

**FIRST AND SECOND QUARTERS 2008
GROUNDWATER MONITORING REPORT
TASK 2.2 OF AQUIFER CHARACTERIZATION PLAN
MITIGATION ORDER ON CONSENT DOCKET NO. P-121-07
COCHISE COUNTY, ARIZONA**

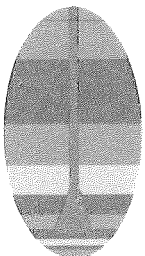
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July 30, 2008



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Environmental Science & Technology

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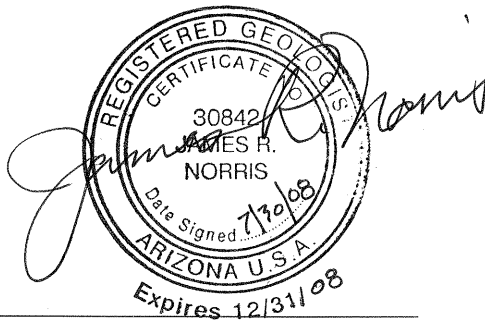
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Approved by:



James R. Norris
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A handwritten signature in black ink, appearing to read "D.R. Simpson".

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Senior Hydrogeologist

July 30, 2008

TABLE OF CONTENTS

1.	INTRODUCTION	1
1.1	Scope of Groundwater Monitoring	1
1.1.1	Groundwater Monitoring for Task 2.2.....	3
2.	GROUNDWATER MONITORING RESULTS	5
2.1	Results of Monitoring for Task 2.2.....	5
2.2	Quality Assurance/Quality Control Review	5
3.	DISCUSSION	7
3.1	Hydrogeologic Setting	8
3.2	Sulfate Distribution.....	8
3.2.1	Lateral Distribution of Sulfate	9
3.2.2	Vertical Distribution of Sulfate.....	10
3.3	Groundwater Elevation	12
4.	REFERENCES	15

TABLES

1	Summary of Groundwater Monitoring for First and Second Quarters 2008
2	Analytical Results for First and Second Quarters 2008 Groundwater Monitoring
3	Groundwater Elevation Data for First and Second Quarters 2008
4	Well Completion Depth, Screen Interval, and Screened Lithology

FIGURES

1	Generalized Geology and Well Locations
2	Sulfate Concentrations in for First Quarter 2008
3	Sulfate Concentrations in for Second Quarter 2008
4	Groundwater Elevations for First Quarter 2008
5	Groundwater Elevations for Second Quarter 2008

APPENDICES

A	First Quarter 2008 Data Verification Report
B	Second Quarter 2008 Data Verification Report
C	Second Quarter 2008 Data Verification Report - Extended Parameters
D	Analytical Reports from ACZ Laboratories, Inc.
E	Hydro Geo Chem, Inc. Groundwater Sampling Forms

1. INTRODUCTION

This data report provides the results of groundwater monitoring conducted in the first and second quarters of 2008 in the vicinity of the Freeport-McMoRan Copper Queen Branch (CQB) pursuant to the Mitigation Order on Consent Docket No. P-121-07 (MO). Groundwater monitoring was conducted by CQB pursuant to Task 2.2 of the Work Plan (Hydro Geo Chem, Inc. [HGC], 2008a) to characterize sulfate in the vicinity of the Concentrator Tailing Storage Area (CTSA). Pursuant to the MO, the Work Plan was submitted to Arizona Department of Environmental Quality (ADEQ) on December 17, 2007 (ADEQ, 2007). CQB initiated water sampling prior to work plan approval while ADEQ was commenting on the Work Plan and CQB was responding to their comments. Although groundwater monitoring was started in February 2008, reporting was suspended pending completion of discussions with ADEQ and revisions to the Work Plan. Revision 1 of the Work Plan was submitted to ADEQ on July 3, 2008 and stipulated reporting of groundwater monitoring results for the first and second quarters of 2008 in a single report. 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 Section 3.3.2 of the Work Plan (HGC, 2008a). Groundwater monitoring for Task 2.2 consists of water elevation measurement and collection of groundwater samples from wells in the vicinity of the CTSA.

During the second quarter 2008, three measuring point elevation surveys were completed for wells that had a measurable water level. Gilbert Technical Services, Inc. (GTS) conducted the initial well survey, and Arizona Land Specialists, Inc. (ALS) conducted the two following surveys. Copies of the survey reports completed by GTS and ALS are included as Appendices B.1 and B.2, respectively.

1.1.1 Groundwater Monitoring for Task 2.2

The Work Plan identifies two purposes for the groundwater monitoring program required in Task 2.2: regional monitoring and plume monitoring. Regional monitoring is set on a semi-annual basis during the first and third quarters of 2008 to characterize regional hydrologic conditions and any seasonality in water elevations. Samples for regional monitoring are analyzed for a suite of major element constituents to characterize general water quality conditions in addition to sulfate.

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. Samples for plume monitoring are analyzed for sulfate only. This report presents the results of regional and plume monitoring conducted during the first and second quarters of 2008.

Table 1 lists wells identified in the Work Plan for quarterly and semi-annual monitoring, their availability for sampling in the first and second quarters of 2008, and their sampling status. Also included in Table 1 are wells that were sampled and analyzed for sulfate during the well inventory investigation (HGC, 2008b) and wells added to the plume and regional monitoring program due to accessibility and favorable location. Figure 1 presents a generalized geology map of the study area and well locations where data were collected during this reporting period.

Pursuant to the Work Plan, HGC and CQB contacted owners of wells identified for sampling in the Work Plan in order to obtain access for sampling. Overall, the response of well

owners was favorable and allowed inspection and sampling of most identified wells. As described in Table 1, not all owners responded to the request for sampling and not all wells were suitable for sampling and water level measurements. In many cases, alternate wells were identified in lieu of wells that were unsuitable for sampling.

Analytical data for monitoring during the first and second quarters of 2008 were obtained from three sources: HGC, Arizona Water Company (AWC), and Naco Sanitary District (NSD). In the first and second quarters of 2008, HGC collected groundwater samples at wells identified in Table 1 of the Work Plan, at potential drinking water supply wells identified by the well inventory investigation, and at wells identified by the well inventory for monthly sulfate analysis for evaluation of potential interim action. AWC provided data for groundwater samples collected from their wells during the first and second quarters 2008 and NSD provided data for groundwater samples collected from their wells during the first quarter of 2008 for inclusion in this report.

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 Task 2.2 are presented in Section 2.

2. GROUNDWATER MONITORING RESULTS

2.1 Results of Monitoring for Task 2.2

Analytical results and groundwater elevation data for the first and second quarters of 2008 are tabulated in Table 2 and Table 3, respectively. Figures 2 and 3 show the concentrations of dissolved sulfate in the wells sampled in the first and second quarters of 2008, respectively. Figures 4 and 5 show groundwater elevations in the first and second quarters of 2008, respectively. Groundwater elevations were calculated using the depth to water measurements made under static (nonpumping) conditions for all wells shown. Tables 2 and 3 include results for sulfate monitoring at drinking water supply well by the wells identified inventory (HGC, 2008b).

2.2 Quality Assurance/Quality Control Review

Pursuant to Section 6.4 of the QAPP, data verification reports were prepared for quality assurance and quality control purposes. The data verification report for data collected by HGC during the first quarter of 2008 is included in Appendix A. Appendices B and C provide data verification reports for samples collected by HGC during the second quarter of 2008.

Analytical laboratory reports for samples collected by HGC in the first and second quarters of 2008 are provided in portable document format on the compact disc in Appendix D. Copies of groundwater sampling forms for samples collected by HGC are in Appendix E.

As determined by the analytical data verification review, all data for samples collected in the first and second quarters of 2008 by HGC are of acceptable quality for use in the aquifer characterization being conducted pursuant to the Work Plan.

3. DISCUSSION

This data report provides the results of groundwater monitoring conducted in the vicinity of the CTSA for the first and second quarters of 2008. The purpose of the groundwater monitoring was twofold: (1) to delineate the location of the sulfate plume and (2) to characterize the sulfate concentration and groundwater elevation in the regional aquifer.

During the first quarter 2008, groundwater samples were collected from 68 plume and regional area wells and depth to water measurements were collected at 46 wells as presented in Table 1. During the second quarter 2008, groundwater samples were collected from 61 plume area wells and depth to water measurements were collected at 54 wells.

