X |
| NOTEMAN | 4-7-09:1304 | GW | 1 | X |
| OSBORN | 4-7-09:1446 | GW | 1 | X |
| SWAN | 4-7-09:1523 | GW | 1 | X |
| PALMER | 4-8-09:0950 | GW | 1 | X |
| BANKS 986 | 4-8-09:1136 | GW | 1 | X |
| RAY | 4-8-09:1239 | GW | 1 | X |
| EPPELE 641 | 4-8-09:1441 | GW | 1 | X |
| EAST | 4-8-09:1602 | GW | 1 | X |

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

**REMARKS/ SAMPLE DISCLOSURES**

PAGE 1 of 1

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 4-9-09:1140 | [signature] | 4.10.09:9:45 |
| | | | |

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

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

# Analytical Report

April 20, 2009

Report to:
Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tuscon, AZ 85705

Bill to:
Accounts Payable
Hydro Geo Chem, Inc.
P. O. Box 97220
Phoenix, AZ 85060

cc: Jim Norris

Project ID: 8720002.2
ACZ Project ID: L75251

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 11, 2009. This project has been assigned to ACZ's project number, L75251. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L75251. 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 May 20, 2009. 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.

Sue Webber has reviewed and approved this report.

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: DUP040909

ACZ Sample ID: ***L75251-01***
Date Sampled: *04/09/09 00:00*
Date Received: *04/11/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 426 | | * | mg/L | 5 | 30 | 04/17/09 20:25 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: EQB040909

ACZ Sample ID: ***L75251-02***
Date Sampled: *04/09/09 00:00*
Date Received: *04/11/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | | U | * | mg/L | 0.5 | 3 | 04/17/09 20:46 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: FB040909

ACZ Sample ID: ***L75251-03***
Date Sampled: *04/09/09 00:00*
Date Received: *04/11/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | | U | * | mg/L | 0.5 | 3 | 04/17/09 21:07 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: PANAGAKOS

ACZ Sample ID: ***L75251-04***
Date Sampled: *04/09/09 13:54*
Date Received: *04/11/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 431 | | * | mg/L | 5 | 30 | 04/17/09 21:28 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: DODSON

ACZ Sample ID: ***L75251-05***
Date Sampled: *04/09/09 15:30*
Date Received: *04/11/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 50.1 | | * | mg/L | 0.5 | 3 | 04/17/09 21:49 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: FULTZ

ACZ Sample ID: ***L75251-06***
Date Sampled: *04/09/09 16:48*
Date Received: *04/11/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 138 | | * | mg/L | 3 | 10 | 04/17/09 22:10 | aml |

**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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. |

## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2

ACZ Project ID: ***L75251***

**Sulfate** 300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG262217** | | | | | | | | | | | | | |
| WG262217ICV | ICV | 04/15/09 11:40 | WI090316-1 | 50 | | 49.82 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB | ICB | 04/15/09 12:01 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV1 | ICV | 04/16/09 14:47 | WI090316-1 | 50 | | 49.78 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB1 | ICB | 04/16/09 15:08 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV2 | ICV | 04/17/09 14:26 | WI090316-1 | 50 | | 50.76 | mg/L | 101.5 | 90 | 110 | | | |
| WG262217ICB2 | ICB | 04/17/09 14:47 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217LFB | LFB | 04/17/09 15:08 | WI081125-2 | 30 | | 29.19 | mg/L | 97.3 | 90 | 110 | | | |
| L75230-06AS | AS | 04/17/09 19:21 | WI081125-2 | 300 | 47 | 325.2 | mg/L | 92.7 | 90 | 110 | | | |
| L75230-06DUP | DUP | 04/17/09 19:43 | | | 47 | 45.7 | mg/L | | | | 2.8 | 20 | RA |

# Inorganic Extended Qualifier Report

**Hydro Geo Chem, Inc.**

ACZ Project ID: ***L75251***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L75251-01** | WG262217 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| **L75251-02** | WG262217 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| **L75251-03** | WG262217 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| **L75251-04** | WG262217 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| **L75251-05** | WG262217 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| **L75251-06** | WG262217 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |

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.**
8720002.2

ACZ Project ID: L75251
Date Received: 4/11/2009
Received By:
Date Printed: 4/11/2009

## 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) Is the trip blank for Cyanide present? | | | X |
| 12) Is the trip blank for VOA present? | | | X |
| 13) Are samples requiring no headspace, headspace free? | | | X |
| 14) 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) |
|---|---|---|
| NA8212 | 0.4 | 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.**
8720002.2

ACZ Project ID: L75251
Date Received: 4/11/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75251-01 | DUP040909 | | | | | | | | | X | | |
| L75251-02 | EQB040909 | | | | | | | | | X | | |
| L75251-03 | FB040909 | | | | | | | | | X | | |
| L75251-04 | PANAGAKOS | | | | | | | | | X | | |
| L75251-05 | DODSON | | | | | | | | | X | | |
| L75251-06 | FULTZ | | | | | | | | | X | | |

## 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. L75251

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

## CHAIN of CUSTODY

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:
Address: 51 W. Wetmore Rd
Tucson, Az 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc
E-mail: jimn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:
Address: 51 W. Wetmore Rd
Tucson, Az 85705
Telephone: 520-293-1500 x-133

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 X 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 #: 504-IC
Project/PO #: 8720002.2
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DUP040909 | 4-9-09: | GW | 1 | X | | | | | | | |
| EQB040909 | 4-9-09: | GW | 1 | X | | | | | | | |
| FB040909 | 4-9-09: | GW | 1 | X | | | | | | | |
| PANAGAKOS | 4-9-09: 1354 | GW | 1 | X | | | | | | | |
| DODSON | 4-9-09: 1530 | GW | 1 | X | | | | | | | |
| FULTZ | 4-9-09: 1648 | GW | 1 | X | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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

**REMARKS/ SAMPLE DISCLOSURES**

PAGE 1 of 1

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 4-10-09: ~~1648~~ 1110 | WVL | 4.11.09 11:35 |
| | | | |
| | | | |

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

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

# Analytical Report

April 23, 2009

Report to:
Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tuscon, AZ 85705

Bill to:
Accounts Payable
Hydro Geo Chem, Inc.
P. O. Box 97220
Phoenix, AZ 85060

cc: Jim Norris

Project ID: 8720002.2
ACZ Project ID: L75350

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 17, 2009. This project has been assigned to ACZ's project number, L75350. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L75350. 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 May 23, 2009. 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.

Sue Webber has reviewed and approved this report.

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: FRANCO

ACZ Sample ID: ***L75350-01***
Date Sampled: *04/14/09 11:27*
Date Received: *04/17/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 690 | | * | mg/L | 10 | 50 | 04/22/09 5:41 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: ANDERSON

ACZ Sample ID: ***L75350-02***
Date Sampled: *04/14/09 12:33*
Date Received: *04/17/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 534 | | * | mg/L | 5 | 30 | 04/22/09 6:02 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: PIONKE

ACZ Sample ID: ***L75350-03***
Date Sampled: *04/14/09 13:39*
Date Received: *04/17/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 411 | | * | mg/L | 5 | 30 | 04/22/09 6:23 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: COOPER C

ACZ Sample ID: ***L75350-04***
Date Sampled: *04/14/09 14:50*
Date Received: *04/17/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 930 | | | mg/L | 10 | 50 | 04/22/09 6:44 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: CHAMBERS

ACZ Sample ID: ***L75350-05***
Date Sampled: *04/14/09 15:42*
Date Received: *04/17/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 6.8 | | | mg/L | 0.5 | 3 | 04/22/09 7:47 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: HOBAN

ACZ Sample ID: ***L75350-06***
Date Sampled: *04/15/09 09:47*
Date Received: *04/17/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 700 | | | mg/L | 10 | 50 | 04/22/09 8:08 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: HOWARD

ACZ Sample ID: ***L75350-07***
Date Sampled: *04/15/09 10:48*
Date Received: *04/17/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 620 | | | mg/L | 10 | 50 | 04/22/09 8:29 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: GARNER 635

ACZ Sample ID: ***L75350-08***
Date Sampled: *04/15/09 13:42*
Date Received: *04/17/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 36.9 | | | mg/L | 0.5 | 3 | 04/22/09 9:33 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: WEISKOPF

ACZ Sample ID: ***L75350-09***
Date Sampled: *04/15/09 15:01*
Date Received: *04/17/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 503 | | | mg/L | 5 | 30 | 04/22/09 9:54 | aml |

**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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. |
| | The associated value is either the sample quantitation limit or the sample detection limit. |

## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2

ACZ Project ID: ***L75350***

**Sulfate** 300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG262539** | | | | | | | | | | | | | |
| WG262539ICV | ICV | 04/15/09 11:40 | WI090316-1 | 50 | | 49.82 | mg/L | 99.6 | 90 | 110 | | | |
| WG262539ICB | ICB | 04/15/09 12:01 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262539ICV1 | ICV | 04/22/09 0:24 | WI090316-1 | 50 | | 52.19 | mg/L | 104.4 | 90 | 110 | | | |
| WG262539ICB1 | ICB | 04/22/09 0:45 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262539LFB | LFB | 04/22/09 1:27 | WI081125-2 | 30 | | 28.76 | mg/L | 95.9 | 90 | 110 | | | |
| L75254-01AS | AS | 04/22/09 2:31 | WI081125-2 | 30 | 2.2 | 34.06 | mg/L | 106.2 | 90 | 110 | | | |
| L75254-01DUP | DUP | 04/22/09 2:52 | | | 2.2 | 2.17 | mg/L | | | | 1.4 | 20 | RA |
| L75350-04AS | AS | 04/22/09 7:05 | WI081125-2 | 600 | 930 | 1472 | mg/L | 90.3 | 90 | 110 | | | |
| L75350-04DUP | DUP | 04/22/09 7:26 | | | 930 | 1015 | mg/L | | | | 8.7 | 20 | |
| WG262539ICV2 | ICV | 04/22/09 20:16 | WI090316-1 | 50 | | 53.06 | mg/L | 106.1 | 90 | 110 | | | |
| WG262539ICB2 | ICB | 04/22/09 20:37 | | | | U | mg/L | | -1.5 | 1.5 | | | |

# Inorganic Extended Qualifier Report

**Hydro Geo Chem, Inc.**

ACZ Project ID: ***L75350***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L75350-01** | WG262539 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| **L75350-02** | WG262539 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| **L75350-03** | WG262539 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |

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.**
8720002.2

ACZ Project ID: L75350
Date Received: 4/17/2009
Received By: lcp
Date Printed: 4/20/2009

## 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) |
|---|---|---|---|
| NA8252 | | 4 | 13 |
| | | | |
| | | | |
| | | | |

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.**
8720002.2

ACZ Project ID: L75350
Date Received: 4/17/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75350-01 | FRANCO | | | | | | | | | X | | |
| L75350-02 | ANDERSON | | | | | | | | | X | | |
| L75350-03 | PIONKE | | | | | | | | | X | | |
| L75350-04 | COOPER C | | | | | | | | | X | | |
| L75350-05 | CHAMBERS | | | | | | | | | X | | |
| L75350-06 | HOBAN | | | | | | | | | X | | |
| L75350-07 | HOWARD | | | | | | | | | X | | |
| L75350-08 | GARNER 635 | | | | | | | | | X | | |
| L75350-09 | WEISKOPF | | | | | | | | | X | | |

## 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: lcp

# ACZ Laboratories, Inc. L75350

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

## CHAIN of CUSTODY

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:
Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc
E-mail: jimn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:
Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

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 [X] 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 #: 504-IC
Project/PO #: 8720002.2
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC |
|---|---|---|---|---|
| FRANCO | 4-14-09:1127 | GW | 1 | X |
| ANDERSON | 4-14-09:1233 | GW | 1 | X |
| PIONKE | 4-14-09:1339 | GW | 1 | X |
| COOPER C | 4-14-09:1450 | GW | 1 | X |
| CHAMBERS | 4-14-09:1542 | GW | 1 | X |
| HOBAN | 4-15-09:0947 | GW | 1 | X |
| HOWARD | 4-15-09:1048 | GW | 1 | X |
| GARNER 635 | 4-15-09:1342 | GW | 1 | X |
| WEISKOPF | 4-15-09:1501 | GW | 1 | X |
| | | | | |

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

**REMARKS/ SAMPLE DISCLOSURES**

PAGE 1 of 1

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 4-15-09:1530 | CKT | 4/17/09 1137 |
| | | | |
| | | | |

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

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

**Analytical Report**

April 30, 2009

Report to:
Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tuscon, AZ 85705

Bill to:
Accounts Payable
Hydro Geo Chem, Inc.
P. O. Box 97220
Phoenix, AZ 85060

cc: Jim Norris

Project ID: 8720002.0
ACZ Project ID: L75369

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 20, 2009. This project has been assigned to ACZ's project number, L75369. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L75369. 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 May 30, 2009. 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

Scott Habermehl has reviewed
and approved this report.

**Hydro Geo Chem, Inc.**
Project ID: 8720002.0
Sample ID: MCCONNELL 265

ACZ Sample ID: ***L75369-01***
Date Sampled: *04/15/09 16:41*
Date Received: *04/20/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 657 | | * | mg/L | 5 | 30 | 04/28/09 1:11 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.0
Sample ID: KEEFER

ACZ Sample ID: ***L75369-02***
Date Sampled: *04/16/09 09:40*
Date Received: *04/20/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 7.7 | | | mg/L | 0.5 | 3 | 04/28/09 1:32 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.0
Sample ID: ZANDER

ACZ Sample ID: ***L75369-03***
Date Sampled: *04/16/09 10:56*
Date Received: *04/20/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 5.5 | | * | mg/L | 0.5 | 3 | 04/28/09 20:01 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.0
Sample ID: MOORE

ACZ Sample ID: ***L75369-04***
Date Sampled: *04/16/09 12:10*
Date Received: *04/20/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 6.4 | | * | mg/L | 0.5 | 3 | 04/28/09 20:22 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.0
Sample ID: RAMIREZ

ACZ Sample ID: ***L75369-05***
Date Sampled: *04/16/09 14:24*
Date Received: *04/20/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 7.6 | | * | mg/L | 0.5 | 3 | 04/28/09 20:43 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.0
Sample ID: ROGERS E

ACZ Sample ID: ***L75369-06***
Date Sampled: *04/16/09 15:41*
Date Received: *04/20/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 4.9 | | * | mg/L | 0.5 | 3 | 04/29/09 20:17 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.0
Sample ID: DUP041709

ACZ Sample ID: ***L75369-07***
Date Sampled: *04/17/09 00:00*
Date Received: *04/20/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 28.3 | | * | mg/L | 0.5 | 3 | 04/29/09 20:38 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.0
Sample ID: FB041709

ACZ Sample ID: ***L75369-08***
Date Sampled: *04/17/09 00:00*
Date Received: *04/20/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | | U | * | mg/L | 0.5 | 3 | 04/28/09 22:29 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.0
Sample ID: EQB041709

ACZ Sample ID: ***L75369-09***
Date Sampled: *04/17/09 00:00*
Date Received: *04/20/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | | U | * | mg/L | 0.5 | 3 | 04/28/09 22:50 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.0
Sample ID: TVI 236

ACZ Sample ID: ***L75369-10***
Date Sampled: *04/17/09 09:47*
Date Received: *04/20/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 28.1 | | * | mg/L | 0.5 | 3 | 04/29/09 20:59 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.0
Sample ID: TVI 875

ACZ Sample ID: ***L75369-11***
Date Sampled: *04/17/09 10:34*
Date Received: *04/20/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 251 | | * | mg/L | 3 | 10 | 04/28/09 23:32 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.0
Sample ID: SCHWARTZ

ACZ Sample ID: ***L75369-12***
Date Sampled: *04/17/09 12:31*
Date Received: *04/20/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 120 | | | mg/L | 3 | 10 | 04/29/09 0:36 | aml |

**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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. |
| | The associated value is either the sample quantitation limit or the sample detection limit. |

## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 8720002.0

ACZ Project ID: ***L75369***

**Sulfate** 300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG262217** | | | | | | | | | | | | | |
| WG262217ICV | ICV | 04/15/09 11:40 | WI090316-1 | 50 | | 49.82 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB | ICB | 04/15/09 12:01 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV1 | ICV | 04/16/09 14:47 | WI090316-1 | 50 | | 49.78 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB1 | ICB | 04/16/09 15:08 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV2 | ICV | 04/17/09 14:26 | WI090316-1 | 50 | | 50.76 | mg/L | 101.5 | 90 | 110 | | | |
| WG262217ICB2 | ICB | 04/17/09 14:47 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG262811** | | | | | | | | | | | | | |
| WG262811ICV | ICV | 04/27/09 19:13 | WI090316-1 | 50 | | 51.2 | mg/L | 102.4 | 90 | 110 | | | |
| WG262811ICB | ICB | 04/27/09 19:34 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262811LFB | LFB | 04/27/09 20:16 | WI081125-2 | 30 | | 27.09 | mg/L | 90.3 | 90 | 110 | | | |
| L75258-08AS | AS | 04/27/09 21:19 | WI081125-2 | 30 | 2.5 | 30.48 | mg/L | 93.3 | 90 | 110 | | | |
| L75258-08DUP | DUP | 04/27/09 21:40 | | | 2.5 | 2.52 | mg/L | | | | 0.8 | 20 | RA |
| L75369-02AS | AS | 04/28/09 1:54 | WI081125-2 | 30 | 7.7 | 36.64 | mg/L | 96.5 | 90 | 110 | | | |
| L75369-02DUP | DUP | 04/28/09 2:15 | | | 7.7 | 7.83 | mg/L | | | | 1.7 | 20 | |
| WG262811LFB | LFB | 04/28/09 16:30 | WI081125-2 | 30 | | 30.62 | mg/L | 102.1 | 90 | 110 | | | |
| **WG262854** | | | | | | | | | | | | | |
| WG262854ICV | ICV | 04/28/09 17:33 | WI090316-1 | 50 | | 51.86 | mg/L | 103.7 | 90 | 110 | | | |
| WG262854ICB | ICB | 04/28/09 17:55 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262854LFB | LFB | 04/28/09 18:16 | WI081125-2 | 30 | | 31.17 | mg/L | 103.9 | 90 | 110 | | | |
| L75369-11AS | AS | 04/28/09 23:53 | WI081125-2 | 150 | 251 | 390.6 | mg/L | 93.1 | 90 | 110 | | | |
| L75369-11DUP | DUP | 04/29/09 0:15 | | | 251 | 275.9 | mg/L | | | | 9.5 | 20 | |
| WG262854ICV1 | ICV | 04/29/09 18:31 | WI090316-1 | 50 | | 51.87 | mg/L | 103.7 | 90 | 110 | | | |
| WG262854ICB1 | ICB | 04/29/09 18:52 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| L75337-01AS | AS | 04/29/09 19:34 | WI081125-2 | 3000 | 4010 | 6527 | mg/L | 83.9 | 90 | 110 | | | M2 |
| L75337-01DUP | DUP | 04/29/09 19:55 | | | 4010 | 4040 | mg/L | | | | 0.7 | 20 | |

# Inorganic Extended Qualifier Report

**Hydro Geo Chem, Inc.**

ACZ Project ID: ***L75369***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L75369-01** | WG262811 | Sulfate | 300.0 - Ion Chromatography | D1 | Sample required dilution due to matrix. |
| | | | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| **L75369-03** | WG262854 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75369-04** | WG262854 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75369-05** | WG262854 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75369-06** | WG262854 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75369-07** | WG262854 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75369-08** | WG262854 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75369-09** | WG262854 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75369-10** | WG262854 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75369-11** | WG262854 | Sulfate | 300.0 - Ion Chromatography | D1 | Sample required dilution due to matrix. |

# Certification Qualifiers

**Hydro Geo Chem, Inc.** ACZ Project ID: ***L75369***

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.**
8720002.0

ACZ Project ID: L75369
Date Received: 4/20/2009
Received By:
Date Printed: 4/20/2009