Groundwater samples and water level measurements were not collected from all the wells identified in the Work Plan for a variety of reasons, including owner limitations on access, unsuitable well construction, inability to contact the owner, obstruction in well, or a well no longer existing. The specific reason(s) for not sampling these wells are provided in Table 1. In some cases, alternate wells were identified and sampled as described in Table 1. Overall, groundwater monitoring conducted during the first and second quarters of 2008 is deemed to have met the objectives of identifying the location of the sulfate plume from CTSA and providing water quality and potentiometric data in the vicinity of the CTSA.

3.1 Hydrogeologic Setting

Water quality samples have been collected from wells completed in three principal water-bearing units in the area: basin fill, Morita Formation, and Glance Conglomerate. Figure 1 shows that the Morita Formation and Glance Conglomerate outcrop on the east side of the study area. The Morita Formation consists of red to buff siltstone and sandstone. The Glance Conglomerate is a polymictic conglomerate with a silty to sandy matrix. The Morita Formation and Glance Conglomerate are indurated bedrock. The basin fill unconformably overlies the bedrock units and consists of unconsolidated sand and gravel except in zones of cemented caliche. The bedrock units are believed to be transected by at least two faults; the northeast trending Black Gap fault and the northwest trending Abrigo fault. East of the Black Gap fault the basin fill is largely unsaturated and groundwater occurs in the Morita Formation and Glance Conglomerate. West of the Black Gap fault the basin fill is saturated and comprises a key aquifer overlying the Morita Formation and Glance Conglomerate. The results of monitoring need to be considered in the context of the hydrogeologic setting of the study area to interpret the apparent spatial distribution of sulfate and the patterns of groundwater elevation. Table 4 provides the well completion depth, screen interval, and screened lithology data for study area wells.

3.2 Sulfate Distribution

The results of groundwater monitoring show the lateral and vertical extent of the sulfate plume in the study area as defined by the 250 mg/L sulfate concentration contour. The distribution of sulfate can appear complex in plan maps because the sulfate plume is three

dimensional and plume water can be underlain or overlain by groundwater with lower sulfate concentrations. For this reason, some wells in the apparent footprint of the plume can display low sulfate concentrations relative to nearby wells constructed at higher elevation that are within the plume. The lateral and vertical distributions of sulfate are discussed below.

3.2.1 Lateral Distribution of Sulfate

Figures 2 and 3 are contour maps showing the areal distribution of sulfate in the first and second quarters 2008, respectively. The sulfate concentration contours on Figures 2 and 3 are inferred based on the maximum sulfate concentration at locations where closely spaced wells display different concentrations. As discussed in Section 3.2.2, low concentrations of sulfate occur in shallow and deep wells above and below the plume. Thus, the lateral extent of the plume is not the same at all depths.

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. The groundwater monitoring data indicate that the sulfate plume extends over an area of approximately 2.8 miles by 3.6 miles and is confined primarily to the basin fill and Morita Formation. West of the Black Gap fault the sulfate plume is contained primarily within the basin fill. East of the fault, where the basin fill is largely unsaturated, the sulfate plume is within the Morita Formation and possibly Glance Conglomerate.

3.2.2 Vertical Distribution of Sulfate

Evaluation of the vertical distribution of sulfate is based on sampling data for wells located in close proximity but completed at different elevations in the aquifer or in different aquifer units. Two patterns are observed with respect to the vertical distribution of sulfate. First, some wells completed in the uppermost few tens of feet of the basin fill aquifer have lower concentrations than wells completed at deeper portions of the basin fill. Second, the sulfate plume in certain areas is observed to be underlain by groundwater with lower concentrations of sulfate. Examples of the vertical distribution of sulfate are discussed below.

In the first quarter 2008, sulfate appears to be stratified in the vicinity of wells POOL and TM-14 NELSON screened at different depths in basin fill on the west end of the study area. POOL was completed at a total depth of 313 feet below ground surface (ft bgs) and screened from 213 to 300 ft bgs while TM-14 NELSON was completed at 215 ft bgs and screened from 165 to 215 ft bgs. Thus, the POOL sample represents groundwater approximately 100 feet deeper in the basin fill than the TM-14 NELSON sample. At the time of sampling, TM-14 NELSON represented groundwater from the upper several feet of the basin fill aquifer. Sulfate concentrations in POOL and TM-14 NELSON were 134 mg/L and 32.9 mg/L, respectively, in the first quarter of 2008 (Figure 2). These data indicate that sulfate concentrations were stratified with the higher concentration at greater depths in the basin fill at this location. This pattern of sulfate distribution could not be verified in the second quarter of 2008 because TM-14 NELSON was dry.

Sulfate stratification between the basin fill and the Morita Formation along Purdy Lane near Naco is displayed between wells FRANCO, GARNER 557, and HOBAN screened in basin fill and nearby wells GARNER 635 and TM-19A screened in Morita Formation. Sulfate concentrations in the basin fill wells FRANCO, GARNER 557, and HOBAN were 670 mg/L, 123 mg/L, and 510 mg/L, respectively, in the first quarter of 2008 (Figure 2). Sulfate concentrations in Morita Formation wells GARNER 635 and TM-19A were 37.8 mg/L and 56.1 mg/L, respectively. These data indicate that the underlying Morita Formation exhibits sulfate concentrations approximately an order of magnitude lower than concentrations in the basin fill at that location. A similar relationship was observed in the second quarter of 2008 (Figure 3).

Stratification of sulfate is also present in wells BF-01 and TM-02A west of the former evaporation pond. Well BF-01 is completed to a depth of 400 ft bgs and is screened across the basin fill, Morita Formation, and Glance Conglomerate, although the water levels in the first and second quarters of 2008 indicate that the basin fill is probably unsaturated. BF-01 had sulfate concentrations of 1320 mg/L and 1450 mg/L in the first and second quarters 2008, respectively. Well TM-02A is located approximately 500 feet south of BF-01 and is screened from 825 to 925 ft bgs in the Morita Formation and Glance Conglomerate. TM-02A had sulfate concentrations of 12.3 mg/L and 14.7 mg/L in the first and second quarters 2008, respectively. The sulfate concentrations in the Glance Conglomerate at TM-02A are approximately two orders of magnitude lower than those in the overlying Morita Formation and Glance Conglomerate at that location.

3.3 Groundwater Elevation

Groundwater elevations for the first quarter and second quarter 2008 are shown on Figures 4 and 5, respectively. In the second quarter of 2008 a larger number of water level measurements were collected over a larger area than in the first quarter because of the progress made identifying well owners and gaining access to various properties between the first and second quarters.

In general, groundwater elevations decrease from north to south east of the Black Gap fault in the region between the Bisbee airport and Bisbee Junction, and from east to west across the central portion of the study area west of the Black Gap fault. Comparison of the first quarter 2008 water elevations with those observed in the second quarter (Table 3) indicates no substantive difference in groundwater elevations and only minor differences in the apparent groundwater flow directions indicated by water level data. Thus, the water level measurements were repeatable between the two sampling events.

The water level relationships are relatively complex due to the multiple hydrostratigraphic units monitored and the complicated structural geology of the area. The apparent hydraulic gradient is steeper east of the Black Gap fault where groundwater is in bedrock units of the Morita Formation and Glance Conglomerate than is the hydraulic gradient west of the fault where groundwater is in basin fill. The higher hydraulic gradient is probably due to a lower average hydraulic conductivity in the bedrock compared to basin fill. The apparent groundwater flow direction east of the Black Gap fault is southerly to the vicinity of Bisbee Junction and then westerly. Convergent groundwater flow is suggested by the V-shaped

contours pointed in the upgradient direction in the vicinity of Bisbee Junction. West of the Black Gap fault, the apparent hydraulic gradient is shallower than east of the fault and the apparent groundwater flow direction is westerly. In the vicinity of Naco, the hydraulic gradient appears to steepen and there is a suggestion of convergent groundwater flow beneath Greenbush Draw.

The relationship between water levels east and west of the Black Gap fault is uncertain due to the different apparent hydraulic gradients and groundwater flow directions, the variability of water level data east of the Black Gap fault, and the scarcity of monitoring points between Bisbee Junction and the Black Gap fault. The variability of water levels east of the Black Gap fault is indicated by the large differences in water elevation (sometimes up to several hundred feet) between wells in relatively close proximity to one another. This variability in water elevation is particularly evident in the Bisbee Junction area in the second quarter of 2008 and in the area of the SUNBELT well east of the former evaporation pond in the first and second quarters. The variability of water elevations east of the Black Gap fault indicates that the hydraulic properties of the bedrock are heterogeneous and that certain portions of the bedrock may not be hydraulically connected. The heterogeneity in hydraulic properties in bedrock is probably due to the restriction of groundwater flow to permeable features such as permeable beds, bedding planes, or fracture systems which are not uniformly distributed throughout the area.