## 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) Is the trip blank for Cyanide present? | | | X |
| 12) Is the trip blank for VOA present? | | | X |
| 13) Are samples requiring no headspace, headspace free? | | | X |
| 14) 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) |
|---|---|---|
| NA8258 | 1.7 | 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.**
8720002.0

ACZ Project ID: L75369
Date Received: 4/20/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75369-01 | MCCONNELL 265 | | | | | | | | | X | | |
| L75369-02 | KEEFER | | | | | | | | | X | | |
| L75369-03 | ZANDER | | | | | | | | | X | | |
| L75369-04 | MOORE | | | | | | | | | X | | |
| L75369-05 | RAMIREZ | | | | | | | | | X | | |
| L75369-06 | ROGERS E | | | | | | | | | X | | |
| L75369-07 | DUP041709 | | | | | | | | | X | | |
| L75369-08 | FB041709 | | | | | | | | | X | | |
| L75369-09 | EQB041709 | | | | | | | | | X | | |
| L75369-10 | TVI 236 | | | | | | | | | X | | |
| L75369-11 | TVI 875 | | | | | | | | | X | | |
| L75369-12 | SCHWARTZ | | | | | | | | | X | | |

## 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. L75369

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

## CHAIN of CUSTODY

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:
Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc
E-mail: jimn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:
Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

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 [X] 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 #: SQ4-IC
Project/PO #: 8720002.2
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | SQ4-IC |
|---|---|---|---|---|
| MCCONNELL 265 | 4-15-09: 1641 | GW | 1 | X |
| KEEFER | 4-16-09: 0940 | GW | 1 | X |
| ZANDER | 4-16-09: 1056 | GW | 1 | X |
| MOORE | 4-16-09: 1210 | GW | 1 | X |
| RAMIREZ | 4-16-09: 1424 | GW | 1 | X |
| ROGERS E | 4-16-09: 1541 | GW | 1 | X |
| DUP041709 | 4-17-09: | GW | 1 | X |
| FB041709 | 4-17-09: | GW | 1 | X |
| EQB041709 | 4-17-09: | GW | 1 | X |
| TVI 236 | 4-17-09: 0947 | GW | 1 | X |

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

**REMARKS/ SAMPLE DISCLOSURES**

PAGE 1 of 2

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 4-17-09:1330 | NRC | 4-20-09 10:24 |
| | | | |
| | | | |

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

# ACZ Laboratories, Inc. 05369

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

## CHAIN of CUSTODY

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:

Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc

E-mail: jimn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:

Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

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 [X] 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 #: 504-IC
Project/PO #: 87200012
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TVI 875 | 4-17-09:1024 | GW | 1 | X | | | | | | | |
| SCHWARTZ | 4-17-09:1231 | GW | 1 | X | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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

**REMARKS/ SAMPLE DISCLOSURES**

PAGE 2 of 2

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 4-17-09:1330 | NR | 4-20-09 10:24 |
| | | | |
| | | | |

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

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

**Analytical Report**

May 01, 2009

Report to:
Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tuscon, AZ 85705

Bill to:
Accounts Payable
Hydro Geo Chem, Inc.
P. O. Box 97220
Phoenix, AZ 85060

cc: Jim Norris

Project ID: 8720002.2
ACZ Project ID: L75406

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 22, 2009. This project has been assigned to ACZ's project number, L75406. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L75406. 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 June 01, 2009. 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

Scott Habermehl has reviewed
and approved this report.

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: DURAZO

ACZ Sample ID: ***L75406-01***
Date Sampled: *04/20/09 13:11*
Date Received: *04/22/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 367 | | | mg/L | 5 | 30 | 04/29/09 21:20 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: METZLER

ACZ Sample ID: ***L75406-02***
Date Sampled: *04/20/09 14:37*
Date Received: *04/22/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 313 | | | mg/L | 5 | 30 | 04/29/09 1:18 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: PARRA

ACZ Sample ID: ***L75406-03***
Date Sampled: *04/20/09 15:45*
Date Received: *04/22/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 372 | | | mg/L | 5 | 30 | 04/29/09 1:39 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: COB MW-1

ACZ Sample ID: ***L75406-04***
Date Sampled: *04/21/09 11:01*
Date Received: *04/22/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 720 | | | mg/L | 10 | 50 | 04/29/09 21:41 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: POOL

ACZ Sample ID: ***L75406-05***
Date Sampled: *04/21/09 12:32*
Date Received: *04/22/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 124 | | | mg/L | 1 | 5 | 04/29/09 3:03 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: RUIZ

ACZ Sample ID: ***L75406-06***
Date Sampled: *04/21/09 14:09*
Date Received: *04/22/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 227 | | | mg/L | 3 | 10 | 04/29/09 3:25 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: COLLINS

ACZ Sample ID: ***L75406-07***
Date Sampled: *04/21/09 15:03*
Date Received: *04/22/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 499 | | | mg/L | 5 | 30 | 04/29/09 3:46 | aml |

**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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. |

## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2

ACZ Project ID: ***L75406***

**Sulfate** 300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG262217** | | | | | | | | | | | | | |
| WG262217ICV | ICV | 04/15/09 11:40 | WI090316-1 | 50 | | 49.82 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB | ICB | 04/15/09 12:01 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV1 | ICV | 04/16/09 14:47 | WI090316-1 | 50 | | 49.78 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB1 | ICB | 04/16/09 15:08 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV2 | ICV | 04/17/09 14:26 | WI090316-1 | 50 | | 50.76 | mg/L | 101.5 | 90 | 110 | | | |
| WG262217ICB2 | ICB | 04/17/09 14:47 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG262854** | | | | | | | | | | | | | |
| WG262854ICV | ICV | 04/28/09 17:33 | WI090316-1 | 50 | | 51.86 | mg/L | 103.7 | 90 | 110 | | | |
| WG262854ICB | ICB | 04/28/09 17:55 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262854LFB | LFB | 04/28/09 18:16 | WI081125-2 | 30 | | 31.17 | mg/L | 103.9 | 90 | 110 | | | |
| L75369-11AS | AS | 04/28/09 23:53 | WI081125-2 | 150 | 251 | 390.6 | mg/L | 93.1 | 90 | 110 | | | |
| L75369-11DUP | DUP | 04/29/09 0:15 | | | 251 | 275.9 | mg/L | | | | 9.5 | 20 | |
| WG262854ICV1 | ICV | 04/29/09 18:31 | WI090316-1 | 50 | | 51.87 | mg/L | 103.7 | 90 | 110 | | | |
| WG262854ICB1 | ICB | 04/29/09 18:52 | | | | U | mg/L | | -1.5 | 1.5 | | | |

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

# Inorganic Extended Qualifier Report

**Hydro Geo Chem, Inc.**

ACZ Project ID: ***L75406***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|

No extended qualifiers associated with this analysis

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.**
8720002.2

ACZ Project ID: L75406
Date Received: 4/22/2009
Received By:
Date Printed: 4/22/2009

## 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) Is the trip blank for Cyanide present? | | | X |
| 12) Is the trip blank for VOA present? | | | X |
| 13) Are samples requiring no headspace, headspace free? | | | X |
| 14) 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) |
|---|---|---|
| NA8274 | 1.9 | 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.**
8720002.2

ACZ Project ID: L75406
Date Received: 4/22/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75406-01 | DURAZO | | | | | | | | | X | | |
| L75406-02 | METZLER | | | | | | | | | X | | |
| L75406-03 | PARRA | | | | | | | | | X | | |
| L75406-04 | COB MW-1 | | | | | | | | | X | | |
| L75406-05 | POOL | | | | | | | | | X | | |
| L75406-06 | RUIZ | | | | | | | | | X | | |
| L75406-07 | COLLINS | | | | | | | | | X | | |

## 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. L75406-

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

## CHAIN of CUSTODY

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:
Address: 51 W. Wetmore Rd Tucson, AZ 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc
E-mail: jimn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:
Address: 51 W. Wetmore Rd Tucson, AZ 85705
Telephone: 520-293-1500

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 [X] 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 #: 504-IC
Project/PO #: 8720002.2
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC |
|---|---|---|---|---|
| DURAZO | 4-20-09:1311 | GW | 1 | X |
| METZLER | 4-20-09:1437 | GW | 1 | X |
| PARRA | 4-20-09:1545 | GW | 1 | X |
| COB MW-1 | 4-20-09:1101 | GW | 1 | X |
| POOL | 4-20-09:1232 | GW | 1 | X |
| RUIZ | 4-20-09:1409 | GW | 1 | X |
| COLLINS | 4-21-09:1503 | GW | 1 | X |
| | | | | |
| | | | | |
| | | | | |

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

**REMARKS/ SAMPLE DISCLOSURES**

PAGE 1 of 1

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 4-21-09:1530 | CKT | 4/22/09 1102 |
| | | | |

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

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

# Analytical Report

April 30, 2009

Report to:
Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tuscon, AZ 85705

Bill to:
Accounts Payable
Hydro Geo Chem, Inc.
P. O. Box 97220
Phoenix, AZ 85060

cc: Jim Norris

Project ID: 8720002.2
ACZ Project ID: L75421

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 23, 2009. This project has been assigned to ACZ's project number, L75421. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L75421. 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 May 30, 2009. 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

Scott Habermehl has reviewed
and approved this report.

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: AWC-3

ACZ Sample ID: ***L75421-01***
Date Sampled: *04/22/09 09:08*
Date Received: *04/23/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 42.4 | | | mg/L | 0.5 | 3 | 04/28/09 2:36 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: AWC-2

ACZ Sample ID: ***L75421-02***
Date Sampled: *04/22/09 09:40*
Date Received: *04/23/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 14.7 | | | mg/L | 0.5 | 3 | 04/28/09 2:57 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: AWC-4

ACZ Sample ID: ***L75421-03***
Date Sampled: *04/22/09 09:59*
Date Received: *04/23/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 26.1 | | | mg/L | 0.5 | 3 | 04/28/09 3:18 | aml |

**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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. |

## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2

ACZ Project ID: ***L75421***

**Sulfate** 300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG262217** | | | | | | | | | | | | | |
| WG262217ICV | ICV | 04/15/09 11:40 | WI090316-1 | 50 | | 49.82 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB | ICB | 04/15/09 12:01 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV1 | ICV | 04/16/09 14:47 | WI090316-1 | 50 | | 49.78 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB1 | ICB | 04/16/09 15:08 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV2 | ICV | 04/17/09 14:26 | WI090316-1 | 50 | | 50.76 | mg/L | 101.5 | 90 | 110 | | | |
| WG262217ICB2 | ICB | 04/17/09 14:47 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG262811** | | | | | | | | | | | | | |
| WG262811ICV | ICV | 04/27/09 19:13 | WI090316-1 | 50 | | 51.2 | mg/L | 102.4 | 90 | 110 | | | |
| WG262811ICB | ICB | 04/27/09 19:34 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262811LFB | LFB | 04/27/09 20:16 | WI081125-2 | 30 | | 27.09 | mg/L | 90.3 | 90 | 110 | | | |
| L75369-02AS | AS | 04/28/09 1:54 | WI081125-2 | 30 | 7.7 | 36.64 | mg/L | 96.5 | 90 | 110 | | | |
| L75369-02DUP | DUP | 04/28/09 2:15 | | | 7.7 | 7.83 | mg/L | | | | 1.7 | 20 | |
| WG262811LFB | LFB | 04/28/09 16:30 | WI081125-2 | 30 | | 30.62 | mg/L | 102.1 | 90 | 110 | | | |

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

# Inorganic Extended Qualifier Report

**Hydro Geo Chem, Inc.**

ACZ Project ID: ***L75421***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|

No extended qualifiers associated with this analysis

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.**
8720002.2

ACZ Project ID: L75421
Date Received: 4/23/2009
Received By:
Date Printed: 4/23/2009

## 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) Is the trip blank for Cyanide present? | | | X |
| 12) Is the trip blank for VOA present? | | | X |
| 13) Are samples requiring no headspace, headspace free? | | | X |
| 14) 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) |
|---|---|---|
| NA8281 | 1.8 | 15 |
| | | |
| | | |
| | | |

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.**
8720002.2

ACZ Project ID: L75421
Date Received: 4/23/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75421-01 | AWC-3 | | | | | | | | | X | | |
| L75421-02 | AWC-2 | | | | | | | | | X | | |
| L75421-03 | AWC-4 | | | | | | | | | X | | |

## 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. L75421

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

## CHAIN of CUSTODY

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:

Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc

E-mail: jimn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:

Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

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 [X] 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 #: 504-IC
Project/PO #: 8720002.2
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC |
|---|---|---|---|---|
| AWC-3 | 4-22-09:0908 | GW | 1 | X |
| AWC-2 | 4-22-09:0940 | GW | 1 | X |
| AWC-4 | 4-22-09:0959 | GW | 1 | X |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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

**REMARKS/ SAMPLE DISCLOSURES**

1 week turn around please.

PAGE 1 of 1

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 4-22-09:1140 | CKT | 4/23/09 938 |
| | | | |
| | | | |

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

# Revised Analytical Report

Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Rd. Suite 101
Tucson, AZ 85705

May 27, 2009

Cc: Jim Norris

Project ID: 8720002.2
ACZ Project ID: L75449

Dan Simpson:

Enclosed are revised analytical reports for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 24, 2009 and reported on May 14, 2009. Refer to the case narrative for an explanation of the changes. This project was assigned to ACZ's project number, L75449. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L75449. 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 the requirements of NELAC.

This report should 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 June 14, 2009. 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. Please notify your Project Manager if you have other needs.

If you have any questions, please contact your Project Manager or Customer Service Representative.

S. Habermehl

Scott Habermehl has reviewed
and approved this report.

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

# Case Narrative

Hydro Geo Chem, Inc.

May 28, 2009

Project ID: 8720002.2
ACZ Project ID: L75449

## Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 6 ground water samples from Hydro Geo Chem, Inc. on April 24, 2009. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L75449. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

## Holding Times

Any analyses not performed within EPA recommended holding times have been qualified with an "H" flag.

## Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures. In addition the following has been noted with this specific project:

This project is a client requested re-analysis on L75449-06. The data changed significantly from that originally reported, probably from an incorrect dilution factor. No additional charges have been applied.

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: COOPER

ACZ Sample ID: ***L75449-01***
Date Sampled: *04/21/09 16:24*
Date Received: *04/24/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 33.4 | | | mg/L | 0.5 | 3 | 04/30/09 0:51 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: WEED

ACZ Sample ID: ***L75449-02***
Date Sampled: *04/22/09 10:57*
Date Received: *04/24/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 11.6 | | | mg/L | 0.5 | 3 | 04/28/09 4:42 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: TM-19A

ACZ Sample ID: ***L75449-03***
Date Sampled: *04/22/09 13:33*
Date Received: *04/24/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 62.5 | | | mg/L | 0.5 | 3 | 04/28/09 5:04 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: COB MW-3

ACZ Sample ID: ***L75449-04***
Date Sampled: *04/23/09 12:28*
Date Received: *04/24/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 43.7 | | | mg/L | 0.5 | 3 | 04/28/09 5:25 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: COB MW-2

ACZ Sample ID: ***L75449-05***
Date Sampled: *04/23/09 13:18*
Date Received: *04/24/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 34.0 | | | mg/L | 0.5 | 3 | 04/28/09 5:46 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: COB WL

ACZ Sample ID: ***L75449-06***
Date Sampled: *04/23/09 14:25*
Date Received: *04/24/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 98 | H | * | mg/L | 1 | 5 | 05/27/09 8:17 | aml |

**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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. |
| | The associated value is either the sample quantitation limit or the sample detection limit. |

## 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 & 20th edition (1998). |


## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2

ACZ Project ID: ***L75449***

**Sulfate** 300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG262217** | | | | | | | | | | | | | |
| WG262217ICV | ICV | 04/15/09 11:40 | WI090316-1 | 50 | | 49.82 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB | ICB | 04/15/09 12:01 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV1 | ICV | 04/16/09 14:47 | WI090316-1 | 50 | | 49.78 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB1 | ICB | 04/16/09 15:08 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV2 | ICV | 04/17/09 14:26 | WI090316-1 | 50 | | 50.76 | mg/L | 101.5 | 90 | 110 | | | |
| WG262217ICB2 | ICB | 04/17/09 14:47 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG262811** | | | | | | | | | | | | | |
| WG262811ICV | ICV | 04/27/09 19:13 | WI090316-1 | 50 | | 51.2 | mg/L | 102.4 | 90 | 110 | | | |
| WG262811ICB | ICB | 04/27/09 19:34 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262811LFB | LFB | 04/27/09 20:16 | WI081125-2 | 30 | | 27.09 | mg/L | 90.3 | 90 | 110 | | | |
| L75369-02AS | AS | 04/28/09 1:54 | WI081125-2 | 30 | 7.7 | 36.64 | mg/L | 96.5 | 90 | 110 | | | |
| L75369-02DUP | DUP | 04/28/09 2:15 | | | 7.7 | 7.83 | mg/L | | | | 1.7 | 20 | |
| **WG262921** | | | | | | | | | | | | | |
| WG262921ICV | ICV | 04/29/09 22:44 | WI090316-1 | 50 | | 51.87 | mg/L | 103.7 | 90 | 110 | | | |
| WG262921ICB | ICB | 04/29/09 23:06 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262921LFB | LFB | 04/29/09 23:27 | WI081125-2 | 30 | | 29.54 | mg/L | 98.5 | 90 | 110 | | | |
| L75337-03AS | AS | 04/30/09 0:09 | WI081125-2 | 300 | 525 | 837.3 | mg/L | 104.1 | 90 | 110 | | | |
| L75337-03DUP | DUP | 04/30/09 0:30 | | | 525 | 582.4 | mg/L | | | | 10.4 | 20 | |
| WG262921ICV1 | ICV | 04/30/09 14:03 | WI090316-1 | 50 | | 51.64 | mg/L | 103.3 | 90 | 110 | | | |
| WG262921ICB1 | ICB | 04/30/09 14:24 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG264056** | | | | | | | | | | | | | |
| WG264056ICV | ICV | 05/22/09 17:36 | WI090504-1 | 50 | | 49.94 | mg/L | 99.9 | 90 | 110 | | | |
| WG264056ICB | ICB | 05/22/09 17:57 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG264056LFB | LFB | 05/22/09 18:18 | WI090508-3 | 30 | | 26.9 | mg/L | 89.7 | 90 | 110 | | | |
| WG264056ICV1 | ICV | 05/26/09 11:32 | WI090504-1 | 50 | | 49.68 | mg/L | 99.4 | 90 | 110 | | | |
| WG264056ICB1 | ICB | 05/26/09 11:53 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG264056ICV2 | ICV | 05/27/09 7:14 | WI090504-1 | 50 | | 49.69 | mg/L | 99.4 | 90 | 110 | | | |
| WG264056ICB2 | ICB | 05/27/09 7:35 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| L75449-06AS | AS | 05/27/09 8:39 | WI090508-3 | 60 | 98 | 158.6 | mg/L | 101 | 90 | 110 | | | |
| L75449-06DUP | DUP | 05/27/09 9:00 | | | 98 | 107.7 | mg/L | | | | 9.4 | 20 | |

**Hydro Geo Chem, Inc.**

ACZ Project ID: ***L75449***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L75449-06** | WG264056 | Sulfate | 300.0 - Ion Chromatography | C5 | Confirmatory analysis was past holding time. Original result not confirmed. |

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.**
8720002.2

ACZ Project ID: L75449
Date Received: 4/24/2009
Received By:
Date Printed: 4/24/2009

## 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) Is the trip blank for Cyanide present? | | | X |
| 12) Is the trip blank for VOA present? | | | X |
| 13) Are samples requiring no headspace, headspace free? | | | X |
| 14) 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) |
|---|---|---|
| NA8293 | 1.4 | 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.**
8720002.2

ACZ Project ID: L75449
Date Received: 4/24/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75449-01 | COOPER | | | | | | | | | X | | |
| L75449-02 | WEED | | | | | | | | | X | | |
| L75449-03 | TM-19A | | | | | | | | | X | | |
| L75449-04 | COB MW-3 | | | | | | | | | X | | |
| L75449-05 | COB MW-2 | | | | | | | | | X | | |
| L75449-06 | COB WL | | | | | | | | | X | | |

## 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. L75449

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

## CHAIN of CUSTODY

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc.
E-mail:

Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc

E-mail: jimn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:

Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

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 [X] 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 #: 504-IC
Project/PO #: 8720002.2
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC |
|---|---|---|---|---|
| COOPER | 4-21-09:1624 | GW | 1 | X |
| WEED | 4-22-09:1057 | GW | 1 | X |
| TM-19A | 4-22-09:1333 | GW | 1 | X |
| COB MW-3 | 4-23-09:1226 | GW | 1 | X |
| COB MW-2 | 4-23-09:1318 | GW | 1 | X |
| COB WL | 4-23-09:1425 | GW | 1 | X |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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

**REMARKS/ SAMPLE DISCLOSURES**

PAGE 1 of 1

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 4-23-09:1530 | CKT | 4/24/09 840 |
| | | | |
| | | | |

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

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

# Analytical Report

May 05, 2009

Report to:
Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tuscon, AZ 85705

Bill to:
Accounts Payable
Hydro Geo Chem, Inc.
P. O. Box 97220
Phoenix, AZ 85060

cc: Jim Norris

Project ID: 8720002.2
ACZ Project ID: L75450

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 24, 2009. This project has been assigned to ACZ's project number, L75450. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L75450. 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 June 05, 2009. 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

Scott Habermehl has reviewed
and approved this report.

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: DUP042309

ACZ Sample ID: ***L75450-01***
Date Sampled: *04/23/09 00:00*
Date Received: *04/24/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 460 | | * | mg/L | 10 | 50 | 04/30/09 1:12 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: FB042309

ACZ Sample ID: ***L75450-02***
Date Sampled: *04/23/09 00:00*
Date Received: *04/24/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | | U | | mg/L | 0.5 | 3 | 04/30/09 1:33 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: EQB042309

ACZ Sample ID: ***L75450-03***
Date Sampled: *04/23/09 00:00*
Date Received: *04/24/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | | U | | mg/L | 0.5 | 3 | 04/30/09 1:54 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: NWC-03

ACZ Sample ID: ***L75450-04***
Date Sampled: *04/23/09 09:55*
Date Received: *04/24/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 466 | | * | mg/L | 5 | 30 | 04/30/09 15:27 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: NWC-04

ACZ Sample ID: ***L75450-05***
Date Sampled: *04/23/09 10:27*
Date Received: *04/24/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 188 | | * | mg/L | 3 | 10 | 04/30/09 2:37 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: NWC-02

ACZ Sample ID: ***L75450-06***
Date Sampled: *04/23/09 10:53*
Date Received: *04/24/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 6.4 | | | mg/L | 0.5 | 3 | 04/30/09 3:40 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: NWC-06

ACZ Sample ID: ***L75450-07***
Date Sampled: *04/23/09 11:17*
Date Received: *04/24/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 7.3 | | | mg/L | 0.5 | 3 | 04/30/09 4:01 | aml |

**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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. |

## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2

ACZ Project ID: ***L75450***

**Sulfate** 300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG262217** | | | | | | | | | | | | | |
| WG262217ICV | ICV | 04/15/09 11:40 | WI090316-1 | 50 | | 49.82 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB | ICB | 04/15/09 12:01 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV1 | ICV | 04/16/09 14:47 | WI090316-1 | 50 | | 49.78 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB1 | ICB | 04/16/09 15:08 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV2 | ICV | 04/17/09 14:26 | WI090316-1 | 50 | | 50.76 | mg/L | 101.5 | 90 | 110 | | | |
| WG262217ICB2 | ICB | 04/17/09 14:47 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG262921** | | | | | | | | | | | | | |
| WG262921ICV | ICV | 04/29/09 22:44 | WI090316-1 | 50 | | 51.87 | mg/L | 103.7 | 90 | 110 | | | |
| WG262921ICB | ICB | 04/29/09 23:06 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262921LFB | LFB | 04/29/09 23:27 | WI081125-2 | 30 | | 29.54 | mg/L | 98.5 | 90 | 110 | | | |
| L75337-03AS | AS | 04/30/09 0:09 | WI081125-2 | 300 | 525 | 837.3 | mg/L | 104.1 | 90 | 110 | | | |
| L75337-03DUP | DUP | 04/30/09 0:30 | | | 525 | 582.4 | mg/L | | | | 10.4 | 20 | |
| WG262921ICV1 | ICV | 04/30/09 14:03 | WI090316-1 | 50 | | 51.64 | mg/L | 103.3 | 90 | 110 | | | |
| WG262921ICB1 | ICB | 04/30/09 14:24 | | | | U | mg/L | | -1.5 | 1.5 | | | |

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

# Inorganic Extended Qualifier Report

**Hydro Geo Chem, Inc.**

ACZ Project ID: ***L75450***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L75450-01** | WG262921 | Sulfate | 300.0 - Ion Chromatography | D1 | Sample required dilution due to matrix. |
| **L75450-04** | WG262921 | Sulfate | 300.0 - Ion Chromatography | D1 | Sample required dilution due to matrix. |
| **L75450-05** | WG262921 | Sulfate | 300.0 - Ion Chromatography | D1 | Sample required dilution due to matrix. |

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.**
8720002.2

ACZ Project ID: L75450
Date Received: 4/24/2009
Received By:
Date Printed: 4/24/2009

## 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) Is the trip blank for Cyanide present? | | | X |
| 12) Is the trip blank for VOA present? | | | X |
| 13) Are samples requiring no headspace, headspace free? | | | X |
| 14) 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) |
|---|---|---|
| NA8293 | 1.4 | 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.**
8720002.2

ACZ Project ID: L75450
Date Received: 4/24/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75450-01 | DUP042309 | | | | | | | | | X | | |
| L75450-02 | FB042309 | | | | | | | | | X | | |
| L75450-03 | EQB042309 | | | | | | | | | X | | |
| L75450-04 | NWC-03 | | | | | | | | | X | | |
| L75450-05 | NWC-04 | | | | | | | | | X | | |
| L75450-06 | NWC-02 | | | | | | | | | X | | |
| L75450-07 | NWC-06 | | | | | | | | | X | | |

## 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: _____

L75450

# ACZ Laboratories, Inc. ~~L75500~~ CHAIN of CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493 lwp 4.24.09

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:
Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc
E-mail: Simn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:
Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

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 [X] 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 #: 504-IC
Project/PO #: 87200212
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? No

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC |
|---|---|---|---|---|
| DUP042309 | 4-23-09: | GW | 1 | X |
| FB042309 | 4-23-09: | GW | 1 | X |
| EQB042309 | 4-23-09: | GW | 1 | X |
| NWC-03 | 4-23-09: 0955 | GW | 1 | X |
| NWC-04 | 4-23-09: 1027 | GW | 1 | X |
| NWC-02 | 4-23-09: 1053 | GW | 1 | X |
| NWC-06 | 4-23-09: 1117 | GW | 1 | X |
| | | | | |
| | | | | |
| | | | | |

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

**REMARKS/ SAMPLE DISCLOSURES**

1 week turn around please

PAGE 1 of 1

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 4-23-09:1530 | CKT | 4/24/09 840 |
| | | | |
| | | | |

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

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

**Analytical Report**

May 18, 2009

Report to:
Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tuscon, AZ 85705

Bill to:
Accounts Payable
Hydro Geo Chem, Inc.
P. O. Box 97220
Phoenix, AZ 85060

cc: Jim Norris

Project ID: 8720002.2
ACZ Project ID: L75529

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 30, 2009. This project has been assigned to ACZ's project number, L75529. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L75529. 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 June 18, 2009. 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

Scott Habermehl has reviewed
and approved this report.

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BMO-2008-5B

ACZ Sample ID: ***L75529-01***
Date Sampled: *04/27/09 11:50*
Date Received: *04/30/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 177 | | | mg/L | 3 | 10 | 05/05/09 16:16 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BMO-2008-5M

ACZ Sample ID: ***L75529-02***
Date Sampled: *04/27/09 15:43*
Date Received: *04/30/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 111 | | * | mg/L | 3 | 10 | 05/13/09 22:29 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BMO-2008-6B

ACZ Sample ID: ***L75529-03***
Date Sampled: *04/27/09 18:00*
Date Received: *04/30/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 52.7 | | | mg/L | 0.5 | 3 | 05/04/09 22:42 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BMO-2008-6M

ACZ Sample ID: ***L75529-04***
Date Sampled: *04/28/09 09:42*
Date Received: *04/30/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 119 | | | mg/L | 3 | 10 | 05/05/09 16:58 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BMO-2008-1G

ACZ Sample ID: ***L75529-05***
Date Sampled: *04/28/09 12:22*
Date Received: *04/30/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 198 | | | mg/L | 3 | 10 | 05/05/09 17:19 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BMO-2008-11G

ACZ Sample ID: ***L75529-06***
Date Sampled: *04/28/09 15:34*
Date Received: *04/30/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 11.8 | | | mg/L | 0.5 | 3 | 05/04/09 23:45 | aml |

**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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. |

## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2

ACZ Project ID: ***L75529***

**Sulfate** 300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG262217** | | | | | | | | | | | | | |
| WG262217ICV | ICV | 04/15/09 11:40 | WI090316-1 | 50 | | 49.82 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB | ICB | 04/15/09 12:01 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV1 | ICV | 04/16/09 14:47 | WI090316-1 | 50 | | 49.78 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB1 | ICB | 04/16/09 15:08 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV2 | ICV | 04/17/09 14:26 | WI090316-1 | 50 | | 50.76 | mg/L | 101.5 | 90 | 110 | | | |
| WG262217ICB2 | ICB | 04/17/09 14:47 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG263133** | | | | | | | | | | | | | |
| WG263133ICV | ICV | 05/04/09 17:46 | WI090504-1 | 50 | | 50.89 | mg/L | 101.8 | 90 | 110 | | | |
| WG263133ICB | ICB | 05/04/09 18:07 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG263133LFB | LFB | 05/04/09 18:28 | WI081125-2 | 30 | | 29.65 | mg/L | 98.8 | 90 | 110 | | | |
| L75428-01DUP | DUP | 05/04/09 19:53 | | | 25.8 | 25.81 | mg/L | | | | 0 | 20 | |
| L75512-01AS | AS | 05/04/09 20:35 | WI081125-2 | 150 | U | 148.4 | mg/L | 98.9 | 90 | 110 | | | |
| L75529-06DUP | DUP | 05/05/09 0:06 | | | 11.8 | 11.64 | mg/L | | | | 1.4 | 20 | |
| L75540-11AS | AS | 05/05/09 0:48 | WI081125-2 | 30 | 51.2 | 80.88 | mg/L | 98.9 | 90 | 110 | | | |
| WG263133ICV1 | ICV | 05/05/09 15:34 | WI090504-1 | 50 | | 52.05 | mg/L | 104.1 | 90 | 110 | | | |
| WG263133ICB1 | ICB | 05/05/09 15:55 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG263477** | | | | | | | | | | | | | |
| WG263477ICV | ICV | 05/12/09 14:46 | WI090504-1 | 50 | | 50.81 | mg/L | 101.6 | 90 | 110 | | | |
| WG263477ICB | ICB | 05/12/09 15:07 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG263477LFB | LFB | 05/12/09 15:28 | WI090508-3 | 30 | | 31.37 | mg/L | 104.6 | 90 | 110 | | | |
| L75512-02AS | AS | 05/12/09 16:10 | WI090508-3 | 600 | U | 572 | mg/L | 95.3 | 90 | 110 | | | |
| L75512-02DUP | DUP | 05/12/09 16:31 | | | U | U | mg/L | | | | 0 | 20 | RA |
| WG263477ICV1 | ICV | 05/13/09 20:43 | WI090504-1 | 50 | | 51.58 | mg/L | 103.2 | 90 | 110 | | | |
| WG263477ICB1 | ICB | 05/13/09 21:04 | | | | U | mg/L | | -1.5 | 1.5 | | | |

**Hydro Geo Chem, Inc.**

ACZ Project ID: ***L75529***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L75529-02** | WG263477 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |

# Certification Qualifiers

**Hydro Geo Chem, Inc.** ACZ Project ID: ***L75529***

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.**
8720002.2

ACZ Project ID: L75529
Date Received: 4/30/2009
Received By:
Date Printed: 4/30/2009

## 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) Is the trip blank for Cyanide present? | | | X |
| 12) Is the trip blank for VOA present? | | | X |
| 13) Are samples requiring no headspace, headspace free? | | | X |
| 14) 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) |
|---|---|---|
| 2447 | 0.6 | 16 |
| | | |
| | | |
| | | |

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.**
8720002.2

ACZ Project ID: L75529
Date Received: 4/30/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75529-01 | BMO-2008-5B | | | | | | | | | X | | |
| L75529-02 | BMO-2008-5M | | | | | | | | | X | | |
| L75529-03 | BMO-2008-6B | | | | | | | | | X | | |
| L75529-04 | BMO-2008-6M | | | | | | | | | X | | |
| L75529-05 | BMO-2008-1G | | | | | | | | | X | | |
| L75529-06 | BMO-2008-11G | | | | | | | | | X | | |

## 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: _____

L75529

# ACZ Laboratories, Inc. ~~L75529~~ CHAIN of CUSTODY

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493 LPL 4-30-09

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:
Address: 51 W. Wetmore Rd Tucson, AZ 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc
E-mail: jimn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:
Address: 51 W. Wetmore Rd Tucson, AZ 85705
Telephone: 520-293-1500 x-133

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 [X] 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 #: 504-IC
Project/PO #: 8720002.2
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC |
|---|---|---|---|---|
| BMO-2008-5B | 4-27-09:1150 | GW | 1 | X |
| BMO-2008-5M | 4-27-09:1543 | GW | 1 | X |
| BMO-2008-6B | 4-27-09:1800 | GW | 1 | X |
| BMO-2008-6M | 4-28-09:0942 | GW | 1 | X |
| BMO-2008-1G | 4-28-09:1222 | GW | 1 | X |
| BMO-2008-11G | 4-28-09:1534 | GW | 1 | X |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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

**REMARKS/ SAMPLE DISCLOSURES**

PAGE 1 of 1

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 4-28-09:1625 | LPL | 4-30-09 10:46 |
| | | | |
| | | | |

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

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

# Analytical Report

May 18, 2009

Report to:
Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tuscon, AZ 85705

Bill to:
Accounts Payable
Hydro Geo Chem, Inc.
P. O. Box 97220
Phoenix, AZ 85060

cc: Jim Norris

Project ID: 8720002.2
ACZ Project ID: L75553

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on May 01, 2009. This project has been assigned to ACZ's project number, L75553. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L75553. 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 June 18, 2009. 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

Scott Habermehl has reviewed
and approved this report.

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BURKE

ACZ Sample ID: ***L75553-01***
Date Sampled: *04/28/09 16:44*
Date Received: *05/01/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 24.2 | | | mg/L | 0.5 | 3 | 05/05/09 1:52 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BMO-2008-13M

ACZ Sample ID: ***L75553-02***
Date Sampled: *04/29/09 15:47*
Date Received: *05/01/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 217 | | | mg/L | 5 | 30 | 05/05/09 17:40 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: ROGERS 803

ACZ Sample ID: ***L75553-03***
Date Sampled: *04/29/09 17:33*
Date Received: *05/01/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 211 | | | mg/L | 3 | 10 | 05/05/09 18:02 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: FB043009

ACZ Sample ID: ***L75553-04***
Date Sampled: *04/30/09 00:00*
Date Received: *05/01/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | | U | | mg/L | 0.5 | 3 | 05/05/09 3:37 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: EQB043009

ACZ Sample ID: ***L75553-05***
Date Sampled: *04/30/09 00:00*
Date Received: *05/01/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | | U | | mg/L | 0.5 | 3 | 05/05/09 3:58 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: DUP043009

ACZ Sample ID: ***L75553-06***
Date Sampled: *04/30/09 00:00*
Date Received: *05/01/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 11.8 | | | mg/L | 0.5 | 3 | 05/05/09 4:19 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BMO-2008-4B

ACZ Sample ID: ***L75553-07***
Date Sampled: *04/30/09 10:59*
Date Received: *05/01/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 11.4 | | * | mg/L | 0.5 | 3 | 05/12/09 17:14 | aml |

**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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. |

## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2

ACZ Project ID: ***L75553***

**Sulfate** 300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG262217** | | | | | | | | | | | | | |
| WG262217ICV | ICV | 04/15/09 11:40 | WI090316-1 | 50 | | 49.82 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB | ICB | 04/15/09 12:01 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV1 | ICV | 04/16/09 14:47 | WI090316-1 | 50 | | 49.78 | mg/L | 99.6 | 90 | 110 | | | |
| WG262217ICB1 | ICB | 04/16/09 15:08 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG262217ICV2 | ICV | 04/17/09 14:26 | WI090316-1 | 50 | | 50.76 | mg/L | 101.5 | 90 | 110 | | | |
| WG262217ICB2 | ICB | 04/17/09 14:47 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG263133** | | | | | | | | | | | | | |
| WG263133ICV | ICV | 05/04/09 17:46 | WI090504-1 | 50 | | 50.89 | mg/L | 101.8 | 90 | 110 | | | |
| WG263133ICB | ICB | 05/04/09 18:07 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG263133LFB | LFB | 05/04/09 18:28 | WI081125-2 | 30 | | 29.65 | mg/L | 98.8 | 90 | 110 | | | |
| L75529-06DUP | DUP | 05/05/09 0:06 | | | 11.8 | 11.64 | mg/L | | | | 1.4 | 20 | |
| L75540-11AS | AS | 05/05/09 0:48 | WI081125-2 | 30 | 51.2 | 80.88 | mg/L | 98.9 | 90 | 110 | | | |
| WG263133ICV1 | ICV | 05/05/09 15:34 | WI090504-1 | 50 | | 52.05 | mg/L | 104.1 | 90 | 110 | | | |
| WG263133ICB1 | ICB | 05/05/09 15:55 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG263477** | | | | | | | | | | | | | |
| WG263477ICV | ICV | 05/12/09 14:46 | WI090504-1 | 50 | | 50.81 | mg/L | 101.6 | 90 | 110 | | | |
| WG263477ICB | ICB | 05/12/09 15:07 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG263477LFB | LFB | 05/12/09 15:28 | WI090508-3 | 30 | | 31.37 | mg/L | 104.6 | 90 | 110 | | | |
| L75512-02AS | AS | 05/12/09 16:10 | WI090508-3 | 600 | U | 572 | mg/L | 95.3 | 90 | 110 | | | |
| L75512-02DUP | DUP | 05/12/09 16:31 | | | U | U | mg/L | | | | 0 | 20 | RA |
| WG263477ICV1 | ICV | 05/13/09 20:43 | WI090504-1 | 50 | | 51.58 | mg/L | 103.2 | 90 | 110 | | | |
| WG263477ICB1 | ICB | 05/13/09 21:04 | | | | U | mg/L | | -1.5 | 1.5 | | | |

**Hydro Geo Chem, Inc.**

ACZ Project ID: ***L75553***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L75553-07** | WG263477 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |

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.**
8720002.2

ACZ Project ID: L75553
Date Received: 5/1/2009
Received By:
Date Printed: 5/1/2009

## 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) Is the trip blank for Cyanide present? | | | X |
| 12) Is the trip blank for VOA present? | | | X |
| 13) Are samples requiring no headspace, headspace free? | | | X |
| 14) 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) |
|---|---|---|
| 1997 | 2.3 | 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.**
8720002.2

ACZ Project ID: L75553
Date Received: 5/1/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75553-01 | BURKE | | | | | | | | | X | | |
| L75553-02 | BMO-2008-13M | | | | | | | | | X | | |
| L75553-03 | ROGERS 803 | | | | | | | | | X | | |
| L75553-04 | FB043009 | | | | | | | | | X | | |
| L75553-05 | EQB043009 | | | | | | | | | X | | |
| L75553-06 | DUP043009 | | | | | | | | | X | | |
| L75553-07 | BMO-2008-4B | | | | | | | | | X | | |

## 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. L75553

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

## CHAIN of CUSTODY

**Report to:**

| | |
|---|---|
| Name: Dan Simpson | Address: 51 W. Wetmore Rd Tucson, AZ 85705 |
| Company: Hydro Geo Chem, Inc. | |
| E-mail: | Telephone: 520-293-1500 x-133 |

**Copy of Report to:**

| | |
|---|---|
| Name: Jim Norris | E-mail: jimn@hgcinc.com |
| Company: HGC, Inc | Telephone: 520-293-1500 x-112 |

**Invoice to:**

| | |
|---|---|
| Name: Dan Simpson | Address: 51 W. Wetmore Rd Tucson, AZ 85705 |
| Company: HGC, Inc | |
| E-mail: | Telephone: 520-293-1500 x-133 |

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 [X] 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 #: 504-IC

Project/PO #: 8720002.2

Reporting state for compliance testing: AZ

Sampler's Name: Travis Taylor

Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BURKE | 4-28-09: 1644 | GW | 1 | X | | | | | | | |
| BMO-2008-13M | 4-29-09: 1547 | GW | 1 | X | | | | | | | |
| ROGERS 803 | 4-29-09: 1733 | GW | 1 | X | | | | | | | |
| FB043009 | 4-30-09: | GW | 1 | X | | | | | | | |
| EQB043009 | 4-30-09: | GW | 1 | X | | | | | | | |
| DUP043009 | 4-30-09: | GW | 1 | X | | | | | | | |
| BMO-2008-4B | 4-30-09: 1059 | GW | 1 | X | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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

**REMARKS/ SAMPLE DISCLOSURES**

PAGE 1 of 1

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 4-30-09: 1150 | CKT | 5/1/09 913 |
| | | | |
| | | | |

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

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

**Analytical Report**

May 29, 2009

Report to:
Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tuscon, AZ 85705

Bill to:
Accounts Payable
Hydro Geo Chem, Inc.
P. O. Box 97220
Phoenix, AZ 85060

cc: Jim Norris

Project ID: 8720002.2
ACZ Project ID: L75686

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on May 08, 2009. This project has been assigned to ACZ's project number, L75686. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L75686. 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 June 29, 2009. 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

Scott Habermehl has reviewed
and approved this report.