Anomalous water elevations are also observed west of the Black Gap fault at the SRC and BURKE wells in the northwest portion of the study area. According to well driller logs,

wells SRC and BURKE are screened in a shale bedrock at depths greater than 600 ft bgs. The water level in SRC and BURKE are anomalously low compared to the levels in wells that appear to be in basin fill and/or Morita Formation one mile to the south. The existing data suggest that the SRC and BURKE wells are within a hydrostratigraphic unit with a poor hydraulic connection to the aquifers to the south.

Although complex, the water level data provide important information on the direction and magnitude of hydraulic gradients which control the direction and movement of the sulfate plume. The results also display the effects of aquifer heterogeneities that need to be accounted for in the site conceptual model. This discussion of water level data is preliminary and will be verified by ongoing monitoring and augmented with data being collected by other Work Plan tasks.

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. Well Inventory Report, Task 1 of Aquifer Characterization Plan for Mitigation Order on Consent No. P-121-07, Cochise County, Arizona. July 28, 2008.

TABLES

TABLE 1
Summary of Groundwater Monitoring For First and Second Quarters 2008

Well Name	ADWR 55 Registry No.	Owner	Monitoring Purpose	Casing or Well Depth (feet)	Q1-2008 Monitoring		Q2-2008 Monitoring		Status
					Water Level Measured?	Water Quality Sample Collected?	Water Level Measured?	Water Quality Sample Collected?	
WELLS FOR QUARTERLY MONITORING									
AWC 03	616585	Arizona Water Company	Plume	269	ND	YES	YES	YES	Q1 and Q2 2008 Water quality data provided by Arizona Water Company
AWC 05	590620	Arizona Water Company	Plume	1183	ND	YES	YES	YES	Q1 and Q2 2008 Water quality data provided by Arizona Water Company
BF-01	539783	CQB	Plume	400	YES	YES	YES	YES	Water quality samples collected in March and May 2008
BIMA	577927	Bisbee Municipal Airport	Plume	465	NO	YES	YES	YES	Water quality samples collected in February and May 2008; unable to collect water level Q1 2008 due to obstruction
BULLARD	602134	Bullard	Plume	300	NO	NO	NO	NO	Well not operational, unable to collect water levels due to obstruction
BURKE	212268	Burke	Plume	781	NO	YES	YES	YES	Water quality sample collected in February and April 2008; unable to collect water level Q1 2008 because depth to water greater than 500 feet
COB MW-1	903992	City of Bisbee	Plume	420	YES	YES	YES	YES	Water quality samples collected in February and May 2008
COB MW-2	903984	City of Bisbee	Plume	170	YES	YES	YES	YES	Water quality samples collected in February and May 2008
COB WL	593116	City of Bisbee	Plume	150	YES	YES	YES	YES	Water quality samples collected in February and May 2008
COOPER	623564	Cooper, Teresa	Plume	325	NO	YES	NO	YES	Water quality samples collected in February and May 2008, no access to well casing for water level measurements
COOPER C	637069	Cooper, Charles	Plume	220	YES	YES	YES	YES	Water quality samples collected in March and May 2008
CROWLEY	510298	Crowley	Plume	788	NO	NO	NO	NO	Dry
DODSON	644927	Dodson	Plume	200	NO	YES	YES	YES	Water quality samples collected in February and May 2008; unable to collect water level Q1 08 because sounder diameter too large for access port
GARNER 557	558557	Garner	Plume	300	YES	YES	YES	NO	Water quality sample collected in February 2008; well identified for water level measurements only
GARNER 635 ¹	587635	Garner	Plume	680	YES	YES	YES	YES	Water quality samples collected in February and May 2008
GGOOSE 546	628546	Galloping Goose Properties	Plume	800	NO	NO	NO	NO	Well not operational, unable to obtain water levels due to obstruction
GGOOSE 547	628547	Galloping Goose Properties	Plume	800	NO	NO	YES	YES	Generator power provided to collect water quality sample in May 2008; no access to well casing for water level measurement Q1 2008
GL-03	539782	CQB	Plume	820	NO	YES	YES	YES	Water quality samples collected in March and May 2008, unable to collect water level Q1 2008 because depth to water greater than 500 feet
GREGG	630852	Gregg	Plume	ND	NO	NO	NO	NO	Dry
HULL 584	606854	Hull	Plume	25	NO	NO	NO	NO	Unable to locate well
MILLER 340	641340	Miller	Plume	200	NO	NO	NO	NO	Dry
MILLER 341	641341	Miller	Plume	100	NO	NO	NO	NO	Dry
NWC 02R	562944	Naco Water Company	Plume	312	ND	ND	ND	ND	Naco Water Company has agreed to provide data but was unable to do so by the time of report preparation
NWC 03R	203321	Naco Water Company	Plume	312	ND	ND	ND	ND	Naco Water Company has agreed to provide data but was unable to do so by the time of report preparation
NWC 04 CAP	627685	Naco Water Company	Plume	379	NO	NO	NO	NO	Well Capped
NWC 05	627696	Naco Water Company ²	Plume	175	ND	ND	ND	ND	No data
OSBORN	643436	Osborn	Plume	150	NO	YES	YES	YES	Water quality samples collected in March and May 2008; unable to collect water level Q1 08 due to obstruction
PARRA	576415	Parra	Plume	355	NO	YES	YES	YES	Water quality samples collected in February and May 2008; unable to collect water level Q1 2008 due to obstruction
ROGERS 803	641803	Rogers, Ernest D	Plume	140	YES	YES	NO	YES	Water quality samples collected in February and May 2008; unable to collect Q2 2008 water levels due to obstruction
TM-02	522573	CQB	Plume	640	NO	NO	NO	NO	Pump intake above water level; unable to collect water levels due to obstruction
TM-02A	522574	CQB	Plume	925	YES	YES	YES	YES	Water quality samples collected in February and May 2008
TM-03	522575	CQB	Plume	200	YES	NO	YES	YES	Pump repairs completed Q2 2008; water quality sample collected in May 2008
TM-06 MILLER	522695	Miller	Plume	200	YES	YES	YES	YES	Water quality samples collected in February and May 2008
TM-07	522576	CQB	Plume	350	NO	YES	NO	YES	Water quality samples collected in March and May 2008, unable to obtain water level measurements due to obstruction
TM-10 USBP	522696	U.S. Border Patrol	Plume	290	NO	NO	NO	NO	Owner declined participation
TM-11 PIONKE	522815	Pionke	Plume	160	NO	NO	NO	NO	Dry
TM-13 MILLER	522698	Miller	Plume	200	NO	NO	NO	NO	Dry