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: GL-03

ACZ Sample ID: ***L75686-01***
Date Sampled: *05/05/09 10:31*
Date Received: *05/08/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 43.9 | | | mg/L | 0.5 | 3 | 05/21/09 18:56 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BMO-2008-08M

ACZ Sample ID: ***L75686-02***
Date Sampled: *05/05/09 15:24*
Date Received: *05/08/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 122 | | | mg/L | 2 | 8 | 05/21/09 19:17 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BMO-2008-08B

ACZ Sample ID: ***L75686-03***
Date Sampled: *05/05/09 18:10*
Date Received: *05/08/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 1370 | | | mg/L | 30 | 100 | 05/21/09 19:38 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: TM-02A

ACZ Sample ID: ***L75686-04***
Date Sampled: *05/06/09 10:10*
Date Received: *05/08/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 18.7 | | | mg/L | 0.5 | 3 | 05/21/09 19:59 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BF-01

ACZ Sample ID: ***L75686-05***
Date Sampled: *05/06/09 11:16*
Date Received: *05/08/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 1280 | | | mg/L | 30 | 100 | 05/21/09 21:02 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BMO-2008-10GU

ACZ Sample ID: ***L75686-06***
Date Sampled: *05/06/09 15:39*
Date Received: *05/08/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 1710 | | | mg/L | 30 | 100 | 05/21/09 21:23 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BMO-2008-13B

ACZ Sample ID: ***L75686-07***
Date Sampled: *05/06/09 17:56*
Date Received: *05/08/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 930 | | | mg/L | 10 | 50 | 05/21/09 21:44 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: TM-42

ACZ Sample ID: ***L75686-08***
Date Sampled: *05/07/09 11:18*
Date Received: *05/08/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 430 | | * | mg/L | 10 | 50 | 05/23/09 4:09 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: FB050709

ACZ Sample ID: ***L75686-09***
Date Sampled: *05/07/09 00:00*
Date Received: *05/08/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | | U | * | mg/L | 0.5 | 3 | 05/26/09 20:41 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: EQB050709

ACZ Sample ID: ***L75686-10***
Date Sampled: *05/07/09 00:00*
Date Received: *05/08/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | | U | * | mg/L | 0.5 | 3 | 05/26/09 21:44 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: DUP050709

ACZ Sample ID: ***L75686-11***
Date Sampled: *05/07/09 00:00*
Date Received: *05/08/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 445 | | * | mg/L | 5 | 30 | 05/27/09 14:51 | aml |

**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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. |
| | The associated value is either the sample quantitation limit or the sample detection limit. |

## 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 & 20th edition (1998). |


## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2

ACZ Project ID: ***L75686***

**Sulfate** 300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG263175** | | | | | | | | | | | | | |
| WG263175ICV | ICV | 05/20/09 18:33 | WI090504-1 | 50 | | 50.17 | mg/L | 100.3 | 90 | 110 | | | |
| WG263175ICB | ICB | 05/20/09 18:54 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG263175ICV1 | ICV | 05/21/09 13:39 | WI090504-1 | 50 | | 50.36 | mg/L | 100.7 | 90 | 110 | | | |
| WG263175ICB1 | ICB | 05/21/09 14:00 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG263541** | | | | | | | | | | | | | |
| WG263541ICV | ICV | 05/21/09 16:07 | WI090504-1 | 50 | | 50.01 | mg/L | 100 | 90 | 110 | | | |
| WG263541ICB | ICB | 05/21/09 16:28 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG263541LFB | LFB | 05/21/09 16:49 | WI090508-3 | 30 | | 27.88 | mg/L | 92.9 | 90 | 110 | | | |
| L75637-05AS | AS | 05/21/09 17:31 | WI090508-3 | 3000 | 2640 | 5337 | mg/L | 89.9 | 90 | 110 | | | |
| L75637-05DUP | DUP | 05/21/09 17:52 | | | 2640 | 3190 | mg/L | | | | 18.9 | 20 | |
| WG263541ICV1 | ICV | 05/22/09 12:08 | WI090504-1 | 50 | | 50.09 | mg/L | 100.2 | 90 | 110 | | | |
| WG263541ICB1 | ICB | 05/22/09 12:29 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG264056** | | | | | | | | | | | | | |
| WG264056ICV | ICV | 05/22/09 17:36 | WI090504-1 | 50 | | 49.94 | mg/L | 99.9 | 90 | 110 | | | |
| WG264056ICB | ICB | 05/22/09 17:57 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG264056LFB | LFB | 05/22/09 18:18 | WI090508-3 | 30 | | 26.9 | mg/L | 89.7 | 90 | 110 | | | |
| L75624-09AS | AS | 05/22/09 23:56 | WI090508-3 | 30 | U | 29.07 | mg/L | 96.9 | 90 | 110 | | | |
| L75624-09DUP | DUP | 05/23/09 0:17 | | | U | U | mg/L | | | | 0 | 20 | RA |
| WG264056ICV1 | ICV | 05/26/09 11:32 | WI090504-1 | 50 | | 49.68 | mg/L | 99.4 | 90 | 110 | | | |
| WG264056ICB1 | ICB | 05/26/09 11:53 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG264056ICV2 | ICV | 05/27/09 7:14 | WI090504-1 | 50 | | 49.69 | mg/L | 99.4 | 90 | 110 | | | |
| WG264056ICB2 | ICB | 05/27/09 7:35 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG264101** | | | | | | | | | | | | | |
| WG264101ICV | ICV | 05/26/09 19:37 | WI090504-1 | 50 | | 51.38 | mg/L | 102.8 | 90 | 110 | | | |
| WG264101ICB | ICB | 05/26/09 19:59 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG264101LFB | LFB | 05/26/09 20:20 | WI090508-3 | 30 | | 29.8 | mg/L | 99.3 | 90 | 110 | | | |
| L75686-09AS | AS | 05/26/09 21:02 | WI090508-3 | 30 | U | 30.38 | mg/L | 101.3 | 90 | 110 | | | |
| L75686-09DUP | DUP | 05/26/09 21:23 | | | U | U | mg/L | | | | 0 | 20 | RA |
| WG264101ICV1 | ICV | 05/27/09 14:09 | WI090504-1 | 50 | | 51.07 | mg/L | 102.1 | 90 | 110 | | | |
| WG264101ICB1 | ICB | 05/27/09 14:30 | | | | U | mg/L | | -1.5 | 1.5 | | | |

**Hydro Geo Chem, Inc.** ACZ Project ID: ***L75686***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L75686-08** | WG264056 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| **L75686-09** | WG264101 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| **L75686-10** | WG264101 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| **L75686-11** | WG264101 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |

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.**
8720002.2

ACZ Project ID: L75686
Date Received: 5/8/2009
Received By:
Date Printed: 5/8/2009

## 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) Is the trip blank for Cyanide present? | | | X |
| 12) Is the trip blank for VOA present? | | | X |
| 13) Are samples requiring no headspace, headspace free? | | | X |
| 14) 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) |
|---|---|---|
| NA8375 | 2.5 | 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.**
8720002.2

ACZ Project ID: L75686
Date Received: 5/8/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75686-01 | GL-03 | | | | | | | | | X | | |
| L75686-02 | BMO-2008-8M | | | | | | | | | X | | |
| L75686-03 | BMO-2008-8B | | | | | | | | | X | | |
| L75686-04 | TM-02A | | | | | | | | | X | | |
| L75686-05 | BF-01 | | | | | | | | | X | | |
| L75686-06 | BMO-2008-10GU | | | | | | | | | X | | |
| L75686-07 | BMO-2008-13B | | | | | | | | | X | | |
| L75686-08 | TM-42 | | | | | | | | | X | | |
| L75686-09 | FB050709 | | | | | | | | | X | | |
| L75686-10 | EQB050709 | | | | | | | | | X | | |
| L75686-11 | DUP050709 | | | | | | | | | X | | |

## 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. L75686

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

## CHAIN of CUSTODY

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:
Address: 51 W. Wetmore Rd Tucson, AZ 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc
E-mail: jimn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:
Address: 51 W. Wetmore Rd Tucson, AZ 85705
Telephone: 520-293-1500 x-133

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 [X] 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 #: 504-IC
Project/PO #: 8720002.2
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GL-03 | 5-5-09: 1031 | GW | 1 | X | | | | | | |
| BMO-2008-08M | 5-5-09: 1524 | GW | 1 | X | | | | | | |
| BMO-2008-08B | 5-5-09: 1810 | GW | 1 | X | | | | | | |
| TM-02A | 5-6-09: 1010 | GW | 1 | X | | | | | | |
| BF-01 | 5-6-09: 1116 | GW | 1 | X | | | | | | |
| BMO-2008-10GU | 5-6-09: 1539 | GW | 1 | X | | | | | | |
| BMO-2008-13B | 5-6-09: 1756 | GW | 1 | X | | | | | | |
| TM-42 | 5-7-09: 1118 | GW | 1 | X | | | | | | |
| FB050709 | 5-7-09: | GW | 1 | X | | | | | | |
| EQB050709 | 5-7-09: | GW | 1 | X | | | | | | |

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

**REMARKS/ SAMPLE DISCLOSURES**

PAGE 1 of 2

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 5-7-09: 1230 | [illegible] | 5-8-09 11:15 |
| | | | |

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

# ACZ Laboratories, Inc. L75686

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

## CHAIN of CUSTODY

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:

Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc

E-mail: jimn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:

Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

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 [X] 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 #: S04-IC
Project/PO #: ~~87~~ 8720002.2
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | S04-IC |
|---|---|---|---|---|
| DUP050709 | 5-7-09: | GW | 1 | X |

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

**REMARKS/ SAMPLE DISCLOSURES**

PAGE 2 of 2

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 5-7-09:1230 | [illegible] | 5-8-09 11:15 |

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

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

# Analytical Report

June 02, 2009

Report to:
Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tuscon, AZ 85705

Bill to:
Accounts Payable
Hydro Geo Chem, Inc.
P. O. Box 97220
Phoenix, AZ 85060

cc: Jim Norris

Project ID: 8720002.2
ACZ Project ID: L75781

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on May 14, 2009. This project has been assigned to ACZ's project number, L75781. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L75781. 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 July 02, 2009. 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

Scott Habermehl has reviewed
and approved this report.

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BMO-2008-7M

ACZ Sample ID: ***L75781-01***
Date Sampled: *05/11/09 12:16*
Date Received: *05/14/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 26.0 | | * | mg/L | 0.5 | 3 | 05/29/09 18:29 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BMO-2008-3B

ACZ Sample ID: ***L75781-02***
Date Sampled: *05/11/09 13:24*
Date Received: *05/14/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 149 | | * | mg/L | 3 | 10 | 05/29/09 18:51 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: NESS

ACZ Sample ID: ***L75781-03***
Date Sampled: *05/11/09 17:56*
Date Received: *05/14/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 45.9 | | * | mg/L | 0.5 | 3 | 05/29/09 19:12 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BMO-2008-10GL

ACZ Sample ID: ***L75781-04***
Date Sampled: *05/12/09 15:05*
Date Received: *05/14/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 1120 | | * | mg/L | 10 | 50 | 05/29/09 19:33 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: BMO-2008-9M

ACZ Sample ID: ***L75781-05***
Date Sampled: *05/12/09 17:43*
Date Received: *05/14/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 51.7 | | * | mg/L | 0.5 | 3 | 05/29/09 19:54 | aml |

**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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. |

## 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 & 20th edition (1998). |


## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2

ACZ Project ID: ***L75781***

**Sulfate** 300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG264359** | | | | | | | | | | | | | |
| WG264359ICV | ICV | 05/29/09 16:23 | WI090504-1 | 50 | | 50.87 | mg/L | 101.7 | 90 | 110 | | | |
| WG264359ICB | ICB | 05/29/09 16:44 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG264359LFB | LFB | 05/29/09 17:05 | WI090508-3 | 30 | | 28.63 | mg/L | 95.4 | 90 | 110 | | | |
| WG264359ICV1 | ICV | 05/31/09 12:41 | WI090504-1 | 50 | | 50.04 | mg/L | 100.1 | 90 | 110 | | | |
| WG264359ICB1 | ICB | 05/31/09 13:02 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| L75755-01AS | AS | 05/31/09 13:44 | WI090508-3 | 300 | 352 | 615.4 | mg/L | 87.8 | 90 | 110 | | | M2 |
| L75755-01DUP | DUP | 05/31/09 14:05 | | | 352 | 397 | mg/L | | | | 12 | 20 | |

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

# Inorganic Extended Qualifier Report

**Hydro Geo Chem, Inc.**

ACZ Project ID: ***L75781***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L75781-01** | WG264359 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75781-02** | WG264359 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75781-03** | WG264359 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75781-04** | WG264359 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75781-05** | WG264359 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |

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.**
8720002.2

ACZ Project ID: L75781
Date Received: 5/14/2009
Received By:
Date Printed: 5/14/2009

## 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) Is the trip blank for Cyanide present? | | | X |
| 12) Is the trip blank for VOA present? | | | X |
| 13) Are samples requiring no headspace, headspace free? | | | X |
| 14) 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) |
|---|---|---|
| 575 | 4.2 | 12 |
| | | |
| | | |
| | | |

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.**
8720002.2

ACZ Project ID: L75781
Date Received: 5/14/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75781-01 | BMO-2008-7M | | | | | | | | | X | | |
| L75781-02 | BMO-2008-3B | | | | | | | | | X | | |
| L75781-03 | NESS | | | | | | | | | X | | |
| L75781-04 | BMO-2008-10GL | | | | | | | | | X | | |
| L75781-05 | BMO-2008-9M | | | | | | | | | X | | |

## 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. L75781

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

## CHAIN of CUSTODY

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:
Address: 51 W. Wetmore Rd Tucson, Az 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
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**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:
Address: 51 W. Wetmore Rd Tucson, AZ 85705
Telephone: 520-293-1500 x-133

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 [X] 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 #: 504-IC
Project/PO #: 8720002.2
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC |
|---|---|---|---|---|
| BMO-2008-7M | 5-11-09:1216 | GW | 1 | X |
| BMO-2008-3B | 5-11-09:1324 | GW | 1 | X |
| NESS | 5-11-09:1756 | GW | 1 | X |
| BMO-2008-10GL | 5-11-09:1505 | GW | 1 | X |
| BMO-2008-9M | 5-12-09:1743 | GW | 1 | X |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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

**REMARKS/ SAMPLE DISCLOSURES**

PAGE 1 of 1

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 5-13-09:1000 | [illegible] | 5-14-09 10:21 |
| | | | |
| | | | |

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

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

**Analytical Report**

May 20, 2009

Report to:
Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tuscon, AZ 85705

Bill to:
Accounts Payable
Hydro Geo Chem, Inc.
P. O. Box 97220
Phoenix, AZ 85060

cc: Jim Norris

Project ID: 8720002.2
ACZ Project ID: L75808

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on May 15, 2009. This project has been assigned to ACZ's project number, L75808. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L75808. 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 June 20, 2009. 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

Scott Habermehl has reviewed
and approved this report.

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: TM-07

ACZ Sample ID: ***L75808-01***
Date Sampled: *05/13/09 11:45*
Date Received: *05/15/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 375.4 - Turbidimetric | 130 | | * | mg/L | 5 | 30 | 05/19/09 14:17 | aml |

**Arizona license number: AZ0102**



** Please refer to Qualifier Reports for details.*

## 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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. |

## 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 & 20th edition (1998). |


## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2

ACZ Project ID: ***L75808***

**Sulfate** 375.4 - Turbidimetric

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG263808** | | | | | | | | | | | | | |
| WG263808ICB | ICB | 05/19/09 13:37 | | | | U | mg/L | | -3 | 3 | | | |
| WG263808ICV | ICV | 05/19/09 13:37 | WI090515-3 | 20 | | 19.2 | mg/L | 96 | 90 | 110 | | | |
| WG263808LFB | LFB | 05/19/09 14:07 | WI090505-3 | 10 | | 9.3 | mg/L | 93 | 90 | 110 | | | |
| L75689-14DUP | DUP | 05/19/09 14:23 | | | 4 | 3.6 | mg/L | | | | 10.5 | 20 | RA |
| L75689-15AS | AS | 05/19/09 14:23 | WI090505-3 | 10 | 4 | 17.3 | mg/L | 133 | 90 | 110 | | | M1 |

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

# Inorganic Extended Qualifier Report

**Hydro Geo Chem, Inc.**

ACZ Project ID: ***L75808***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L75808-01** | WG263808 | Sulfate | 375.4 - Turbidimetric | M1 | Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| | | | 375.4 - Turbidimetric | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |

**Hydro Geo Chem, Inc.** ACZ Project ID: ***L75808***

Wet Chemistry

**The following parameters are not offered for certification or are not covered by AZ certificate #AZ0102.**

| | |
|---|---|
| Sulfate | 375.4 - Turbidimetric |

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

# Sample Receipt

**Hydro Geo Chem, Inc.**
8720002.2

ACZ Project ID: L75808
Date Received: 5/15/2009
Received By:
Date Printed: 5/15/2009

## 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) Is the trip blank for Cyanide present? | | | X |
| 12) Is the trip blank for VOA present? | | | X |
| 13) Are samples requiring no headspace, headspace free? | | | X |
| 14) 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) |
|---|---|---|
| 1661 | 3.1 | 12 |
| | | |
| | | |
| | | |

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.**
8720002.2

ACZ Project ID: L75808
Date Received: 5/15/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75808-01 | TM-07 | | | | | | | | | X | | |

## 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. L75808

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

## CHAIN of CUSTODY

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:
Address: 51 W. Wetmore Rd Tucson, Az 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc.
E-mail: jimn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:
Address: 51 W. Wetmore Rd Tucson, Az 85705
Telephone: 520-293-1500 x-133

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 [X] 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 #: 504-IC
Project/PO #: 8720002.2
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC |
|---|---|---|---|---|
| TM-07 | 5-13-09:1145 | GW | 1 | X |

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

**REMARKS/ SAMPLE DISCLOSURES**

1 week turnaround please.

PAGE 1 of 1

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 5-14-09:1445 | LRL | 5-15-09 10:39 |
| | | | |
| | | | |

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

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

# Analytical Report

June 01, 2009

Report to:
Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tuscon, AZ 85705

Bill to:
Accounts Payable
Hydro Geo Chem, Inc.
P. O. Box 97220
Phoenix, AZ 85060

cc: Jim Norris

Project ID: 8720002.2
ACZ Project ID: L75822

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on May 15, 2009. This project has been assigned to ACZ's project number, L75822. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L75822. 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 July 01, 2009. 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

Scott Habermehl has reviewed
and approved this report.

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: TM-06 MILLER

ACZ Sample ID: ***L75822-01***
Date Sampled: *05/13/09 12:48*
Date Received: *05/15/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 30.6 | | * | mg/L | 0.5 | 3 | 05/28/09 4:35 | aml |

**Arizona license number: AZ0102**

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: TM-03

ACZ Sample ID: ***L75822-02***
Date Sampled: *05/13/09 14:06*
Date Received: *05/15/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 109 | | * | mg/L | 1 | 5 | 05/29/09 3:05 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: TM-16

ACZ Sample ID: ***L75822-03***
Date Sampled: *05/13/09 15:22*
Date Received: *05/15/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 484 | | | mg/L | 5 | 30 | 05/29/09 5:54 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: TM-15 MILLER

ACZ Sample ID: ***L75822-04***
Date Sampled: *05/13/09 18:16*
Date Received: *05/15/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 13.7 | | | mg/L | 0.5 | 3 | 05/28/09 8:48 | aml |

**Arizona license number: AZ0102**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: GGOOSE547

ACZ Sample ID: ***L75822-05***
Date Sampled: *05/14/09 13:58*
Date Received: *05/15/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 174 | | | mg/L | 3 | 10 | 05/29/09 6:15 | aml |

**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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. |

## 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 & 20th edition (1998). |


## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2

ACZ Project ID: ***L75822***

**Sulfate** 300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG263175** | | | | | | | | | | | | | |
| WG263175ICV | ICV | 05/20/09 18:33 | WI090504-1 | 50 | | 50.17 | mg/L | 100.3 | 90 | 110 | | | |
| WG263175ICB | ICB | 05/20/09 18:54 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG263175ICV1 | ICV | 05/21/09 13:39 | WI090504-1 | 50 | | 50.36 | mg/L | 100.7 | 90 | 110 | | | |
| WG263175ICB1 | ICB | 05/21/09 14:00 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG264102** | | | | | | | | | | | | | |
| WG264102ICV | ICV | 05/27/09 18:22 | WI090504-1 | 50 | | 51.17 | mg/L | 102.3 | 90 | 110 | | | |
| WG264102ICB | ICB | 05/27/09 18:44 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG264102LFB | LFB | 05/27/09 19:05 | WI090508-3 | 30 | | 28.19 | mg/L | 94 | 90 | 110 | | | |
| L75809-04AS | AS | 05/28/09 0:42 | WI090508-3 | 30 | 46.3 | 72.7 | mg/L | 88 | 90 | 110 | | | M2 |
| L75809-04DUP | DUP | 05/28/09 1:03 | | | 46.3 | 46.62 | mg/L | | | | 0.7 | 20 | |
| WG264102ICV1 | ICV | 05/28/09 21:06 | WI090504-1 | 50 | | 50.86 | mg/L | 101.7 | 90 | 110 | | | |
| WG264102ICB1 | ICB | 05/28/09 21:27 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG264184** | | | | | | | | | | | | | |
| WG264184ICV | ICV | 05/28/09 5:59 | WI090504-1 | 50 | | 50.37 | mg/L | 100.7 | 90 | 110 | | | |
| WG264184ICB | ICB | 05/28/09 6:20 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG264184LFB | LFB | 05/28/09 7:02 | WI090508-3 | 30 | | 28.88 | mg/L | 96.3 | 90 | 110 | | | |
| WG264184ICV1 | ICV | 05/29/09 4:08 | WI090504-1 | 50 | | 50.6 | mg/L | 101.2 | 90 | 110 | | | |
| WG264184ICB1 | ICB | 05/29/09 4:30 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| L75638-01AS | AS | 05/29/09 5:12 | WI090508-3 | 300 | 201 | 518.8 | mg/L | 105.9 | 90 | 110 | | | |
| L75638-01DUP | DUP | 05/29/09 5:33 | | | 201 | 202.3 | mg/L | | | | 0.6 | 20 | |

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

# Inorganic Extended Qualifier Report

**Hydro Geo Chem, Inc.**

ACZ Project ID: ***L75822***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L75822-01** | WG264102 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| **L75822-02** | WG264102 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |

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.**
8720002.2

ACZ Project ID: L75822
Date Received: 5/15/2009
Received By:
Date Printed: 5/15/2009

## 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) Is the trip blank for Cyanide present? | | | X |
| 12) Is the trip blank for VOA present? | | | X |
| 13) Are samples requiring no headspace, headspace free? | | | X |
| 14) 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) |
|---|---|---|
| 1575 | 1.2 | 13 |
| | | |
| | | |
| | | |

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.**
8720002.2

ACZ Project ID: L75822
Date Received: 5/15/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75822-01 | TM-06 MILLER | | | | | | | | | X | | |
| L75822-02 | TM-03 | | | | | | | | | X | | |
| L75822-03 | TM-16 | | | | | | | | | X | | |
| L75822-04 | TM-15 MILLER | | | | | | | | | X | | |
| L75822-05 | GGOOSE547 | | | | | | | | | X | | |

## 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. L75822

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

## CHAIN of CUSTODY

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:

Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc

E-mail: jimn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:

Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

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 [X] 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 #: 504-IC
Project/PO #: 8720002.2
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC |
|---|---|---|---|---|
| TM-06 MILLER | 5-13-09:1248 | GW | 1 | X |
| TM-03 | 5-13-09:1406 | GW | 1 | X |
| TM-16 | 5-13-09:1522 | GW | 1 | X |
| TM-15 MILLER | 5-13-09:1816 | GW | 1 | X |
| GGOOSE 547 | 5-14-09:1358 | GW | 1 | X |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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

**REMARKS/ SAMPLE DISCLOSURES**

PAGE 1 of 1

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 5-14-09:1445 | | 5.15.09 10:46 |
| | | | |
| | | | |

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

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

# Analytical Report

June 04, 2009

Report to:
Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tuscon, AZ 85705

Bill to:
Accounts Payable
Hydro Geo Chem, Inc.
P. O. Box 97220
Phoenix, AZ 85060

cc: Jim Norris

Project ID: 872002.2
ACZ Project ID: L76091

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on May 29, 2009. This project has been assigned to ACZ's project number, L76091. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L76091. 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 July 04, 2009. 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

Scott Habermehl has reviewed
and approved this report.

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 872002.2
Sample ID: NWC-04

ACZ Sample ID: ***L76091-01***
Date Sampled: *05/28/09 09:43*
Date Received: *05/29/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 210 | | | mg/L | 5 | 30 | 06/03/09 11:46 | aml |

**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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. |

## 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 & 20th edition (1998). |


## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 872002.2

ACZ Project ID: ***L76091***

**Sulfate** 300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG263175** | | | | | | | | | | | | | |
| WG263175ICV | ICV | 05/20/09 18:33 | WI090504-1 | 50 | | 50.17 | mg/L | 100.3 | 90 | 110 | | | |
| WG263175ICB | ICB | 05/20/09 18:54 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG263175ICV1 | ICV | 05/21/09 13:39 | WI090504-1 | 50 | | 50.36 | mg/L | 100.7 | 90 | 110 | | | |
| WG263175ICB1 | ICB | 05/21/09 14:00 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG264612** | | | | | | | | | | | | | |
| WG264612ICV | ICV | 06/03/09 10:43 | WI090504-1 | 50 | | 50.88 | mg/L | 101.8 | 90 | 110 | | | |
| WG264612ICB | ICB | 06/03/09 11:04 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG264612LFB | LFB | 06/03/09 11:25 | WI090508-3 | 30 | | 28.71 | mg/L | 95.7 | 90 | 110 | | | |
| L76091-01AS | AS | 06/03/09 12:07 | WI090508-3 | 300 | 210 | 495.6 | mg/L | 95.2 | 90 | 110 | | | |
| L76091-01DUP | DUP | 06/03/09 12:28 | | | 210 | 220.6 | mg/L | | | | 4.9 | 20 | |

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

# Inorganic Extended Qualifier Report

**Hydro Geo Chem, Inc.**

ACZ Project ID: ***L76091***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|

No extended qualifiers associated with this analysis

# Certification Qualifiers

**Hydro Geo Chem, Inc.** ACZ Project ID: ***L76091***

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.**
872002.2

ACZ Project ID: L76091
Date Received: 5/29/2009
Received By:
Date Printed: 5/29/2009

## 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) Is the trip blank for Cyanide present? | | | X |
| 12) Is the trip blank for VOA present? | | | X |
| 13) Are samples requiring no headspace, headspace free? | | | X |
| 14) 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) |
|---|---|---|
| 1476 | 2.1 | 12 |
| | | |
| | | |
| | | |

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.**
872002.2

ACZ Project ID: L76091
Date Received: 5/29/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76091-01 | NWC-04 | | | | | | | | | X | | |

## 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. L76091

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

## CHAIN of CUSTODY

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:
Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc
E-mail: jimn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:
Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500

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 [X] 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 #: 504-IC
Project/PO #: 872002.2
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NWC-04 | 5-28-09:0945 | [redacted] | 1 | X | | | | | | | |
| | | | | | | | | | | | |
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| | | | | | | | | | | | |

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

**REMARKS/ SAMPLE DISCLOSURES**

1 week turn around please

PAGE 1 of 1

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 5-28-09:1140 | [signature] | 5-29-09 10:18 |
| | | | |
| | | | |

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

# Analytical Report

June 09, 2009

Report to:
Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tuscon, AZ 85705

Bill to:
Accounts Payable
Hydro Geo Chem, Inc.
P. O. Box 97220
Phoenix, AZ 85060

cc: Jim Norris

Project ID: 8720002.2
ACZ Project ID: L76197

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on June 04, 2009. This project has been assigned to ACZ's project number, L76197. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L76197. 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 July 09, 2009. 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

Scott Habermehl has reviewed
and approved this report.

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2
Sample ID: AWC-05

ACZ Sample ID: ***L76197-01***
Date Sampled: *06/03/09 10:42*
Date Received: *06/04/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 12.1 | | * | mg/L | 0.5 | 3 | 06/06/09 3:28 | aml |

**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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. |

## 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 & 20th edition (1998). |


## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 8720002.2

ACZ Project ID: ***L76197***

**Sulfate** 300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG263175** | | | | | | | | | | | | | |
| WG263175ICV | ICV | 05/20/09 18:33 | WI090504-1 | 50 | | 50.17 | mg/L | 100.3 | 90 | 110 | | | |
| WG263175ICB | ICB | 05/20/09 18:54 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG263175ICV1 | ICV | 05/21/09 13:39 | WI090504-1 | 50 | | 50.36 | mg/L | 100.7 | 90 | 110 | | | |
| WG263175ICB1 | ICB | 05/21/09 14:00 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG264801** | | | | | | | | | | | | | |
| WG264801ICV | ICV | 06/05/09 16:54 | WI090504-1 | 50 | | 50.09 | mg/L | 100.2 | 90 | 110 | | | |
| WG264801ICB | ICB | 06/05/09 17:15 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| L76075-11DUP | DUP | 06/05/09 23:14 | | | U | U | mg/L | | | | 0 | 20 | RA |
| L76102-01AS | AS | 06/05/09 23:56 | WI090508-3 | 30 | 4.5 | 36.2 | mg/L | 105.7 | 90 | 110 | | | |
| WG264801ICV1 | ICV | 06/08/09 14:16 | WI090504-1 | 50 | | 50.45 | mg/L | 100.9 | 90 | 110 | | | |
| WG264801ICB1 | ICB | 06/08/09 14:37 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG264801LFB | LFB | 06/08/09 14:59 | WI090508-3 | 30 | | 27.56 | mg/L | 91.9 | 90 | 110 | | | |

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

# Inorganic Extended Qualifier Report

**Hydro Geo Chem, Inc.**

ACZ Project ID: ***L76197***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L76197-01** | WG264801 | Sulfate | 300.0 - Ion Chromatography | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |

# Certification Qualifiers

**Hydro Geo Chem, Inc.** ACZ Project ID: ***L76197***

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.**
8720002.2

ACZ Project ID: L76197
Date Received: 6/4/2009
Received By:
Date Printed: 6/4/2009

## 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) Is the trip blank for Cyanide present? | | | X |
| 12) Is the trip blank for VOA present? | | | X |
| 13) Are samples requiring no headspace, headspace free? | | | X |
| 14) 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) |
|---|---|---|
| 1776 | 0.6 | 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.**
8720002.2

ACZ Project ID: L76197
Date Received: 6/4/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76197-01 | AWC-05 | | | | | | | | | X | | |

## 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. L76197

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

## CHAIN of CUSTODY

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:
Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc
E-mail: jimn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:
Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520-293-1500 x-133

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 [X] 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 #: 504-IC
Project/PO #: 8720002.2
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AWC-05 | 6-3-09:1042 | GW | 1 | X | | | | | | | |
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Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other

**REMARKS/ SAMPLE DISCLOSURES**

1 week turn around please.

PAGE 1 of 1

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 6-3-09:1145 | [signature] | 6-4-09 10:54 |
| | | | |
| | | | |

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

# Analytical Report

June 30, 2009

Report to:
Dan Simpson
Hydro Geo Chem, Inc.
51 West Wetmore Road Suite 101
Tuscon, AZ 85705

Bill to:
Accounts Payable
Hydro Geo Chem, Inc.
P. O. Box 97220
Phoenix, AZ 85060

cc: Jim Norris

Project ID: 87200002.2
ACZ Project ID: L76609

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on June 25, 2009. This project has been assigned to ACZ's project number, L76609. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L76609. 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 July 30, 2009. 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

Scott Habermehl has reviewed
and approved this report.

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

**Inorganic Analytical Results**

**Hydro Geo Chem, Inc.**
Project ID: 87200002.2
Sample ID: NWC-04

ACZ Sample ID: ***L76609-01***
Date Sampled: *06/24/09 13:07*
Date Received: *06/25/09*
Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 300.0 - Ion Chromatography | 169 | | | mg/L | 3 | 10 | 06/26/09 12:03 | aml |

**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 Calibration 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. The associated value is an estimated quantity. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. |

## 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 & 20th edition (1998). |


## 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. |

For a complete list of ACZ's Extended Qualifiers, please click: http://www.acz.com/public/extquallist.pdf

**Hydro Geo Chem, Inc.**
Project ID: 87200002.2

ACZ Project ID: ***L76609***

**Sulfate** 300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG265762** | | | | | | | | | | | | | |
| WG265762ICV | ICV | 06/23/09 14:53 | WI090615-9 | 50 | | 50.25 | mg/L | 100.5 | 90 | 110 | | | |
| WG265762ICB | ICB | 06/23/09 15:14 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG265762ICV1 | ICV | 06/23/09 17:05 | WI090615-9 | 50 | | 50.4 | mg/L | 100.8 | 90 | 110 | | | |
| WG265762ICB1 | ICB | 06/23/09 17:26 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG265762ICV2 | ICV | 06/24/09 15:43 | WI090615-9 | 50 | | 49.5 | mg/L | 99 | 90 | 110 | | | |
| WG265762ICB2 | ICB | 06/24/09 16:04 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| **WG265920** | | | | | | | | | | | | | |
| WG265920ICV1 | ICV | 06/26/09 9:56 | WI090615-9 | 50 | | 46.35 | mg/L | 92.7 | 90 | 110 | | | |
| WG265920ICB1 | ICB | 06/26/09 10:17 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG265920LFB | LFB | 06/26/09 10:38 | WI090508-3 | 30 | | 27.57 | mg/L | 91.9 | 90 | 110 | | | |
| L76453-03AS | AS | 06/26/09 11:21 | WI090508-3 | 150 | 121 | 257.8 | mg/L | 91.2 | 90 | 110 | | | |
| L76453-03DUP | DUP | 06/26/09 11:42 | | | 121 | 120.7 | mg/L | | | | 0.2 | 20 | |

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

# Inorganic Extended Qualifier Report

**Hydro Geo Chem, Inc.**

ACZ Project ID: ***L76609***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|

No extended qualifiers associated with this analysis

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.**
87200002.2

ACZ Project ID: L76609
Date Received: 6/25/2009
Received By:
Date Printed: 6/25/2009

## 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) Is the trip blank for Cyanide present? | | | X |
| 12) Is the trip blank for VOA present? | | | X |
| 13) Are samples requiring no headspace, headspace free? | | | X |
| 14) 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) |
|---|---|---|
| NA8716 | 2.4 | 12 |
| | | |
| | | |
| | | |

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

## Notes

Sample logged in for SO4-Grav instead of SO4-IC per Billy Grimes(Production Supervisor).

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

# Sample Receipt

**Hydro Geo Chem, Inc.**
87200002.2

ACZ Project ID: L76609
Date Received: 6/25/2009
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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76609-01 | NWC-04 | | | | | | | | | X | | |

## 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. L76609

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

## CHAIN of CUSTODY

**Report to:**

Name: Dan Simpson
Company: Hydro Geo Chem, Inc
E-mail:
Address: 51 W. Wetmore Rd Tucson, Az 85705
Telephone: 520-293-1500 x-133

**Copy of Report to:**

Name: Jim Norris
Company: HGC, Inc
E-mail: jimn@hgcinc.com
Telephone: 520-293-1500 x-112

**Invoice to:**

Name: Dan Simpson
Company: HGC, Inc
E-mail:
Address: 51 W. Wetmore Rd Tucson, Az 85705
Telephone: 520-293-1500 x-133

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 [X] 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 #: 504-IC
Project/PO #: 8720000 2.2
Reporting state for compliance testing: AZ
Sampler's Name: Travis Taylor
Are any samples NRC licensable material? NO

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

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | 504-IC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NWC-04 | 06/24/09:1307 | GW | 1 | X | | | | | | | |
| | | | | | | | | | | | |
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Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other

**REMARKS/ SAMPLE DISCLOSURES**

* 48 hour turnaround please.