TABLE 1
Summary of Groundwater Monitoring For First and Second Quarters 2008

Well Name	ADWR 55 Registry No.	Owner	Monitoring Purpose	Casing or Well Depth (feet)	Q1-2008 Monitoring		Q2-2008 Monitoring		Status
					Water Level Measured?	Water Quality Sample Collected?	Water Level Measured?	Water Quality Sample Collected?	
TM-16	522578	CQB	Plume	115	YES	YES	YES	YES	Water quality samples collected in February and May 2008
TM-17	522700	CQB	Plume	200	NO	NO	NO	NO	Dry
TM-19	522580	CQB	Plume	700	NO	NO	NO	NO	Dry
TM-19A	522581	CQB	Plume	210	YES	YES	YES	YES	Water quality samples collected in February and May 2008
TM-41	562555	CQB	Plume	210	NO	NO	NO	NO	Dry <4580 ft amsl
TM-42	562554	CQB	Plume	250	YES	YES	YES	YES	Water quality samples collected in February and May 2008
TVI 875	568875	Turquoise Valley, Inc.	Plume	330	NO	YES	NO	YES	Water quality samples collected in February and May 2008, no access to well casing for water level measurements
WEED	544535	Weed	Plume	320	NO	YES	NO	YES	Water quality samples collected in February and May 2008, no access to well casing for water level measurements
WEISKOPF	641802	Weiskopf	Plume	200	YES	YES	YES	YES	Water quality samples collected in February and May 2008
WELLS FOR SEMIANNUAL MONITORING									
COB WL ABND	570012	City of Bisbee	Regional	148	NO	NO	NO	NO	Well Abandoned
CONNOR	516399	Connor	Regional	220	NO	NO	NO	NO	Well Abandoned
EAST	599796	East	Regional	125	YES	YES	YES	YES	Water quality samples collected in February and May 2008
GALLANT	502527	Gallant	Regional	190	YES	YES	NO	NO	Water quality sample collected in February 2008
MILLER 342	641342	Miller	Regional	200	NO	NO	NO	NO	Dry
NSD 02	527587	Naco Sanitary District	Regional	120	NO	YES	NO	ND	Q1 2008 Water quality data provided by Naco Sanitary District
NSD 03	527586	Naco Sanitary District	Regional	100	NO	YES	NO	ND	Q1 2008 Water quality data provided by Naco Sanitary District
NWC 01	627682	Naco Water Company ²	Regional	215	ND	ND	ND	ND	No data
NWC 06	575700	Naco Water Company	Regional	410	ND	ND	ND	ND	Naco Water Company has agreed to provide data but was unable to do so by the time of report preparation
PALMER 819	578819	Palmer	Regional	220	NO	YES	NO	YES	Water quality samples collected in February and May 2008, no access to well casing for water level measurements
POWER	624535	Power	Regional	100	YES	YES	NO	NO	Water quality sample collected in February 2008
TM-05 MILLER	522694	Miller	Regional	160	NO	NO	NO	NO	Dry
TM-08 SWAN	522817	Swan	Regional	817	NO	YES	NO	YES	Water quality samples collected in February and May 2008, unable to collect water level measurements because depth to water greater than 500 feet
TM-12 MILLER	522697	Miller	Regional	175	NO	NO	NO	NO	Dry
TM-14 NELSON	522816	Nelson	Regional	215	YES	YES	NO	NO	Water quality sample collected in February 2008; well dry Q2 2008
TM-15 MILLER	522699	Miller	Regional	325	YES	YES	YES	YES	Water quality samples collected in February and May 2008
TM-43	564729	CQB	Regional	830	YES	YES	NO	NO	Water quality sample collected in March 2008
TM-43A	564726	CQB	Regional	215	YES	YES	NO	NO	Water quality sample collected in March 2008
TM-43B	565004	CQB	Regional	215	YES	YES	NO	NO	Water quality sample collected in March 2008
TM-45	564728	CQB	Regional	520	NO	NO	NO	NO	Dry
WALKER	200393	Walker	Regional	120	YES	YES	NO	NO	Water quality sample collected in February 2008
ADDITIONAL WELLS SAMPLED FOR Q1-08 AND Q2-08 MONITORING THAT WERE NOT IDENTIFIED IN THE WORK PLAN									
ANDERSON	613396	Anderson	Well Inventory	236	YES	YES	YES	YES	Water quality samples collected in February and May 2008
AWC 02	616586	Arizona Water Company	Plume	330	ND	YES	YES	YES	Q1 and Q2 2008 Water quality data provided by Arizona Water Company
AWC 04	616584	Arizona Water Company	Plume	250	ND	YES	YES	YES	Q1 and Q2 2008 Water quality data provided by Arizona Water Company
BANKS 986	647986	Banks	Well Inventory	435	NO	YES	NO	YES	Water quality samples collected in February and May 2008; unable to collect water level measurements due to obstruction
BANKS 987	647987	Banks	Well Inventory	339	YES	NO	YES	YES	Well identified for water level measurements only
BARTON 010	085010	Barton	Plume	300	NO	NO	YES	NO	Well not operational; identified Q2 2008 for water level measurements only
BARTON 919	644919	Barton	Plume	130	NO	NO	YES	NO	Well not operational; identified in Q2 2008 for water level measurements only

TABLE 1
Summary of Groundwater Monitoring For First and Second Quarters 2008

Well Name	ADWR 55 Registry No.	Owner	Monitoring Purpose	Casing or Well Depth (feet)	Q1-2008 Monitoring		Q2-2008 Monitoring		Status
					Water Level Measured?	Water Quality Sample Collected?	Water Level Measured?	Water Quality Sample Collected?	
BLOMMER	633472	Blommer	Well Inventory	380	NO	YES	NO	YES	Water quality samples collected in February and May 2008; unable to collect water level measurements due to obstruction
CAMPBELL	215509	Campbell	Well Inventory	350	YES	YES	YES	NO	Water quality sample collected in February 2008; Well identified for water level measurements only
CHAMBERS	629807	Chambers	Well Inventory	245	NO	YES	NO	YES	Water quality samples collected in February and May 2008; no access to well casing for water level measurements
COB MW-3	906823	City of Bisbee	Plume	269	YES	YES	YES	YES	Water quality samples collected in February and May 2008
DOUGLASS 791	592791	Douglass	Well Inventory	200	YES	NO	YES	NO	Well not operational; identified for water level measurements only
DOUGLASS 792	529792	Douglass	Well Inventory	200	YES	NO	YES	NO	Well not operational; identified for water level measurements only
ENGLUND	565260	Englund	Well Inventory	320	YES	YES	YES	YES	Water quality samples collected in February and May 2008
EPPELE 641	805641	Eppele	Well Inventory	265	YES	YES	YES	YES	Water quality samples collected in February and May 2008
FRANCO	500101	Franco	Well Inventory	200	NO	YES	NO	YES	Water quality samples collected in February and May 2008; unable to collect water level measurements due to obstruction
FULTZ	212447	Fultz	Well Inventory	300	NO	YES	NO	YES	Water quality samples collected in February and May 2008; unable to collect water levels because sounder diameter too large for access port
GOAR RANCH	610695	Goar	Well Inventory	250	YES	NO	YES	NO	Well identified for water level measurement only
HOBAN	805290	Hoban	Well Inventory	316	YES	YES	YES	YES	Water quality samples collected in February and May 2008
HOWARD	NR	Howard	Well Inventory	200	YES	YES	YES	YES	Water quality samples collected in February and May 2008
KEEFER	209744	Keefer	Well Inventory	245	YES	YES	YES	YES	Water quality samples collected in February and May 2008
MCCONNELL 265	539265	McConnell	Well Inventory	216	YES	YES	YES	YES	Water quality samples collected in February and May 2008
METZLER	35-71891	Metzler	Well Inventory	351	YES	YES	YES	YES	Water quality samples collected in February and May 2008
MINOR 317	063317	Minor	Well Inventory	155	YES	NO	NO	NO	Water level collected in February 2008 when property managed by real estate company; new owner declined participation
MOORE	538847	Moore	Well Inventory	220	NO	YES	NO	YES	Water quality samples collected in February and May 2008; unable to collect water levels because sounder diameter too large for access port
NOTEMAN	212483	Noteman	Well Inventory	400	NO	YES	YES	YES	Water quality samples collected in February and May 2008; no access to well casing Q1 2008 for water level measurement
NWC 04	627685	Naco Water Company	Well Inventory	379	ND	ND	ND	ND	Naco Water Company has agreed to provide data but was unable to do so by the time of report preparation
PANAGAKOS	35-76413	Panagakos	Well Inventory	200	-	-	NO	YES	Well identified in Q2 2008; water quality sample collected in April 2008; no access to well casing for water level measurements
PIONKE	613395	Pionke	Well Inventory	300	NO	YES	NO	YES	Water quality samples collected in February and May 2008; no access to well casing for water level measurements
POOL	509518	Pool	Well Inventory	313	YES	YES	YES	YES	Water quality samples collected in February and May 2008
RAMIREZ	216425	Ramirez	Well Inventory	300	NO	YES	NO	YES	Water quality samples collected in February and May 2008; no access to well casing for water level measurements
RAY	803772	Ray	Well Inventory	100	YES	YES	YES	YES	Water quality samples collected in February and May 2008
ROGERS E	216018	Rogers, Ernest M	Well Inventory	290	NO	YES	NO	YES	Water quality samples collected in February and May 2008; unable to collect water level measurements due to obstruction
RUIZ	531770	Ruiz	Well Inventory	312	YES	YES	YES	YES	Water quality samples collected in February and May 2008
SCHWARTZ	210865	Schwartz	Well Inventory	305	YES	YES	YES	YES	Water quality samples collected in February and May 2008
SRC	211345	Specialty Restaurants Corporation, Inc.	Regional	965	NO	NO	YES	YES	Well uncapped Q2 2008; water quality sample collected in April 2008
STEPHENS	808560	Stephens	Well Inventory	NR	-	-	YES	NO	Well identified Q2 2008 for water level measurement only
SUNBELT	201531	Sunbelt Marketing, Inc.	Plume	380	YES	NO	YES	NO	Well not operational, identified for water level measurements only
SWAN	NR	Swan	Well Inventory	NR	YES	YES	YES	YES	Water quality samples collected in February and May 2008
TVI 236	802236	Turquoise Valley, Inc.	Plume	222	NO	YES	NO	YES	Water quality sample collected in February 2008, unable to collect water level measurement Q2 2008 because pump was running
TVI 713	567713	Turquoise Valley, Inc.	Well Inventory	200	NO	NO	YES	NO	Well identified Q2 2008 for water level measurements only
ZANDER	205126	Zander	Well Inventory	280	YES	YES	YES	YES	Water quality samples collected in February and May 2008