PAGE 1 of 1

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---|---|---|
| Travis Taylor | 6-24-09:1351 | | 6-25-09 10:49 |
| | | | |

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

# APPENDIX C

# GROUNDWATER SAMPLING FORMS

# HYDRO GEO CHEM, INC.

## Groundwater Sampling Form

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-14-09 |
| Well ID: | ANDERSON | Weather: | Sunny, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 236' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 146.21 |
| Casing Volume (gals): | 132 |
| 3 Casing Volumes (gals): | 396 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1154 | | | | | | | |
| 1158 | 4 | 11 | 44 | 7.11 | 23.1 | 1201 | |
| 1207 | 13 | 11 | 143 | 7.09 | 21.5 | 1198 | |
| 1217 | 23 | 11 | 253 | 7.10 | 21.8 | 1218 | |
| 1223 | 29 | 11 | 319 | 7.08 | 21.8 | 1216 | |
| 1230 | 36 | 11 | 396 | 7.12 | 21.8 | 1229 | |

### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| ANDERSON | 1233 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments:

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-22-09 |
| Well ID: | AWC-2 | Weather: | Cloudy, warm |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 330' |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| 0929 | 240 | 80 | 19200 | 7.17 | 22.6 | 430 | |
| | | | | | | | |
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| | | | | | | | |

### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| AWC-2 | 0940 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: * pump was on for four hours prior to arrival.
Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

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|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-22-09 |
| Well ID: | AWC-3 | Weather: | cloudy, warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 269' |
| Casing Diameter (in): | " |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 0859 | 240 | 730 | 175200 | 7.30 | 21.4 | 452 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| AWC-3 | 0908 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments: * Pump has been on for four hours prior to arrival.
Sulfate Only

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

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|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-22-09 |
| Well ID: | AWC-4 | Weather: | cloudy, warm |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 250' |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 0955 | 60 | 790 | 47400 | 6.93 | 22.1 | 560 | |
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| AWC-4 | 0959 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments: * pump has been on for one hour prior to arrival.
Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

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|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 6-3-09 |
| Well ID: | AWC-05 | Weather: | sunny, hot |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 600' |
| Casing Diameter (in): | 16" |
| Static Water Level (ft bmp): | 125' |
| Casing Volume (gals): | 4962 |
| 3 Casing Volumes (gals): | 14886 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1012 | | | | | | | |
| 1027 | 15 | 500 | 7500 | 7.22 | 22.6 | 416 | |
| 1034 | ~~10~~ 22 | 500 | 11000 | 7.27 | 21.9 | 415 | |
| 1042 | 30 | 500 | 15000 | 7.33 | 22.0 | 418 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| AWC-05 | 1042 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-8-09 |
| Well ID: | BANKS 986 | Weather: | cloudy, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 435' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1053 | | | | | | | |
| 1102 | 9 | 7 | 63 | 7.50 | 22.8 | 976 | |
| 1112 | 19 | 7 | 133 | 7.58 | 22.1 | 957 | |
| 1118 | 25 | 7 | 175 | 7.58 | 22.4 | 940 | |
| 1124 | 31 | 7 | 217 | 7.59 | 22.3 | 933 | |
| 1131 | 38 | 7 | 266 | 7.56 | 22.7 | 933 | |

## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BANKS 986 | 1136 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments: * unable to get water level b/c of obstruction in well.

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-8-09 |
| Well ID: | BANKS 987 | Weather: | Windy, cloudy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 339' |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | 205.50' |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| | | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| | | | | | | | |
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Additional Comments: *WL only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-10-09 |
| Well ID: | BARTON 919 | Weather: | Sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 130 |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | 112.89' |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| | | Plastic | 250 ml | 1 | EPA 300.0 | None | |
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Additional Comments: * WL only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

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|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 05/06/09 |
| Well ID: | BF-01 | Weather: | Sunny and Warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 400 |
| Casing Diameter (in): | 4-inch |
| Static Water Level (ft bmp): | 348.73 |
| Casing Volume (gals): | 33 |
| 3 Casing Volumes (gals): | 100 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1056 | | | | | | | |
| 1059 | 3 | 8 | 24 | 5.96 | 24.3 | 2600 | |
| 1104 | 8 | 8 | 64 | - | - | - | Dry |
| 1114 | - | - | - | 5.98 | 23.9 | 2632 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BF-01 | 1116 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

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|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-7-09 |
| Well ID: | BIMA | Weather: | Sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | ~~460'~~ 465' |
| Casing Diameter (in): | 4" |
| Static Water Level (ft bmp): | 357.76 |
| Casing Volume (gals): | 67 |
| 3 Casing Volumes (gals): | 201 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1112 | | | | | | | |
| 1122 | 10 | 11 | 110 | 6.45 | 23.7 | 1335 | |
| 1127 | 15 | 11 | 165 | 6.45 | 24.0 | 1436 | |
| 1135 | 27 | 11 | 297 | 6.45 | 23.4 | 1436 | |

## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BIMA | 1138 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments:

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-28-09 |
| Well ID: | BMO-2008-1G | Weather: | Cloudy, cool & Windy |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | ~~320~~ 310' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | 62.01' |
| Casing Volume (gals): | 264 |
| 3 Casing Volumes (gals): | 792 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1050 | | | | | | | |
| 1101 | 11 | 9 | 99 | 6.98 | 22.1 | 866 | |
| 1122 | 32 | 9 | 288 | 7.17 | 22.1 | 808 | |
| 1142 | 52 | 9 | 468 | 7.06 | 21.8 | 781 | |
| 1203 | 73 | 9 | 657 | 7.06 | 22.0 | 773 | |
| 1218 | 88 | 9 | 792 | 7.04 | 22.2 | 762 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BMO-2008-1G | 1222 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

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|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-11-09 |
| Well ID: | BMO-2008-3B | Weather: | Sunny, hot |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | ~~265~~ 260' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | 138.46' |
| Casing Volume (gals): | 130 |
| 3 Casing Volumes (gals): | 390 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1305 | | | | | | | |
| 1310 | 5 | 28 | 140 | 6.93 | 23.3 | 636 | |
| 1315 | 10 | 28 | 280 | 7.10 | 22.2 | 630 | |
| 1321 | 16 | 28 | 448 | 7.23 | 22.1 | 631 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BMO-2008-3B | 1324 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-30-09 |
| Well ID: | BMO-2008-4B | Weather: | Sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 610' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | 131.24' |
| Casing Volume (gals): | 489 |
| 3 Casing Volumes (gals): | 1467 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 0918 | | | | | | | |
| 0936 | 18 | 15 | 270 | 7.36 | 22.9 | 373 | |
| 1000 | 42 | 15 | 630 | 7.32 | 23.8 | 370 | |
| 1020 | 62 | 15 | 930 | 7.35 | 24.1 | 370 | |
| 1040 | 82 | 15 | 1230 | 7.31 | 24.3 | 366 | |
| 1056 | 98 | 15 | 1470 | 7.33 | 24.5 | 376 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BMO-2008-4B | 1059 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| DUP043009 | 1059 | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-27-09 |
| Well ID: | BMO-2008-5B | Weather: | Sunny, warm |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 295' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | 144.78' |
| Casing Volume (gals): | 154 |
| 3 Casing Volumes (gals): | 462 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1132 | | | | | | | |
| 1140 | 8 | 30 | 240 | 7.23 | 23.2 | 617 | |
| 1146 | 14 | 30 | 420 | 7.32 | 22.1 | 605 | |
| | | | | | | | |
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BMO-2008-5B | 1150 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-27-09 |
| Well ID: | BMO-2008-5M | Weather: | Sunny, Warm |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | ~~460~~ 450' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | 146.46' |
| Casing Volume (gals): | 320 |
| 3 Casing Volumes (gals): | 960 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1448 | | | | | | | |
| 1454 | 6 | 19 | 114 | 7.45 | 23.2 | 500 | |
| 1504 | 16 | 19 | 304 | 7.50 | 22.8 | 499 | |
| 1514 | 26 | 19 | 494 | 7.52 | 22.7 | 501 | |
| 1524 | 36 | 19 | 684 | 7.50 | 23.1 | 501 | |
| 1534 | 46 | 19 | 874 | 7.48 | 23.0 | 505 | |
| 1539 | 51 | 19 | 969 | 7.50 | 22.9 | 501 | |
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BMO-2008-5M | 1543 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-27-09 |
| Well ID: | BMO-2008-6B | Weather: | Cloudy, warm |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 265' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | 189.99' |
| Casing Volume (gals): | 77 |
| 3 Casing Volumes (gals): | 231 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1657 | | | | | | | |
| 1709 | 12 | 4 | 48 | 7.34 | 22.3 | 346 | |
| 1720 | 23 | 4 | 92 | 7.51 | 21.8 | 383 | |
| 1730 | 33 | 4 | 132 | 7.51 | 21.8 | 386 | |
| 1741 | 44 | 4 | 176 | 7.55 | 21.7 | 388 | |
| 1756 | 59 | 4 | 236 | 7.55 | 21.7 | 389 | |
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BMO-2008-6B | 1800 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-28-09 |
| Well ID: | BMO-2008-6M | Weather: | Cloudy, Warm |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 450' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | 190.98' |
| Casing Volume (gals): | 265 |
| 3 Casing Volumes (gals): | 795 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 0845 | | | | | | | |
| 0855 | 10 | ~~15~~ 15 | 150 | 7.12 | 22.6 | 603 | |
| 0906 | 21 | 15 | 315 | 7.31 | 22.3 | 599 | |
| 0917 | 32 | 15 | 480 | 7.34 | 22.5 | 597 | |
| 0928 | 43 | 15 | 645 | 7.34 | 22.5 | 594 | |
| 0938 | 53 | 15 | 795 | 7.34 | 22.4 | 595 | |
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BMO-2008-6M | 0942 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-11-09 |
| Well ID: | BMO-2008-7M | Weather: | Sunny, warm |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 670' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | 239.03' |
| Casing Volume (gals): | 440 |
| 3 Casing Volumes (gals): | 1320 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1106 | | | | | | | |
| 1115 | 9 | 20 | 180 | 7.57 | 23.1 | 399 | |
| 1130 | 24 | 20 | 480 | 7.42 | 23.8 | 415 | |
| 1150 | 44 | 20 | 880 | 7.40 | 24.0 | 420 | |
| 1212 | 66 | 20 | 1320 | 7.43 | 24.4 | 426 | |
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BMO-2008-7M | 1216 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 05/05/09 |
| Well ID: | BMO-2008-8B | Weather: | Cloudy and Warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 480 |
| Casing Diameter (in): | 5-inch |
| Static Water Level (ft bmp): | 297.37 |
| Casing Volume (gals): | 187 |
| 3 Casing Volumes (gals): | 561 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1710 | | | | | | | |
| 1721 | 11 | 10 | 110 | 6.06 | 22.4 | 2851 | |
| 1734 | 24 | 10 | 240 | 6.16 | 21.4 | 2876 | |
| 1749 | 39 | 10 | 390 | 6.17 | 21.3 | 2878 | |
| 1801 | 51 | 10 | 510 | 6.19 | 21.3 | 2886 | |
| 1807 | 57 | 10 | 570 | 6.18 | 21.3 | 2888 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BMO-2008-8B | 1810 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-5-09 |
| Well ID: | BMO-2008-08M | Weather: | Cloudy, warm |
| ADWR No: | | Sampler: | Travis Tayler |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 1210' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | 298.27' |
| Casing Volume (gals): | 930 |
| 3 Casing Volumes (gals): | 2790 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1138 | | | | | | | |
| 1150 | 12 | 13 | 156 | 7.33 | 24.6 | 627 | |
| 1210 | 32 | 13 | 416 | 7.27 | 23.2 | 651 | |
| 1230 | 52 | 13 | 676 | 7.27 | 24.0 | 639 | |
| 1300 | 82 | 13 | 1066 | 7.15 | 24.1 | 678 | |
| 1330 | 102 | 13 | 1326 | 7.17 | 25.1 | 675 | |
| 1405 | 137 | 13 | 1781 | 7.14 | 25.3 | 683 | |
| 1437 | 169 | 13 | 2197 | 7.21 | 25.4 | 682 | |
| 1523 | 215 | 13 | 2795 | 7.19 | 25.1 | 680 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BMO-2008-08M | 1524 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-12-09 |
| Well ID: | BMO-2008-9M | Weather: | sunny, hot |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | ~~785'~~ 775' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | 285.28' |
| Casing Volume (gals): | 510 |
| 3 Casing Volumes (gals): | 1530 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1623 | | | | | | | |
| 1630 | 7 | 20 | 140 | 8.43 | 23.8 | 391 | |
| 1653 | 30 | 20 | 600 | 7.86 | 24.7 | 448 | |
| 1708 | 45 | 20 | 900 | 7.80 | 24.8 | 445 | |
| 1723 | 60 | 20 | 1200 | 7.76 | 24.8 | 448 | |
| 1740 | 77 | 20 | 1540 | 7.76 | 24.8 | 449 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BMO-2008-9M | 1743 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 05/06/09 |
| Well ID: | BMO-2008-10GU | Weather: | Sunny and Warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | ~~700~~ ~~450~~ 449' |
| Casing Diameter (in): | 5-inch |
| Static Water Level (ft bmp): | 289.35 |
| Casing Volume (gals): | 419 |
| 3 Casing Volumes (gals): | 1257 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1237 | | | | | | | |
| 1244 | 7 | 7 | 49 | 5.82 | 23.7 | 3314 | |
| 1314 | 37 | 7 | 259 | 5.97 | 22.3 | 2510 | |
| 1415 | 98 | 7 | 686 | 5.9 | 23.4 | 3412 | |
| 1515 | 158 | 7 | 1106 | 5.96 | 23.4 | 3353 | |
| 1537 | 180 | 7 | 1260 | 5.99 | 23.2 | 3359 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BMO-2008-10GU | 1539 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-12-09 |
| Well ID: | BMO-2008-10GL | Weather: | Sunny, warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 810' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | 514.68' |
| Casing Volume (gals): | 302 |
| 3 Casing Volumes (gals): | 906 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1159 | | | | | | | |
| 1212 | 13 | 5 | 65 | 6.40 | 25.9 | 3019 | |
| 1242 | 43 | 5 | 215 | 6.40 | 26.4 | 2964 | |
| 1314 | 75 | 5 | 375 | 6.41 | 26.5 | 2572 | |
| 1344 | 105 | 5 | 525 | 6.38 | 26.6 | 2585 | |
| 1417 | 138 | 5 | 690 | 6.36 | 26.7 | 2586 | |
| 1502 | 183 | 5 | 915 | 6.35 | 26.2 | 2402 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BMO-2008-10GL | 1505 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-28-09 |
| Well ID: | BMO-2006-11G | Weather: | cloudy, warm, windy |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | ~~820'~~ 760' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | 575.46' |
| Casing Volume (gals): | 250 |
| 3 Casing Volumes (gals): | 750 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1356 | | | | | | | |
| 1406 | 10 | 8 | 80 | 7.93 | 25.0 | 274 | |
| 1431 | 35 | 8 | 280 | 8.15 | 25.4 | 271 | |
| 1452 | 56 | 8 | 448 | 8.14 | 25.5 | 271 | |
| 1513 | 77 | 8 | 616 | 8.14 | 25.5 | 273 | |
| 1530 | 94 | 8 | 752 | 8.14 | 25.5 | 273 | |
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BMO-2006-11G | 1534 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 05/06/09 |
| Well ID: | BMO-2008-13B | Weather: | Sunny and Warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 474 |
| Casing Diameter (in): | 5-inch |
| Static Water Level (ft bmp): | 206.32 |
| Casing Volume (gals): | 274 |
| 3 Casing Volumes (gals): | 822 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1700 | | | | | | | |
| 1715 | 15 | 16 | 240 | 6.28 | 23.8 | 1834 | |
| 1731 | 31 | 16 | 496 | 6.55 | 22.0 | 1880 | |
| 1746 | 46 | 16 | 736 | 6.55 | 22.4 | 1886 | |
| 1752 | 52 | 16 | 832 | 6.55 | 22.0 | 1891 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BMO-2008-13B | 1756 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-29-09 |
| Well ID: | BMO-2008-13M | Weather: | Sunny, warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 1030' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | 208.53' |
| Casing Volume (gals): | 838 |
| 3 Casing Volumes (gals): | 2514 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 0845 | | | | | | | |
| 0919 | 34 | 6 | 204 | 8.62 | 21.9 | 1133 | |
| 1021 | 96 | 6 | 576 | 9.27 | 23.5 | 1066 | |
| 1123 | 158 | 6 | 948 | 9.32 | 24.4 | 1053 | |
| 1223 | 218 | 6 | 1308 | 8.31 | 24.7 | 1103 | |
| 1324 | 279 | 6 | 1674 | 8.07 | 25.0 | 1143 | |
| 1424 | 339 | 6 | 2034 | 8.01 | 25.0 | 1115 | |
| 1526 | 401 | 6 | 2406 | 8.02 | 25.1 | 1125 | |
| 1544 | 419 | 6 | 2514 | 8.04 | 24.8 | 1126 | |
| | | | | | | | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BMO-2008-13M | 1547 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-28-09 |
| Well ID: | BURKE | Weather: | Cloudy, windy, warm |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | ~~780'~~ 781' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 603.70' |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1644 | — | — | — | 7.16 | 26.1 | 369 | |

### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| BURKE | 1644 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |

Additional Comments: * well has been on 6 hours prior to arrival.
Sulfate Only

# HYDRO GEO CHEM. INC.

## Groundwater Sampling Form

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-14-09 |
| Well ID: | CHAMBERS | Weather: | Cloudy, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 245' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1516 | | | | | | | |
| 1521 | 5 | 13 | 65 | 7.39 | 22.4 | 381 | |
| 1526 | 11 | 13 | 143 | 7.42 | 22.4 | 382 | |
| 1533 | 17 | 13 | 221 | 7.44 | 22.4 | 385 | |
| 1538 | 22 | 13 | 286 | 7.42 | 22.4 | 384 | |

### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| CHAMBERS | 1542 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments: * unable to remove sounding tube cap b/c of well design.
* will take sample after parameters are stable.

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-21-09 |
| Well ID: | COB MW-1 | Weather: | Sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 420' |
| Casing Diameter (in): | 8" |
| Static Water Level (ft bmp): | 234.99' |
| Casing Volume (gals): | 483 |
| 3 Casing Volumes (gals): | 1449 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 0904 | | | | | | | |
| 0923 | 19 | 13 | 247 | 7.14 | 21.6 | 1270 | |
| 0947 | 43 | 13 | 559 | 7.13 | 22.4 | 1308 | |
| 1004 | 60 | 13 | 780 | 7.17 | 22.5 | 1317 | |
| 1024 | 80 | 13 | 1040 | 7.09 | 22.8 | 1342 | |
| 1044 | 100 | 13 | 1300 | 7.11 | 22.9 | 1340 | |
| 1056 | 112 | 13 | 1456 | 7.15 | 22.7 | 1366 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| COB MW-1 | 1101 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-23-09 |
| Well ID: | COB MW-2 | Weather: | Sunny, warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | ~~162~~ 170' |
| Casing Diameter (in): | 4" |
| Static Water Level (ft bmp): | 124.16' |
| Casing Volume (gals): | 25 |
| 3 Casing Volumes (gals): | 75 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1308 | | | | | | | |
| 1310 | 2 | 8 | 16 | 7.20 | 22.7 | 432 | |
| 1316 | 8 | 8 | 64 | 7.26 | 21.4 | 427 | |
| 1318 | 10 | 8 | 80 | 7.33 | 21.8 | 431 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| COB MW-2 | 1318 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-23-09 |
| Well ID: | COB MW-3 | Weather: | Sunny, Warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | ~~300'~~ 269' |
| Casing Diameter (in): | 4" |
| Static Water Level (ft bmp): | 125.13' |
| Casing Volume (gals): | 114 |
| 3 Casing Volumes (gals): | 342 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1159 | | | | | | | |
| 1203 | 4 | 25 | 100 | 7.24 | 22.5 | 385 | |
| 1209 | 10 | 25 | 250 | 7.33 | 21.5 | 3.95 | |
| 1212 | 13 | 0 | — | — | — | — | ~~Water~~ → Flowrate dropped to 0. |
| | | | | | | | |
| 1228 | — | — | — | 7.35 | 22.6 | 407 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| COB MW-3 | 1228 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: * collected sample after recovery.

Sulfate Only

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-23-09 |
| Well ID: | COB WL | Weather: | Sunny, warm |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 150' |
| Casing Diameter (in): | 4" |
| Static Water Level (ft bmp): | 59.73' (mp = Sounding port) |
| Casing Volume (gals): | 59 |
| 3 Casing Volumes (gals): | 177 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1402 | | | | | | | |
| 1405 | 3 | 8 | 24 | 6.83 | 23.1 | 895 | |
| 1412 | 10 | 8 | 80 | 6.93 | 21.6 | 917 | |
| 1416 | 14 | 8 | 112 | 6.48 | 21.5 | 921 | |
| 1425 | 23 | 8 | 184 | 7.29 | 22.2 | 923 | |
| | | | | | | | |
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| COB WL | 1425 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: Sulfate Only

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-21-09 |
| Well ID: | COLLINS | Weather: | Sunny, warm |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 320' |
| Casing Diameter (in): | 4.5" |
| Static Water Level (ft bmp): | 290.66' |
| Casing Volume (gals): | 25 |
| 3 Casing Volumes (gals): | 75 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1451 | | | | | | | |
| 1456 | 5 | 11 | 55 | 6.88 | 23.2 | 1148 | |
| 1459 | 8 | 11 | 88 | 6.92 | 22.5 | 1150 | |
| | | | | | | | |
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| COLLINS | 1503 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-21-09 |
| Well ID: | COOPER | Weather: | Sunny, warm |
| ADWR No: | 623564 | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 325' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1559 | | | | | | | |
| 1606 | 7 | 5 | 35 | 8.10 | 25.8 | 346 | |
| 1612 | 13 | 5 | 65 | 8.16 | 24.9 | 347 | |
| 1617 | 18 | 5 | 90 | 8.20 | 24.9 | 347 | |
| 1621 | 22 | 5 | 110 | 8.19 | 24.9 | 346 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| COOPER | 1624 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: * No access for WL reading.

Sulfate Only

*Well is used by buisness and two homes. Pump is constantly on/off.

(renter) Angela McBride 520-678-9333

# HYDRO GEO CHEM. INC.

## Groundwater Sampling Form

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-14-09 |
| Well ID: | COOPER C | Weather: | Sunny, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 220' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 155.86' |
| Casing Volume (gals): | 95 |
| 3 Casing Volumes (gals): | 285 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1420 | | | | | | | |
| 1426 | 6 | 11 | 66 | 6.82 | 22.1 | 1827 | |
| 1434 | 14 | 11 | 154 | 6.84 | 21.6 | 1833 | |
| 1440 | 20 | 11 | 220 | 6.84 | 21.6 | 1831 | |
| 1447 | 27 | 11 | 297 | 6.85 | 21.6 | 1833 | |

### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| COOPER C | 1450 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments:

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-9-09 |
| Well ID: | DODSON | Weather: | Windy, Sunny, Cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 200' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 82.84 |
| Casing Volume (gals): | 173 |
| 3 Casing Volumes (gals): | 519 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1439 | | | | | | ~~10~~ | |
| 1445 | 6 | 11 | 66 | 7.16 | 22.6 | 1022 | |
| 1456 | 17 | 11 | 187 | 7.13 | 21.3 | 1080 | |
| 1508 | 29 | 11 | 319 | 7.10 | 21.5 | 1100 | |
| 1517 | 38 | 11 | 418 | 7.11 | 21.4 | 1103 | |
| 1527 | 48 | 11 | 528 | 7.09 | 21.4 | 1103 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| DODSON | 1530 | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments:

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-8-09 |
| Well ID: | DOUGLAS 791 | Weather: | Cloudy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 200' |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | 28.53' (mp = surface casing) |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| | | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: * WL only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-8-09 |
| Well ID: | DOUGLAS 792 | Weather: | Cloudy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 200' |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | 86.04' (mp = surface casing) |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| | | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: * WL only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-20-09 |
| Well ID: | DURAZO | Weather: | sunny, cool, windy |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1206 | | | | | | | |
| 1217 | 11 | 3 | 33 | 7.27 | 22.7 | 893 | |
| 1232 | 26 | 3 | 78 | 7.37 | 22.2 | 907 | |
| 1250 | 44 | 3 | 132 | 7.37 | 22.7 | 914 | |
| 1301 | 55 | 3 | 165 | 7.37 | 22.7 | 910 | |
| 1306 | 60 | 3 | 180 | 7.37 | 22.7 | 901 | |
| | | | | | | | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| DURAZO | 1311 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: *unable to get WL b/c sounding tube cap is rusted onto port.

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-8-09 |
| Well ID: | EAST | Weather: | Cloudy, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 125' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 51.91 |
| Casing Volume (gals): | 108 |
| 3 Casing Volumes (gals): | 324 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1530 | | | | | | | |
| 1535 | 5 | 12 | 60 | 7.25 | 21.7 | 529 | |
| 1543 | 13 | 12 | 156 | 7.27 | 20.7 | 550 | |
| 1551 | 21 | 12 | 252 | 7.29 | 20.8 | 558 | |
| 1558 | 28 | 12 | 336 | 7.32 | 20.6 | 555 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| EAST | 1602 | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| | | | | | | | |
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| | | | | | | | |

Additional Comments:

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-8-09 |
| Well ID: | EPPELE 641 | Weather: | Cloudy, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 265' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 29.08 |
| Casing Volume (gals): | 347 |
| 3 Casing Volumes (gals): | 1041 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1310 | | | | | | | |
| 1324 | 14 | 12 | 168 | 7.39 | 22.1 | 573 | |
| 1340 | 30 | 12 | 360 | 7.35 | 21.3 | 572 | |
| 1356 | 46 | 12 | 552 | 7.33 | 21.5 | 556 | |
| 1417 | 67 | 12 | 804 | 7.41 | 22.4 | 564 | |
| 1432 | 72 | 12 | 864 | 7.56 | 22.4 | 538 | |
| 1435 | 75 | <12 | — | — | — | — | Drop in gpm, will take sample. |

## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| EPPELE 641 | 1441 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments: * took sample early b/c of significant drop in gpm.

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-8-09 |
| Well ID: | FLEMING | Weather: | Cloudy, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 400' |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | 301.81' (mp = surface casing) |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| | | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: * WL only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-14-09 |
| Well ID: | FRANCO | Weather: | sunny, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 200' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1102 | | | | | | | |
| 1108 | 6 | 9 | 54 | 7.17 | 23.4 | 1405 | |
| 1113 | 11 | 9 | 99 | 7.23 | 23.0 | 1420 | |
| 1119 | 17 | 9 | 153 | 7.23 | 23.1 | 1417 | |
| 1122 | 20 | 9 | 180 | 7.24 | 23.1 | 1416 | |

## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| FRANCO | 1127 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments: * unable to get WL b/c of obstruction.
* well is constantly used for four houses. Will purge til parameters are stable.

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-9-09 |
| Well ID: | FULTZ | Weather: | Sunny, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bis): | 300' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 42.88 |
| Casing Volume (gals): | 349 |
| 3 Casing Volumes (gals): | 1047 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1612 | | | | | | | |
| 1618 | 6 | 8 | 48 | 6.74 | 22.7 | 1701 | |
| 1625 | 13 | 8 | 104 | 6.73 | 21.6 | 1704 | |
| 1630 | 18 | 8 | 144 | 6.76 | 21.6 | 1703 | |
| 1637 | 25 | 8 | 200 | 6.74 | 21.5 | 1703 | |
| 1642 | 30 | 8 | 240 | 6.78 | 21.5 | 1695 | |

## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| FULTZ | 1648 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments: * Water has been on for 30-40 min prior to arrival.
* used thin (small) 0.45 µm filter (Aqua Prep PN 4270 LOT 26172).
* took sample early b/c of prior pumping of well and parameters being stable.

# HYDRO GEO CHEM. INC.

## Groundwater Sampling Form

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-15-09 |
| Well ID: | GARNER 557 | Weather: | Windy, cool, Sunny |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 300' |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | 192.09' |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| | | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: * WL only

# HYDRO GEO CHEM. INC.

## Groundwater Sampling Form

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-15-09 |
| Well ID: | GARNER 635 | Weather: | windy, cool, Sunny |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 680' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | 195.54' |
| Casing Volume (gals): | 494 |
| 3 Casing Volumes (gals): | 1482 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1134 | | | | | | | |
| 1147 | 13 | 12 | 156 | 7.71 | 23.7 | 416 | |
| 1207 | 33 | 12 | 396 | 7.79 | 24.3 | 413 | |
| 1227 | 53 | 12 | 636 | 7.79 | 24.2 | 415 | |
| 1247 | 73 | 12 | 876 | 7.82 | 23.9 | 413 | |
| 1307 | 93 | 12 | 1116 | 7.84 | 23.7 | 412 | |
| 1327 | 113 | 12 | 1356 | 7.80 | 23.9 | 407 | |
| 1338 | 124 | 12 | 1488 | 7.83 | 24.1 | 412 | |

### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| GARNER 635 | 1342 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments:

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-14-09 |
| Well ID: | GGOOSE 547 | Weather: | Sunny, hot |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 800' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 236.17' |
| Casing Volume (gals): | 829 |
| 3 Casing Volumes (gals): | 2487 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1150 | | | | | | | |
| 1210 | 20 | 20 | 400 | 6.96 | 24.1 | 725 | |
| 1241 | 51 | 20 | 1020 | 7.06 | 23.9 | 735 | |
| 1311 | 81 | 20 | 1620 | 7.10 | 23.9 | 734 | |
| 1344 | 114 | 20 | 2280 | 7.15 | 24.1 | 733 | |
| 1355 | 125 | 20 | 2500 | 7.15 | 23.9 | 743 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| GGOOSE 547 | 1358 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-5-09 |
| Well ID: | GL-03 | Weather: | cloudy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | ~~825~~ 820' |
| Casing Diameter (in): | 4" |
| Static Water Level (ft bmp): | 657.23' |
| Casing Volume (gals): | 110 |
| 3 Casing Volumes (gals): | 330 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 0920 | | | | | | | |
| 0929 | 9 | 9 | 81 | 7.07 | 25.9 | 605 | |
| 0935 | 15 | 9 | 135 | 7.01 | 26.6 | 636 | |
| 0943 | 23 | 9 | 207 | 7.04 | 27.2 | 629 | |
| 0944 | 24 | 3 | 210 | — | — | — | drop in flowrate |
| 0950 | 30 | 3 | 228 | 7.01 | 27.1 | 615 | |
| 0958 | 38 | 3 | 252 | 6.87 | 26.9 | 677 | |
| 1012 | 52 | 3 | 294 | 6.90 | 28.0 | 677 | |
| 1028 | 68 | 3 | 342 | 6.91 | 28.1 | 682 | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| GL-03 | 1031 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments:

Sulfate Only

# HYDRO GEO CHEM. INC.

## Groundwater Sampling Form

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-15-09 |
| Well ID: | GOAR RANCH | Weather: | windy, sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 250' |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | 184.96' |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| | | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: *WL only

# HYDRO GEO CHEM, INC.

## Groundwater Sampling Form

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-15-09 |
| Well ID: | HOBAN | Weather: | windy, cool, sunny |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 316' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 164.16' |
| Casing Volume (gals): | 223 |
| 3 Casing Volumes (gals): | 669 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 0848 | | | | | | | |
| 0906 | 18 | 12 | 216 | 6.99 | 21.1 | 1447 | |
| 0921 | 33 | 12 | 396 | 7.02 | 21.8 | 1447 | |
| 0931 | 43 | 12 | 516 | 7.02 | 21.8 | 1443 | |
| 0941 | 53 | 12 | 636 | 7.06 | 21.8 | 1429 | |
| 0944 | 56 | 12 | 672 | 7.07 | 21.7 | 1423 | |

### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| HOBAN | 0947 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments:

# HYDRO GEO CHEM, INC.

## Groundwater Sampling Form

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-15-09 |
| Well ID: | HOWARD | Weather: | windy, sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | ~~220'~~ 200' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 151.15' |
| Casing Volume (gals): | 102 |
| 3 Casing Volumes (gals): | 306 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1016 | | | | | | | |
| 1022 | 6 | 11 | 66 | 7.02 | 21.4 | 1355 | |
| 1027 | 11 | 11 | 121 | 7.02 | 21.0 | 1358 | |
| 1037 | 21 | 11 | 231 | 7.03 | 21.4 | 1392 | |
| 1044 | 28 | 11 | 308 | ~~6.94~~ 7.02 | 21.5 | 1397 | |

### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| HOWARD | 1048 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments:

# HYDRO GEO CHEM, INC.

## Groundwater Sampling Form

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-16-09 |
| Well ID: | KEEFER | Weather: | Sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | ~~250'~~ 245' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 135.00' |
| Casing Volume (gals): | 169 |
| 3 Casing Volumes (gals): | 507 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 0852 | | | | | | | |
| 0906 | 14 | 12 | 168 | 7.26 | 18.9 | 455 | |
| 0915 | 23 | 12 | 276 | 7.30 | 20.2 | 458 | |
| 0926 | 34 | 12 | 408 | 7.31 | 19.9 | 448 | |
| 0936 | 44 | 12 | 528 | 7.29 | 20.0 | 452 | |

### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| KEEFER | 0940 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments:

# HYDRO GEO CHEM, INC.

## Groundwater Sampling Form

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 22 | Date: | 4-15-09 |
| Well ID: | MCCONNELL 265 | Weather: | sunny, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 216' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 157.22' |
| Casing Volume (gals): | 87 |
| 3 Casing Volumes (gals): | 261 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1614 | | | | | | | |
| 1619 | 5 | 12 | 60 | 6.90 | 21.6 | 1451 | |
| 1624 | 10 | 12 | 120 | 6.91 | 21.3 | 1467 | |
| 1630 | 16 | 12 | 192 | 6.93 | 21.2 | 1464 | |
| 1636 | 22 | 12 | 264 | 7.04 | 21.3 | 1472 | |

### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| MCCONNELL 265 | 1641 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments:

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-20-09 |
| Well ID: | METZLER | Weather: | sunny, windy, warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 351' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 287.47' |
| Casing Volume (gals): | 94 |
| 3 Casing Volumes (gals): | 282 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1347 | | | | | | | |
| 1352 | 5 | 6 | 30 | 7.17 | 24.1 | 821 | water brownish-cloudy |
| 1402 | 15 | 6 | 90 | 7.19 | 22.9 | 839 | water clear |
| 1412 | 25 | 6 | 150 | 7.23 | 22.8 | 836 | |
| 1422 | 35 | 6 | 210 | 7.23 | 22.7 | 847 | |
| 1434 | 47 | 6 | 282 | 7.22 | 23.2 | 845 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| METZLER | 1437 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

## Groundwater Sampling Form

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-16-09 |
| Well ID: | MOORE | Weather: | sunny, cool, windy |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 220' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1137 | | | | | | | |
| 1142 | 5 | 10 | 50 | 7.29 | 20.5 | 364 | |
| 1149 | 12 | 10 | 120 | 7.38 | 21.8 | 367 | |
| 1156 | 19 | 10 | 190 | 7.38 | 21.7 | 368 | |
| 1202 | 25 | 10 | 250 | 7.40 | 22.0 | 371 | |
| 1207 | 30 | 10 | 300 | 7.40 | 22.1 | 374 | |

### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| MOORE | 1210 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments: *unable to get WL. old well in tankhouse has been cemented when new pad was put down according to well owner. New well has been covered w/ dirt.

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-11-09 |
| Well ID: | NESS | Weather: | Sunny, hot |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 812' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | 544.64' |
| Casing Volume (gals): | 273 |
| 3 Casing Volumes (gals): | 819 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1655 | | | | | | | |
| 1704 | 9 | 16 | 144 | 7.35 | 28.2 | 485 | |
| 1715 | 20 | 16 | 320 | 7.39 | 28.6 | 480 | |
| 1728 | 33 | 16 | 528 | 7.45 | 28.6 | 477 | |
| 1740 | 45 | 16 | 720 | 7.50 | 28.6 | 476 | |
| 1750 | 55 | 16 | 880 | 7.52 | 28.8 | 472 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| NESS | 1756 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 3.2 | Date: | 4-7-09 |
| Well ID: | NOTEMAN | Weather: | Sunny, warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bis): | 400' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| ~~1239~~ | | | | | | | |
| 1244 | 5 | 12 | 60 | 6.48 | 24.2 | 1386 | |
| 1250 | 11 | 12 | 132 | 6.57 | 23.9 | 1373 | |
| 1259 | 19 | 12 | 228 | 6.57 | 23.7 | 1373 | |
| 1301 | 22 | 12 | 264 | 6.56 | 23.8 | 1375 | |
| | | | | | | | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| NOTEMAN | 1304 | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: *unable to get WL reading w/ sounder. Sounder kept getting hung up around 144' & 250'. Will try again @ a later date w/ a different sounder.

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-23-09 |
| Well ID: | NWC-02 | Weather: | Sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 312' |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1053 | — | — | — | 7.39 | 23.8 | 373 | |
| | | | | | | | |
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| NWC-02 | 1053 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Additional Comments:** Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-23-09 |
| Well ID: | NWC-03 | Weather: | Sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 312' |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 0955 | — | — | — | 6.98 | 21.9 | 1129 | |
| | | | | | | | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| NWC-03 | 0955 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| DUP042309 | 0955 | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-23-09 |
| Well ID: | NWC-03 CAP | Weather: | Sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 179' |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | 130.62' |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| | | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: *WL only

~~Sulfate Only~~

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# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 04-23-09 |
| Well ID: | NWC-04 | Weather: | Sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 795' |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| 1027 | — | — | — | 7.21 | 24.1 | 797 | |
| | | | | | | | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| NWC-04 | 1027 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-28-09 |
| Well ID: | NWC-04 | Weather: | Sunny, Warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 0943 | — | — | — | 7.01 | 24.1 | 933 | |

## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| NWC-04 | 0943 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |

Additional Comments: * Pump is constantly on & off.

Sulfate Only

MAY 2009 SO4 TREND SAMPLING

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-23-09 |
| Well ID: | NWC-06 | Weather: | Sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 410' |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1117 | — | — | — | 7.30 | 24.5 | 354 | |
| | | | | | | | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| NWC-06 | 1117 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-7-09 |
| Well ID: | OSBORN | Weather: | Sunny, warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bis): | 258' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 69.60' |
| Casing Volume (gals): | 277 |
| 3 Casing Volumes (gals): | 831 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1331 | | | | | | | |
| 1338 | 7 | 12 | 84 | 7.27 | 23.8 | 536 | |
| 1352 | 21 | 12 | 252 | 7.32 | 23.1 | 547 | |
| 1403 | 32 | 12 | 384 | 7.26 | 23.3 | 550 | |
| 1414 | 43 | 12 | 516 | 7.29 | 23.9 | 549 | |
| 1424 | 53 | 12 | 636 | 7.29 | 23.8 | 538 | |
| 1434 | 63 | 12 | 756 | 7.26 | 23.7 | 541 | |
| 1442 | 71 | 12 | 852 | 7.25 | 24.0 | 542 | |
| | | | | | | | |
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| | | | | | | | |

## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| OSBORN | 1446 | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments:

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-8-09 |
| Well ID: | PALMER | Weather: | cloudy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 220' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 0950 | — | — | — | 7.65 | 19.1 | 475 | |

## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| PALMER | 0950 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments: * Sample taken from tank.
* No access to well, No WL taken.

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-9-09 |
| Well ID: | PANAGAKOS | Weather: | Sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 200' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 156.15' |
| Casing Volume (gals): | 65 |
| 3 Casing Volumes (gals): | 195 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1320 | | | | | | | |
| 1325 | 5 | 7 | 35 | 6.77 | 22.3 | 1271 | |
| 1330 | 10 | 7 | 70 | 6.81 | 21.6 | 1127 | |
| 1337 | 17 | 7 | 119 | 6.81 | 21.7 | 1164 | |
| 1343 | 23 | 7 | 161 | 6.81 | 21.8 | 1192 | |
| 1348 | 28 | 7 | 196 | 6.81 | 21.7 | 1228 | |
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| PANAGAKOS | 1354 | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| DUP040909 | 1354 | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments:

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-20-09 |
| Well ID: | PARRA | Weather: | Warm, Sunny, Windy |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 355' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1459 | | | | | | | |
| 1504 | 5 | 9 | 45 | 7.08 | 23.3 | 968 | |
| 1516 | 17 | 9 | 153 | 7.14 | 22.5 | 974 | |
| 1526 | 27 | 9 | 243 | 7.09 | 22.7 | 982 | |
| 1531 | 32 | 9 | 288 | 7.12 | 22.5 | 974 | |
| 1536 | 37 | 9 | 333 | 7.10 | 22.8 | 986 | |
| 1540 | 41 | 9 | 369 | 7.10 | 22.6 | 971 | |
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| PARRA | 1545 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
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Additional Comments: *obstruction in well. No WL taken.