TABLE 2
Analytical Results for First and Second Quarter 2008 Grounwater Monitoring

Well Name	ADWR 55 Registry No.	Sample Date	Field pH (SU)	Field SC (µS/cm)	Field Temp (deg C)	Sulfate, dissolved	Chloride, dissolved	Fluoride, dissolved	Nitrate as N, dissolved	Nitrite as N, dissolved	Nitrate/Nitrite as N, dissolved	Calcium, dissolved	Magnesium, dissolved	Potassium, dissolved	Sodium, dissolved	Total Alkalinity	Bicarbonate as CaCO3	Carbonate as CaCO3	Hydroxide as CaCO3	Residue, Filterable (TDS) @ 180°C	TDS (calculated)	TDS Ratio (measured/ calculated)	Sum of Anions (meq/L)	Sum of Cations (meq/L)	Cation- Anion Balance (%)	
WELLS SAMPLED FOR QUARTERLY MONITORING																										
AWC 03	616585	01/07/08	-	-	-	41	14	-	2.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		03/03/08	-	-	-	38	14	-	2.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		05/05/08	-	-	-	37.3	12.2	-	2.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AWC 05	590620	02/04/08	-	-	-	13	15	-	1.80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		04/07/08	-	-	-	14	14	-	1.94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		06/02/08	-	-	-	14.3	15.6	-	1.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BF 01	539783	03/04/08	6.46	2745	21.9	1320	30.4	<0.1	0.92	<0.01	0.92	621.0	100.0	4.5	60.2	610	610	<2	<2	2850	2510	1.14	40.8	42.0	1.4	
		05/23/08	6.41	2698	18.3	1450	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BIMA	577927	02/06/08	6.69	1335	22.2	210	105.0	0.1	6.80	<0.01	6.80	224.0	48.4	12.4	65.9	510	510	<2	<2	980	1000	0.98	18.0	18.4	1.1	
		04/25/08 ¹	6.37	1521	23.1	190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		05/13/08	6.58	1489	22.7	195	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BURKE	212268	02/07/08	7.17	411	23.0	29.5	31.8	0.3	1.83	<0.01	1.83	62.3	22.8	2.8	26.0	212	212	<2	<2	360	311	1.16	5.9	6.2	2.5	
		04/22/08	7.13	423	27.0	26	11	0.2	2.9	<0.01	2.9	52.1	22.0	2.3	16.9	191.0	191.0	<2	<2	260	-	-	-	-	-	-
COB MW-1	903992	02/22/08	6.93	1401	21.2	720	19.8	0.3	2.33	<0.01	2.33	257.0	64.5	7.7	56.5	217	206	11	<2	1360	1270	1.07	20.2	20.8	1.5	
		05/20/08	6.88	2050	22.0	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COB MW-2	903984	02/22/08	7.28	417	20.2	41	19.4	0.3	6.49	<0.01	6.49	66.4	9.0	2.1	25.5	168	156	12	<2	340	298	1.14	5.2	5.2	0.0	
		05/20/08	7.32	490	21.2	40.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COB WL	593116	02/22/08	6.99	919	20.6	90	106.0	0.3	3.91	<0.01	3.91	128.0	34.3	7.2	47.8	280	269	11	<2	650	603	1.08	10.8	11.5	3.1	
		05/20/08	7.30	1053	21.9	98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COOPER	623564	02/14/08	7.02	1892	20.8	33	17.5	0.3	2.82	<0.01	2.82	47.9	13.8	2.2	25.3	163	154	9	<2	270	254	1.06	4.6	4.7	1.1	
		05/14/08	8.08	419	22.1	34.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COOPER C	637069	03/20/08	6.93	2081	21.3	990	49.0	<0.1	3.09	0.01	3.10	393.0	59.8	6.0	45.0	229	229	<2	<2	1810	1690	1.07	27.0	26.7	0.6	
		05/05/08	6.78	2139	22.4	990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DODSON	644927	02/20/08	7.61	857	17.3	54	129.0	0.3	10.70	<0.01	10.70	111.0	37.5	12.3	41.2	266	252	14	<2	590	598	0.99	10.8	10.8	0.0	
		05/12/08	7.11	1118	21.1	34.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GARNER 557	558557	02/21/08	6.70	822	20.9	123	14.3	0.2	1.70	<0.01	1.70	62.2	10.2	2.5	58.1	184	171	13	<2	420	394	1.07	6.7	6.5	-1.5	
GARNER 635	587635	02/04/08	7.61	479	22.7	37.8	13.7	0.2	1.68	0.01	1.69	39.2	8.2	2.8	65.0	182	182	<2	<2	290	284	1.02	4.9	5.5	5.8	
		05/05/08	7.26	468	24.9	35.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GGOOSE 547	628547	05/21/08	7.08	856	22.7	199	37.1	0.1	7.14	<0.01	7.14	113.0	32.9	5.5	25.6	194	194	<2	<2	600	561	1.07	9.6	9.6	0.0	
GL-03	539782	03/04/08	7.43	417	25.7	20.3	20.3	<0.1	0.75	0.02	0.77	46.7	22.8	2.6	18.7	192	192	<2	<2	260	250	1.04	4.8	5.1	3.0	
		05/22/08	7.06	647	25.3	43.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OSBORN	643436	02/25/08	7.35	508	22.4	16.4	18.2	0.3	3.76	<0.01	3.76	84.4	15.4	4.3	25.2	275	246	29	<2	370	357	1.04	6.6	6.7	0.8	
		05/13/08	7.22	576	22.2	17.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PARRA	576415	02/11/08	7.08	1067	21.8	360	33.4	0.1	4.17	<0.01	< 0.04	178.0	50.4	4.4	31.6	177	177	<2	<2	880	783	1.12	12.3	14.5	8.2	
		05/15/08	7.10	1200	21.8	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROGERS 803	641803	02/07/08	7.52	455	19.8	138	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		03/20/08 ¹	7.45	601	18.6	125	13.2	0.2	4.69	0.02	4.71	94.0	11.7	3.0	26.6	148	148	<2	<2	410	383	1.07	6.3	6.9	4.5	
		04/21/08 ¹	7.32	552	21.4	128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		05/08/08	7.14	622	21.2	141	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TM-02A	522574	03/04/08	8.67	302	22.6	12.3	8.6	0.3	<0.02	0.02	0.02	12.6	5.8	2.2	58.0	155	146	9	<2	190	196	0.97	3.6	3.7	1.4	
		05/23/08	7.75	321	22.9	14.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TM-03	522575	05/20/08	7.51	778	22.2	110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TM-06 MILLER	522695	02/27/08	7.44	457	19.6	13.9	7.1	0.3	0.96	<0.01	0.96	42.2	19.0	1.7	54.3	218	218	<2	<2	310	274	1.13	4.9	6.1	10.9	
		05/20/08	7.50	506	20.7	32.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TM-07	522576	03/06/08	7.54	726	20.8	22.5	9.0	0.2	3.04	<0.01	3.04	49	15.8	2.0	22.6	142	133	9	<2	220	223	0.10	3.7	4.7	11.9	
		05/22/08																								

TABLE 2
Analytical Results for First and Second Quarter 2008 Grounwater Monitoring