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-28-09 |
| Well ID: | PARRA | Weather: | Cloudy, warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | 280.88' |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| | | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: * WL only

Sulfate Only

# HYDRO GEO CHEM. INC.

## Groundwater Sampling Form

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 22 | Date: | 4-14-09 |
| Well ID: | ~~PIOK~~ PIONKE | Weather: | Sunny, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | ~~330'~~ 300' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 150.01' |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1312 | | | | | | | |
| 1322 | 10 | — | — | 7.51 | 21.6 | 1005 | |
| 1327 | 15 | — | — | 7.52 | 20.6 | 1038 | |
| 1331 | 19 | — | — | 7.54 | 20.6 | 1051 | |
| 1337 | 25 | — | — | 7.56 | 20.7 | 1053 | |

### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| PIONKE | 1339 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments: *unable to get a flowrate b/c proper fitting for discharge not available. Will purge well til parameters are stable.

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-21-09 |
| Well ID: | POOL | Weather: | Sunny, warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 313' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 204.87' |
| Casing Volume (gals): | 159 |
| 3 Casing Volumes (gals): | 477 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1156 | | | | | | | |
| 1204 | 8 | 16 | 128 | 7.75 | 23.1 | 465 | |
| 1212 | 16 | 16 | 256 | 7.75 | 22.1 | 472 | |
| 1219 | 23 | 16 | 368 | 7.77 | 22.4 | 471 | |
| 1227 | 31 | 16 | 496 | 7.73 | 22.6 | 470 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| POOL | 1232 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-16-09 |
| Well ID: | RAMIREZ | Weather: | Sunny, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 300' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 156.66' |
| Casing Volume (gals): | 208 |
| 3 Casing Volumes (gals): | 624 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1335 | | | | | | | |
| 1341 | 6 | 14 | 84 | 7.50 | 22.7 | 342 | |
| 1352 | 17 | 14 | 238 | 7.47 | 22.6 | 346 | |
| 1402 | 27 | 14 | 378 | 7.50 | 22.5 | 345 | |
| 1412 | 37 | 14 | 518 | 7.51 | 22.3 | 345 | |
| 1420 | 45 | 14 | 630 | 7.49 | 22.4 | 344 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| RAMIREZ | 1424 | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments:

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-8-09 |
| Well ID: | RAY | Weather: | Cloudy, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 100' |
| Casing Diameter (in): | ~~8~~ 6" |
| Static Water Level (ft bmp): | 44.66' |
| Casing Volume (gals): | 82 |
| 3 Casing Volumes (gals): | 246 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1204 | | | | | | | |
| 1212 | 8 | 8 | 64 | 6.85 | 22.6 | 1844 | |
| 1220 | 16 | 8 | 128 | 6.83 | 21.4 | ~~1844~~ 1846 | |
| 1226 | 22 | 8 | 176 | 6.85 | 21.0 | 1759 | |
| 1231 | 27 | 8 | 216 | 6.87 | 21.0 | 1718 | |
| 1235 | 31 | 8 | 248 | 6.85 | 21.4 | 1759 | |

### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| RAY | 1239 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments:

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-29-09 |
| Well ID: | ROGERS 803 | Weather: | Sunny, windy, warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 300' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 131.33' |
| Casing Volume (gals): | 246 |
| 3 Casing Volumes (gals): | 744 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1632 | | | | | | | |
| 1640 | 8 | 13 | 104 | 7.16 | 22.9 | 501 | |
| 1650 | 18 | 13 | 234 | 7.46 | 22.0 | 498 | |
| 1700 | 28 | 13 | 364 | 7.47 | 21.8 | 499 | |
| 1710 | 38 | 13 | 494 | 7.54 | 21.9 | 505 | |
| 1720 | 48 | 13 | 624 | 7.51 | 21.8 | 499 | |
| 1730 | 58 | 13 | 754 | 7.52 | 21.9 | 506 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| ROGERS 803 | 1733 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-16-09 |
| Well ID: | ROGERS E | Weather: | Sunny, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | ~~285'~~ 290' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 149.53' |
| Casing Volume (gals): | 199 |
| 3 Casing Volumes (gals): | 597 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1447 | | | | | | | |
| 1453 | 6 | 12 | 72 | 7.43 | 22.2 | 366 | |
| 1504 | 17 | 12 | 204 | 7.47 | 22.0 | 362 | |
| 1514 | 27 | 12 | 324 | 7.45 | 22.1 | 362 | |
| 1526 | 39 | 12 | 468 | 7.47 | 22.2 | 363 | |
| 1537 | 50 | 12 | 600 | 7.48 | 22.0 | 361 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| ROGERS E | 1541 | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments:

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-21-09 |
| Well ID: | RUIZ | Weather: | Sunny, Warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 312' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 294.66' |
| Casing Volume (gals): | 26 |
| 3 Casing Volumes (gals): | 78 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1337 | | | | | | | |
| 1348 | 11 | N/A | N/A | 7.12 | 23.5 | 753 | |
| 1355 | 18 | N/A | N/A | 7.18 | 22.2 | 757 | |
| 1359 | 22 | N/A | N/A | 7.18 | 22.1 | 766 | |
| 1405 | 28 | N/A | N/A | 7.18 | 22.3 | 759 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| | 1409 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: *unable to get exact gpm b/c well is also pumping into tank. Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-17-09 |
| Well ID: | SCHWARTZ | Weather: | windy, sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 305' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 123.53 |
| Casing Volume (gals): | 267 |
| 3 Casing Volumes (gals): | 801 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1058 | | | | | | | |
| 1106 | 8 | 9 | 72 | 7.29 | 21.6 | 521 | |
| 1128 | 30 | 9 | 270 | 7.45 | 21.9 | 519 | |
| 1146 | 48 | 9 | 432 | 7.46 | 21.8 | 520 | |
| 1206 | 68 | 9 | 612 | 7.46 | 22.3 | 523 | |
| 1227 | 89 | 9 | 801 | 7.46 | 22.2 | 520 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| SCHWARTZ | 1231 | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments:

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-8-09 |
| Well ID: | STEPHENS | Weather: | windy, cloudy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | 48.45' |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| | | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: * WL only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-10-09 |
| Well ID: | SUNBELT | Weather: | Windy, Sunny, Cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 380' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 349.64' |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| | | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: * WL only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-7-09 |
| Well ID: | SWAN | Weather: | Sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 98' |
| Casing Diameter (in): | 4" |
| Static Water Level (ft bmp): | 31.47' |
| Casing Volume (gals): | 44 |
| 3 Casing Volumes (gals): | 132 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1511 | | | | | | | |
| 1516 | 5 | 14 | 70 | 6.97 | 22.6 | 450 | |
| 1519 | 8 | 14 | 112 | 7.21 | 21.7 | 443 | |
| 1521 | 10 | 14 | 140 | 7.21 | 21.5 | 447 | |

## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| SWAN | 1523 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments:

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-6-09 |
| Well ID: | TM-02A | Weather: | Sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 925' |
| Casing Diameter (in): | 4" |
| Static Water Level (ft bmp): | 349.38' |
| Casing Volume (gals): | 375 |
| 3 Casing Volumes (gals): | 1125 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 0801 | | | | | | | |
| 0809 | 8 | 9 | 72 | 7.82 | 22.5 | 337 | |
| 0819 | 18 | 9 | 162 | 7.91 | 23.9 | 329 | |
| 0839 | 38 | 9 | 342 | 7.97 | 24.8 | 328 | |
| 0913 | 72 | 9 | 648 | 8.17 | 25.7 | 319 | |
| 0944 | 103 | 9 | 927 | 8.08 | 26.7 | 316 | |
| 1006 | 125 | 9 | 1125 | 8.06 | 26.7 | 320 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| TM-02A | 1010 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-13-09 |
| Well ID: | TM-03 | Weather: | Sunny, hot |
| ADWR No: | | Sampler: | |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 200' |
| Casing Diameter (in): | 4" |
| Static Water Level (ft bmp): | 113.86' (mp = top of discharge pipe) |
| Casing Volume (gals): | 56 |
| 3 Casing Volumes (gals): | 168 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1350 | | | | | | | |
| 1352 | 2 | 13 | 26 | 7.26 | 23.8 | 688 | |
| 1359 | 9 | 13 | 117 | 7.36 | 22.2 | 695 | |
| 1403 | 13 | 13 | 169 | 7.47 | 22.2 | 695 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| TM-03 | 1406 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
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Additional Comments: * MP is ≈0.13' above top of surface casing.

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-13-09 |
| Well ID: | TM-06 MILLER | Weather: | Sunny, hot |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 200' |
| Casing Diameter (in): | 4" |
| Static Water Level (ft bmp): | 158.81' |
| Casing Volume (gals): | 27 |
| 3 Casing Volumes (gals): | 81 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1234 | | | | | | | |
| 1237 | 3 | 12 | 36 | 6.97 | 22.1 | 474 | |
| 1242 | 8 | 12 | 96 | 7.22 | 21.0 | 463 | |
| 1245 | 11 | 12 | 132 | 7.35 | 20.9 | 465 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| TM-06 MILLER | 1248 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-13-09 |
| Well ID: | TM-07 | Weather: | sunny, hot |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 350' |
| Casing Diameter (in): | 4" |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1056 | | | | | | | |
| 1100 | 2 | 10 | 20 | 7.42 | 23.0 | 370 | well went dry |
| 1115 | — | — | — | — | — | — | pump on |
| 1117 | 2 | 10 | 20 | 7.42 | 22.5 | 429 | well went dry |
| 1133 | | | | | | | pump on |
| 1135 | 2 | 10 | 20 | 7.30 | 22.9 | 559 | well went dry |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| TM-07 | 1145 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
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Additional Comments: * obstruction in well between 52'-55'

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# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-13-09 |
| Well ID: | TM-15 MILLER | Weather: | Sunny, hot |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 325' |
| Casing Diameter (in): | 4" |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1758 | | | | | | | |
| 1803 | 5 | 7 | 35 | 7.51 | 23.5 | 345 | |
| 1809 | 11 | 7 | 77 | 7.53 | 23.1 | 344 | |
| 1814 | 16 | 7 | 112 | 7.61 | 23.1 | 344 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| TM-15 MILLER | 1816 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: Obstruction in well @ about 132'. Another Sulfate Only Sounder is stuck in well (tape is broke off @ about 147'). Previous data shows static at ~294'. Will purge well based on that data.

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-13-09 |
| Well ID: | TM-16 | Weather: | Sunny, hot |
| ADWR No: | | Sampler: | |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 115' |
| Casing Diameter (in): | 4" |
| Static Water Level (ft bmp): | 82.01' |
| Casing Volume (gals): | 22 |
| 3 Casing Volumes (gals): | 66 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1511 | | | | | | | |
| 1513 | 2 | 17 | 34 | 6.75 | 23.2 | 1143 | |
| 1517 | 6 | 17 | 102 | 6.87 | 21.5 | 1172 | |
| 1520 | 9 | 17 | 153 | 6.93 | 21.1 | 1179 | |
| | | | | | | | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| TM-16 | 1522 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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| | | | | | | | |

Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-22-09 |
| Well ID: | TM-19A | Weather: | Cloudy, warm, breezy |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 700' |
| Casing Diameter (in): | 4" |
| Static Water Level (ft bmp): | 200.57' |
| Casing Volume (gals): | 327 |
| 3 Casing Volumes (gals): | 981 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1203 | | | | | | | |
| 1311 | 8 | 34 | 272 | 7.63 | 23.9 | 458 | |
| 1319 | 16 | 34 | 544 | 7.40 | 24.1 | 494 | |
| 1324 | 21 | 34 | 714 | 7.47 | 24.2 | 495 | |
| 1328 | 25 | 34 | 850 | 7.46 | 24.3 | 496 | |
| 1332 | 29 | 34 | 986 | 7.44 | 24.3 | 494 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| TM-19A | 1333 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-7-09 |
| Well ID: | TM-42 | Weather: | Sunny, warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 250' |
| Casing Diameter (in): | 5" |
| Static Water Level (ft bmp): | 212.37' |
| Casing Volume (gals): | 39 |
| 3 Casing Volumes (gals): | 117 |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1051 | | | | | | | |
| 1102 | 11 | 5 | 55 | 6.76 | 23.7 | 1153 | |
| 1108 | 17 | 5 | 85 | 6.82 | 23.6 | 1162 | |
| 1115 | 24 | 5 | 120 | 6.88 | 24.5 | 1155 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| TM-42 | 1118 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| DUP050709 | 1118 | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-17-09 |
| Well ID: | TVI 236 | Weather: | sunny, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 222' |
| Casing Diameter (in): | 12" |
| Static Water Level (ft bmp): | 122.73' |
| Casing Volume (gals): | — |
| 3 Casing Volumes (gals): | — |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| ~~0945~~ | | | | | | | |
| 0945 | — | — | — | 7.36 | 19.3 | 418 | |

## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| TVI 236 | 0947 | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| DUP041709 | 0947 | | | | | | |

Additional Comments: * pump is constantly on most of the day.

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 3.2 | Date: | 4-17-09 |
| Well ID: | TVI 713 | Weather: | windy, sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 200' |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | 126.73' |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| ~~702~~ | | | | | | | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| | | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: * WL only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-17-09 |
| Well ID: | TVI 875 | Weather: | Windy, sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 330' |
| Casing Diameter (in): | 8" |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1029 | — | — | — | 7.31 | 21.5 | 690 | |

## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| TVI 875 | 1034 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments: * pump is constantly on.

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-22-09 |
| Well ID: | WEED | Weather: | Cloudy, warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | ~~300+~~ 320' |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1042 | | | | | | | |
| 1044 | 2 | 18 | 36 | 7.32 | 23.3 | 361 | |
| 1048 | 6 | 18 | 108 | 7.41 | 22.1 | 364 | |
| 1052 | 10 | 18 | 180 | 7.44 | 22.0 | 369 | |
| 1056 | 14 | 18 | 252 | 7.46 | 22.2 | 368 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| WEED | 1057 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
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Additional Comments: * no access for WL.

Sulfate Only

# HYDRO GEO CHEM, INC.

## Groundwater Sampling Form

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-15-09 |
| Well ID: | WEISKOPF | Weather: | sunny, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 200' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 144.38' |
| Casing Volume (gals): | 82 |
| 3 Casing Volumes (gals): | 246 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1426 | | | | | | | |
| 1434 | 6 | 9 | 54 | 7.15 | 21.5 | 1134 | $H_2O$ taken from hose |
| 1441 | 13 | 9 | 117 | 7.80 | 20.4 | 1130 | $H_2O$ taken from split spicket |
| 1452 | 24 | 9 | 216 | 7.22 | 21.4 | 1188 | $H_2O$ taken from hose |
| 1456 | 28 | 9 | 252 | 7.53 | 21.1 | 1164 | $H_2O$ taken from split spick |

### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| WEISKOPF | 1501 | Plastic | 250 ml | 1 | EPA 300.0 | None | |

Additional Comments:

# HYDRO GEO CHEM. INC.

## Groundwater Sampling Form

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-16-09 |
| Well ID: | ZANDER | Weather: | sunny, cool, windy |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | 280' |
| Casing Diameter (in): | 6" |
| Static Water Level (ft bmp): | 144.94' |
| Casing Volume (gals): | 199 |
| 3 Casing Volumes (gals): | 597 |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1006 | | | | | | | |
| 1014 | 8 | 13 | 104 | 7.38 | 21.6 | 353 | |
| 1026 | 20 | 13 | 260 | 7.46 | 21.5 | 352 | |
| 1036 | 30 | 13 | 390 | 7.48 | 21.6 | 354 | |
| 1046 | 40 | 13 | 520 | 7.48 | 21.6 | 352 | |
| 1052 | 46 | 13 | 598 | 7.47 | 21.7 | 352 | |
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| ZANDER | 1056 | Plastic | 250 ml | 1 | EPA 300.0 | None | |
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Additional Comments:

# HYDRO GEO CHEM. INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-9-09 |
| Well ID: | EQB040909/FB040909 | Weather: | sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp):

Casing Volume (gals):

3 Casing Volumes (gals):

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| EQB040909 | 1409 | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| FB040909 | 1409 | | | | | | |
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Additional Comments: * PANAGAKOS site.

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 3720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-17-09 |
| Well ID: | FB041709/EQB041709 | Weather: | Sunny, windy, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bis): | |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| FB041709 | 0954 | Plastic | 250 ml | 1 | EPA 300.0 | None | |
| EQB041709 | 1005 | | | | | | |
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Additional Comments:

# HYDRO GEO CHEM, INC.

## *Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-23-09 |
| Well ID: | EQB042309/FB042309 | Weather: | Sunny, warm/cool |
| ADWR No: | | Sampler: | Travis Taylor |

### WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

### FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
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### SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| EQB042309 | 1010 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| FB042309 | 1010 | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 4-30-09 |
| Well ID: | FB043009/EQB043009 | Weather: | Sunny, cool |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

Casing Capacity

| Nominal Size (inches) | Gallons per Linear Foot |
|---|---|
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| FB043009 | 0945 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| EQB043009 | 0954 | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 5-7-09 |
| Well ID: | FB050709/EQB050709 | Weather: | Sunny, warm |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | |
| Casing Volume (gals): | |
| 3 Casing Volumes (gals): | |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| FB050709 | 1125 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| EQB050709 | 1130 | | | | | | |
| | | | | | | | |
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Additional Comments:

Sulfate Only

# HYDRO GEO CHEM, INC.

*Groundwater Sampling Form*

| | | | |
|---|---|---|---|
| Project No: | 8720000 | Client: | Freeport Copper Queen Branch |
| Task No: | 2.2 | Date: | 6-24-09 |
| Well ID: | NWC-04 | Weather: | sunny, hot |
| ADWR No: | | Sampler: | Travis Taylor |

## WELL DATA

| | |
|---|---|
| Well Depth (ft bls): | |
| Casing Diameter (in): | |
| Static Water Level (ft bmp): | N/A |
| Casing Volume (gals): | N/A |
| 3 Casing Volumes (gals): | N/A |

| Casing Capacity | |
|---|---|
| Nominal Size (inches) | Gallons per Linear Foot |
| 2 | 0.16 |
| 4 | 0.65 |
| 5 | 1.02 |
| 6 | 1.47 |
| 8 | 2.61 |
| 10 | 4.08 |

Casing Volume = gallons/foot * water column (feet)

## FIELD SAMPLING DATA

| Time | Elapsed Time (min) | Discharge Rate (gpm) | Total Discharge (gallons) | pH (SU) | Temp (°C) | Specific Conductance (µS/cm) | Comments |
|---|---|---|---|---|---|---|---|
| 1307 | — | — | — | 6.93 | 25.6 | 792 | |
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## SAMPLE INFORMATION

| Sample ID | Time | Container Type | Volume | No. of Containers | Analysis Method | Preservative | Comments |
|---|---|---|---|---|---|---|---|
| NWC-04 | 1307 | Plastic | 250 ml | 1 | EPA 300.0 | None | Filtered |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Additional Comments: * pump constantly on & off.

Sulfate Only

# ARIZONA WATER COMPANY

# PUMPING LEVEL

[X] APRIL

[ ] OCTOBER

Division: BISBEE

Year: 2009

| WELL # AND NAME | STATIC WATER LEVEL (FT.) (PUMP OFF) | APPROX. LENGTH OF TIME PUMP "OFF" PRIOR TO RECORDING STATIC WATER LEVEL | DYNAMIC WATER LEVEL (FT.) (PUMP ON) | PUMP DISCHARGE (GPM) | APPROX. LENGTH OF TIME PUMP "ON" PRIOR TO RECORDING DYNAMIC WATER LEVEL |
|---|---|---|---|---|---|
| #2 - Naco DWR #55-616586 | 118' | 6 hrs | 163' | 82 gpm | 4.5 hrs |
| #3 - Naco Power DWR #55-616585 | 114' | 6.5 hrs | 184' | 770 gpm | 4 hrs |
| #4 - Naco Power Plant DWR #55-616584 | 110' | 11 hrs | 132' | 780 gpm Discharge Throttled to 1 ¼ Turns Open | 6 hrs |
| #5 - Naco DWR #55-590620 | 286' | 6 hrs | 352' | 460 gpm | 4 hrs |
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