Well Name	ADWR 55 Registry No.	Sample Date	Field pH (SU)	Field SC (µS/cm)	Field Temp (deg C)	Sulfate, dissolved	Chloride, dissolved	Fluoride, dissolved	Nitrate as N, dissolved	Nitrite as N, dissolved	Nitrate/Nitrite as N, dissolved	Calcium, dissolved	Magnesium, dissolved	Potassium, dissolved	Sodium, dissolved	Total Alkalinity	Bicarbonate as CaCO3	Carbonate as CaCO3	Hydroxide as CaCO3	Residue, Filterable (TDS) @ 180°C	TDS (calculated)	TDS Ratio (measured/ calculated)	Sum of Anions (meq/L)	Sum of Cations (meq/L)	Cation- Anion Balance (%)
WELLS SAMPLED FOR SEMIANNUAL MONITORING																									
EAST	599796	02/08/08 05/14/08	7.45 7.31	423 595	19.9 20.9	10.6 14.8	31.2 -	0.4 -	6.3 -	<0.01 -	6.3 -	59.9 -	24.3 -	2.5 -	31.6 -	227 -	227 -	<2 -	<2 -	320 -	325 -	0.98 -	6.1 -	6.4 -	2.4 -
GALLANT	502527	02/11/08	7.46	604	20.2	17.9	12.7	0.2	3.0	<0.01	3.04	106.0	15.9	4.3	25.6	344	344	<2	<2	400	402	1.0	7.8	7.8	0.0
NSD 02	527587	02/05/08	ND	ND	ND	43	52.5	0.201	<1.0	<0.01	<1.0	-	-	-	-	-	-	-	-	388	-	-	-	-	-
NSD 03	527586	02/05/08	ND	ND	ND	70.7	14.1	0.186	3.2	<0.01	3.2	-	-	-	-	-	-	-	-	396	-	-	-	-	-
PALMER 819	578819	02/14/08 05/13/08	7.91 7.92	435 508	17.5 22.9	15.9 16.6	11.3 -	0.4 -	2.13 -	<0.01 -	2.13 -	31.9 -	27.1 -	5.4 -	50.1 -	251 -	235 -	15 -	< 2 -	300 -	308 -	1.0 -	5.8 -	6.1 -	2.5 -
POWER	624535	02/12/08	7.11	428	18.9	16	6.1	0.1	7.00	<0.01	7.00	95	7.6	3.8	7.4	242	242	<2	< 2	310	312	0.99	5.8	5.8	0.0
TM-08 SWAN	522817	02/13/08 05/14/08	7.63 7.44	511 480	25.2 24.4	12.6 12.6	32.1 -	0.3 -	5.3 -	<0.01 -	5.3 -	43.4 -	21.4 -	4.9 -	35.5 -	204 -	204 -	<2 -	< 2 -	310 -	296 -	1.1 -	5.6 -	5.6 -	0.0 -
TM-14 NELSON	522816	02/08/08	7.64	319	21.6	32.9	12.5	0.3	1.82	<0.01	1.82	56.1	10.0	2.8	23.6	166	166	<2	<2	250	246	1.02	4.5	4.7	2.2
TM-15 MILLER	522699	02/27/08 05/23/08	7.66 7.54	344 371	21.9 22.1	14 14.4	7.1 -	0.4 -	1.56 -	<0.01 -	1.56 -	32.9 -	18.0 -	2.0 -	32.4 -	183 -	181 -	2 -	<2 -	220 -	224 -	0.98 -	4.2 -	4.6 -	4.5 -
TM-43	564729	03/03/08	6.17	2788	19.9	1420	31.0	<0.2	0.99	<0.01	0.99	570	181.0	4.5	42.1	713	713	<2	<2	3000	2680	1.12	45.0	45.0	0.3
TM-43A	564726	03/03/08	8.57	341	21.0	2.1	7.7	0.3	0.04	<0.01	0.04	10.1	5.7	2.2	79.4	217	197	20	<2	250	246	1.02	4.6	4.5	-1.1
TM-43B	565004	03/03/08	6.79	514	20.6	0.7	5.0	<0.1	0.05	0.01	0.06	54.6	23.8	2.9	47.9	338	338	<2	<2	350	338	1.04	6.9	6.8	-0.7
WALKER	200393	02/13/08	7.05	650	20.2	20	4.0	0.2	2.26	<0.01	2.26	117	14.4	3.6	14.3	355	355	<2	<2	440	396	1.11	7.8	7.7	-0.6
ADDITIONAL WELLS SAMPLED THAT WERE NOT IDENTIFIED IN WORKPLAN																									
ANDERSON	613396	03/20/08 05/05/08	7.25 7.03	1176 1231	21.1 21.8	431 452	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
AWC 02	616586	01/07/08 03/03/08 05/05/08	- - -	- - -	- - -	14 16 13.3	14 16 15.9	- - -	2.04 2.41 2.22	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
AWC 04	616584	02/04/08 04/07/08 06/02/08	- - -	- - -	- - -	18 18 14.3	40 45 48	- - -	2.26 2.28 2.18	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
BANKS 986	647986	02/27/08 05/12/08	7.53 7.40	980 1021	21.8 22.1	44 65.2	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
BLOMMER	633472	02/05/08 04/21/08 ¹ 05/15/08	7.43 7.06 7.16	714 753 845	20.2 21.9 22.2	206 201 211	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
CAMPBELL	215509	02/05/08	7.87	823	18.3	211	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHAMBERS	629807	03/06/08 05/05/08	7.73 7.15	408 421	17.8 22.1	7.7 6	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
COB MW-3	906823	02/28/08 05/20/08	7.39 7.56	416 473	21.0 22.3	57.8 35.8	16.2 -	0.2 -	2.0 -	<0.01 -	2.0 -	62.2 -	8.9 -	2.2 -	25.5 -	159 -	159 -	<2 -	<2 -	300 -	277 -	1.1 -	5.0 -	5.0 -	0.0 -
ENGLUND	565260	02/12/08 05/29/08	6.88 7.01	1470 1459	21.6 22.0	520 520	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
EPPELE 641	805641	03/11/08 05/12/08	7.98 7.21	646 667	21.4 21.7	21.7 24.7	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
FRANCO	500101	02/06/08 05/05/08	7.47 6.93	1301 1557	19.6 23.1	670 680	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
FULTZ	212447	02/27/08 04/21/08 ¹ 05/14/08	6.76 6.74 6.88	1827 1739 1532	21.1 22 22.3	152 137 131	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
HOBAN	805290	02/27/08 05/07/08	6.93 6.88	1359 1532	22.1 22.3	510 670	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
HOWARD	NR	03/04/08 05/08/08	7.06 6.95	1280 1494	20.4 21.0	571 673	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
KEEFER	209744	02/06/08 05/06/08	7.70 7.19	378 512	19.0 20.3	6.8 9	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
MCCONNELL 265	539265	02/20/08 05/06/08	7.21 6.77	1435 1668	21.1 21.6	720 737	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
METZLER	35-71891	03/05/08 05/15/08	7.27 7.12	1055 1051	21.6 22.8	317 329	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
MOORE	538847	02/20/08 05/08/08	7.69 7.09	362 432	22.2 22.4	7.1 7.5	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
NOTEMAN	212483	02/05/08 05/13/08	6.70 6.67	1317 1445	19.9 23.0	310 272	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

TABLE 2
Analytical Results for First and Second Quarter 2008 Grounwater Monitoring

Well Name	ADWR 55 Registry No.	Sample Date	Field pH (SU)	Field SC (µS/cm)	Field Temp (deg C)	Sulfate, dissolved	Chloride, dissolved	Fluoride, dissolved	Nitrate as N, dissolved	Nitrite as N, dissolved	Nitrate/Nitrite as N, dissolved	Calcium, dissolved	Magnesium, dissolved	Potassium, dissolved	Sodium, dissolved	Total Alkalinity	Bicarbonate as CaCO3	Carbonate as CaCO3	Hydroxide as CaCO3	Residue, Filterable (TDS) @ 180°C	TDS (calculated)	TDS Ratio (measured/ calculated)	Sum of Anions (meq/L)	Sum of Cations (meq/L)	Cation- Anion Balance (%)
PANAGAKOS	35-76413	04/21/08	6.80	1228	20.5	410	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PIONKE	613395	02/06/08	7.53	910	19.9	394	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		05/07/08	7.08	1100	21.4	391	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
POOL	509518	02/20/08	7.95	497	20.9	134	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		05/19/08	7.40	585	22.2	122	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RAMIREZ	216425	02/04/08	7.47	408	21.7	7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		05/06/08	7.19	405	22.7	8.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RAY	803772	02/15/08	7.30	1540	19.1	159	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		04/21/08 ¹	6.92	1418	21.3	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		05/13/08	7.05	448	20.9	123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROGERS E	216018	02/04/08	7.40	435	21.0	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		05/07/08	7.18	415	22.2	5.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RUIZ	531770	02/05/08	7.73	445	18.2	263	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		05/15/08	7.23	965	25.9	265	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SCHWARTZ	210865	02/08/08	7.52	506	21.5	158	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		04/21/08 ¹	7.23	563	21.7	122	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		05/19/08	7.38	629	22.4	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SRC	211345	04/23/08	7.57	380	25.8	19.0	10.0	0.2	3.61	<0.01	3.61	25.8	16.3	2.1	48.2	174	174	<2	<2	230	-	-	-	-	-
SWAN	NR	02/13/08	7.28	467	20.7	24.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		05/14/08	7.24	479	21.2	23.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TVI 236	802236	03/20/08	7.48	488	20.0	31.3	26.0	0.1	3.90	0.03	3.93	70.5	9.3	1.9	25.6	178	178	<2	<2	310	289	1.07	5.2	5.4	1.9
		05/07/08	7.13	494	20.4	32.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZANDER	205126	02/04/08	7.24	392	19.7	5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		05/06/08	7.26	404	21.2	6.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All units are in milligrams per liter (mg/l) unless otherwise noted
deg C = degrees Celsius
meq/l = milliequivalent per liter
NR = No Record
- = Not Analyzed
ND = No Data
SC = Specific Conductance
SU = Standard Units
TDS = Total Dissolved Solids
µS/cm = microsiemens per centimeter
35-70000 = ADWR 35 Database
¹ Verified drinking water supply well, sample collected for sulfate trend analysis for interim action evaluation

TABLE 3
Groundwater Elevation Data for First and Second Quarter 2008

Well Name	ADWR 55 Registry No.	UTM North	UTM East	Date	Measuring Point Elevation ¹ (ft amsl)	Depth To Water (feet)	Groundwater Elevation (ft amsl)
ANDERSON	613396	3468816.065	601134.729	03/20/08	4580.34	145.46	4434.88
				05/05/08	4580.34	145.84	4434.50
AWC 02	616586	3468565.912	598890.636	4/8/2008 ²	4541	116.00	4425.00
AWC 03	616585	3468659.579	599016.359	4/8/2008 ²	4531	112.00	4419.00
AWC 04	616584	3468695.167	598999.705	4/8/2008 ²	4531	108.00	4423.00
AWC 05	590620	3468526.313	599277.560	4/8/2008 ²	4548	284.00	4264.00
BARTON 010	085010	3469047.469	606201.084	05/12/08	4688.95	227.50	4461.45
BARTON 919	644919	3469076.689	606243.850	05/12/08	4692.36	113.71	4578.65
BANKS 987	647987	3469206.175	606981.921	02/27/08	4648.18	208.00	4440.18
				05/12/08	4648.18	216.30	4431.88
BF-01	539783	3472151.593	604169.077	03/04/08	4835.23	348.99	4486.24
				05/23/08	4835.23	348.80	4486.43
BIMA	577927	3471852.804	606001.245	05/13/08	4802.05	367.31	4434.74
BURKE	212268	3473029.816	602230.087	04/22/08	4856.30	606.55	4249.75
CAMPBELL	215509	3469320.340	606420.836	02/05/08	4694.29	180.60	4513.69
				05/13/08	4694.29	181.80	4512.49
COB MW-1	903992	3469889.889	603153.259	02/22/08	4683.26	232.47	4450.79
				05/20/08	4683.26	233.12	4450.14
COB MW-2	903984	3468114.836	600973.257	02/22/08	4566.21	122.85	4443.36
				05/20/08	4566.21	123.00	4443.21
COB MW-3	906823	3468726.000	599169.225	02/28/08	4538.63	120.84	4417.79
				05/20/08	4538.63	125.00	4413.63
COB WL	593116	3472502.012	606357.506	02/22/08	4832.06	56.50	4775.56
				05/20/08	4832.06	57.50	4774.56
COOPER C	637069	3468913.011	601349.987	03/04/08	4595.06	155.08	4439.98
				05/05/08	4595.06	155.34	4439.72
DODSON	644927	3469063.772	605594.560	05/12/08	4686.34	81.38	4604.96
DOUGLASS 791	592791	3470222.677	607632.993	02/13/08	4703.27	22.11	4681.16
				05/13/08	4703.27	24.60	4678.67
DOUGLASS 792	592792	3469829.115	607607.541	02/13/08	4681.73	87.76	4593.97
				05/13/08	4681.73	87.21	4594.52
EAST	599796	3468712.215	607076.365	02/08/08	4626.01	50.20	4575.81
				05/14/08	4626.01	52.45	4573.56
ENGLUND	565260	3471341.335	602551.286	02/12/08	4733.72	289.47	4444.25
				05/29/08	4733.72	288.53	4445.19

TABLE 3
Groundwater Elevation Data for First and Second Quarter 2008

Well Name	ADWR 55 Registry No.	UTM North	UTM East	Date	Measuring Point Elevation ¹ (ft amsl)	Depth To Water (feet)	Groundwater Elevation (ft amsl)
EPPELE 641	805641	3469229.942	607165.354	03/11/08	4642.86	29.52	4613.34
				05/12/08	4642.86	30.64	4612.22
GALLANT	502527	3468524.363	607769.640	02/11/08	4599.58	28.32	4571.26
GARNER 557	558557	3468962.415	602659.240	02/21/08	4626.44	191.05	4435.39
				05/05/08	4626.44	191.28	4435.16
GARNER 635	587635	3468967.902	602665.352	02/04/08	4628.29	193.20	4435.09
				05/05/08	4628.29	195.90	4432.39
GGOOSE 547	628547	3469820.260	606256.657	05/21/08	4717.11	220.91	4496.20
GL-03	539782	3472738.941	608379.424	05/22/08	4840.37	660.15	4180.22
GOAR RANCH	610695	3468892.471	602454.751	02/21/08	4631.13	183.90	4447.23
				05/05/08	4631.13	188.11	4443.02
HOBAN	805290	3468880.329	601705.848	02/27/08	4597.21	163.05	4434.16
				05/07/08	4597.21	163.28	4433.93
HOWARD	NR	3468768.622	601281.936	03/04/08	4589.70	150.10	4439.60
				05/08/08	4589.70	150.70	4439.00
KEEFER	209744	3468119.015	599879.175	02/06/08	4572.03	134.67	4437.36
				05/06/08	4572.03	135.28	4436.75
MCCONNELL 265	539265	3468840.139	601463.094	02/20/08	4600.70	156.15	4444.55
				05/06/08	4600.70	156.40	4444.30
METZLER	35-71891	3471381.176	602091.308	03/05/08	4728.53	288.30	4440.23
				05/15/08	4728.53	286.53	4442.00
MINOR 317	633317	3468568.043	601172.150	02/12/08	4578.86	135.30	4443.56
NOTEMAN	212483	3471576.400	606053.800	05/13/08	4800.68	339.77	4460.91
OSBORN	643436	3470270.548	607031.823	05/13/08	4711.95	68.65	4643.30
PARRA	576415	3471263.549	602170.716	05/15/08	4727.21	279.78	4447.43
POOL	509518	3470013.823	599683.603	02/20/08	4639.09	204.22	4434.87
				05/19/08	4639.09	204.72	4434.37
POWER	624535	3472738.941	608379.424	02/12/08	4840.37	42.30	4798.07
RAY	803772	3469195.147	607083.422	02/15/08	4647.91	40.85	4607.06
				05/13/08	4647.91	43.82	4604.09
ROGERS 803	641803	3468417.386	600977.690	02/07/08	4579.02	129.85	4449.17
RUIZ	531770	3471424.219	602857.357	02/05/08	4735.18	293.29	4441.89

TABLE 3
Groundwater Elevation Data for First and Second Quarter 2008

Well Name	ADWR 55 Registry No.	UTM North	UTM East	Date	Measuring Point Elevation ¹ (ft amsl)	Depth To Water (feet)	Groundwater Elevation (ft amsl)
				05/15/08	4735.18	293.57	4441.61
SCHWARTZ	210865	3468268.057	600811.529	02/08/08	4551.58	121.80	4429.78
				05/19/08	4551.58	123.49	4428.09
SRC	211345	3472505.400	599723.300	04/23/08	4807.37	541.10	4266.27
STEPHENS	808560	3469072.799	606981.766	05/13/08	4651.22	44.94	4606.28
SUNBELT	201531	3471735.149	605998.250	02/06/08	4806.52	352.10	4454.42
				05/15/08	4806.52	358.97	4447.55
SWAN	NR	3470648.298	607378.547	02/13/08	4716.59	26.50	4690.09
				05/14/08	4716.59	30.69	4685.90
TM-02A	522574	3472008.794	604152.059	03/04/08	4808.43	346.62	4461.81
				05/23/08	4808.43	346.16	4462.27
TM-03	522575	3473711.046	606366.130	03/12/08	4897.85	127.14	4770.71
				05/20/08	4897.85	127.40	4770.45
TM-06 MILLER	522695	3468376.658	606055.975	02/26/08	4707.88	158.78	4549.10
				05/20/08	4707.88	158.76	4549.12
TM-14 NELSON	522816	3470111.613	599624.302	02/08/08	4643.48	211.79	4431.69
TM-15 MILLER	522699	3471427.504	599617.331	02/27/08	4729.26	294.90	4434.36
TM-16	522578	3469842.199	605588.075	03/05/08	4717.71	81.00	4636.71
				05/22/08	4717.71	81.24	4636.47
TM-19A	522581	3469197.426	602458.710	03/06/08	4645.87	199.85	4446.02
				05/22/08	4645.87	199.50	4446.37
TM-42	562554	3469104.903	603698.271	03/05/08	4666.67	211.04	4455.63
				05/22/08	4666.67	210.98	4455.69
TM-43	564729	3474670.811	605365.062	03/03/08	4971.44	149.05	4822.39
TM-43A	564726	3474661.168	605358.451	03/03/08	4969.95	133.71	4836.24
TM-43B	565004	3474379.892	605814.018	03/03/08	4922.18	64.00	4858.18
TVI 236	802236	3467978.431	600552.215	05/07/08	4561.98	123.30	4438.68
TVI 713	567713	3468412.946	600729.095	05/07/08	4567.22	127.10	4440.12
WALKER	200393	3468577.472	607564.689	02/13/08	4601.55	25.20	4576.35
WEISKOPF	641802	3468658.855	601154.951	02/15/08	4586.89	143.31	4443.58
				05/07/08	4586.89	143.90	4442.99
ZANDER	205126	3467998.486	599678.880	02/04/08	4580.94	144.85	4436.09
				05/06/08	4580.94	145.33	4435.61

¹ Survey Source: Hydro Geo Chem, Inc.; measuring point = top of well casing

² Based on digital elevation model (DEM) AWC, Responses to City of Bisbee's Aquifer Protection Permit P-100983 and AZPDES Permit No. AZ0025275 (2006)

ft amsl = feet above mean sea level

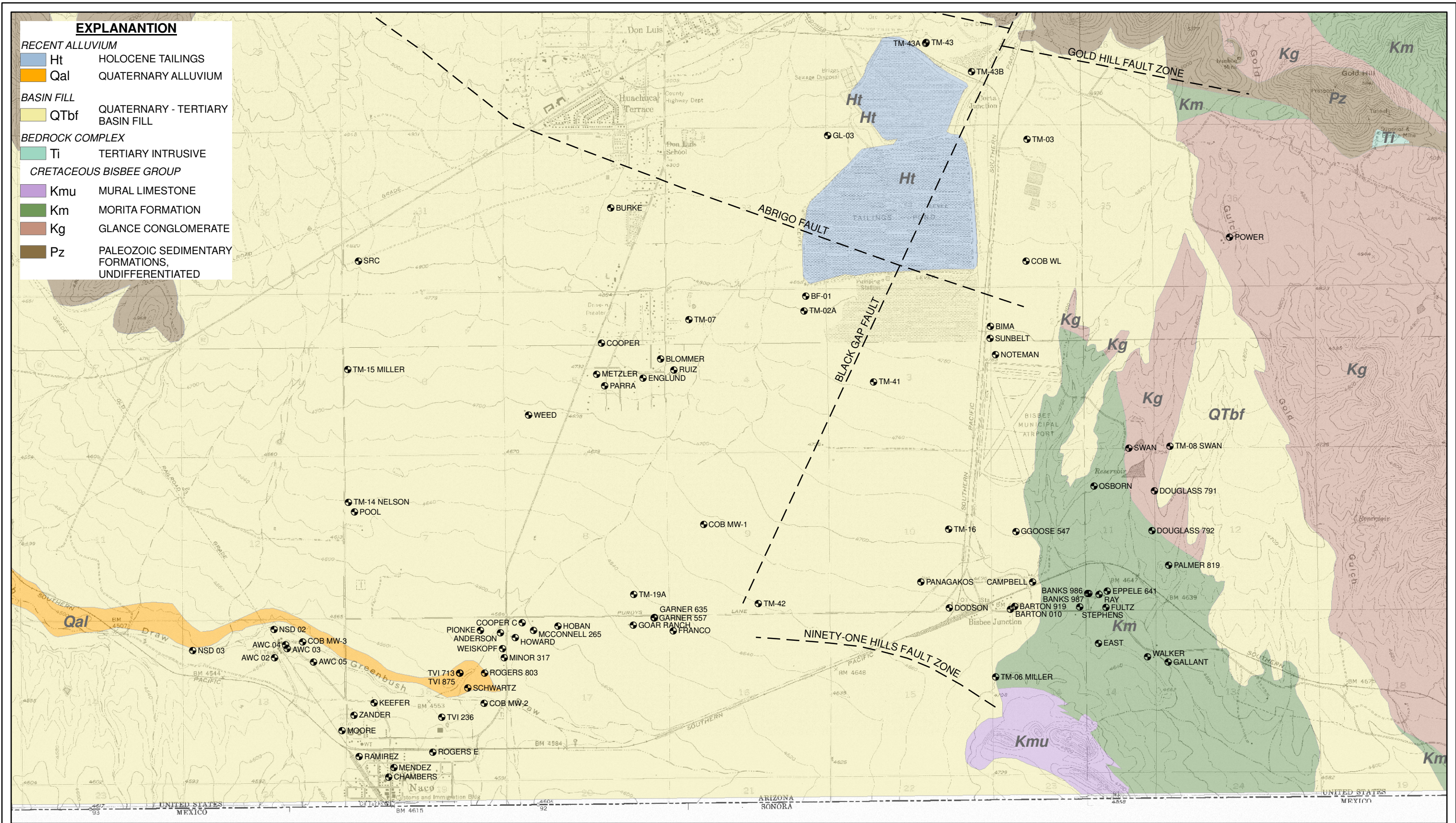
UTM = Universal Transverse Mercator Zone 12 Band R

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

Well Name	ADWR 55 Registry No.	Top of Casing Elevation (ft amsl)	Total Depth (ft bgs)	Screen Interval (ft bgs)	Screened Formation Lithology	Depth to Morita Formation (ft bgs)	Depth to Glance Conglomerate (ft bgs)	Comments
ANDERSON	613396	4580.34	236	ND	QTbf	NA	NA	No Log
AWC 02	616585	4541 ¹	330	100-215	QTbf	NA	NA	Geologic Log
AWC 03	616585	4538 ¹	269	83-269	QTbf	NA	NA	Geologic Log
AWC 04	590620	4531 ¹	250	ND	QTbf	NA	NA	Geologic Log
AWC 05	590620	4548 ¹	1183	163-603 623-1163	Km / Volcanics	400	No Glance	Geologic Log
BANKS 986	647986	ND	445	ND	Km ³	31	NA	No Log
BANKS 987	647987	4648.18	339	ND	Km ³	ND	NA	No Log
BARTON 010	085010	4688.95	300	180-300	Km ^{3, 4}	ND	NA	Geologic Log
BARTON 919	644919	4692.36	130	ND	QTbf ³	NA	NA	Geologic Log
BF-01	539783	4835.23	400	325-385	QTbf / Km / Kg	350	380	Geologic Log
BIMA	577927	4802.05	465	345-465	Km ^{3, 4}	ND	ND	Red Rock, Red Shale
BLOMMER	633472	4735.61	380	ND	Km ²	245	NA	No Log
BULLARD	602134	4730 ³	300	215-300	QTbf	NA	NA	No Log
BURKE	212268	4856.30	781	661-781	Km	150	NA	Red shale
CAMPBELL	215509	4694.29	350	20-350	Km ^{2, 3}	ND	NA	No Log
CHAMBERS	629807	ND	245	ND	QTbf	NA	NA	No Log
COB MW-1	903992	4883.26	420	350-410	QTbf	NA	NA	Geologic Log
COB MW-2	903984	4566.21	170	92-152	QTbf	NA	NA	Geologic Log
COB MW-3	906823	4538.63	269	83-269	QTbf	NA	NA	Geologic Log
COB WL	593116	4832.06	150	90-150	Kg ^{3, 4}	No Morita	36	Geologic Log
COOPER	623564	ND	325	ND	QTbf	NA	NA	No Log
COOPER C	637069	4595.06	220	ND	QTbf	NA	NA	No Log
DODSON	644927	4686.34	200	ND	Km	ND	NA	No Log
DOUGLASS 791	592791	4703.27	200	0-200	Kg ^{3, 4}	No Morita	4	Conglomerate
DOUGLASS 792	529792	4681.73	200	0-200	Kg ^{3, 4}	No Morita	4	Conglomerate
EAST	599796	4626.01	125	85-125	Km ³	20	NA	Geologic Log
ENGLUND	565260	4733.72	320	260-320	Km ²	ND	NA	Conglomerate
EPPELE 641	805641	4642.86	265	ND	Km ³	ND	NA	Geologic Log
FRANCO	500101	4620.51 ³	200	180-200	QTbf	NA	NA	Geologic Log
FULTZ	212447	ND	300	200-300	Km ^{3, 4}	10	NA	Sand, Volcanic
GALLANT	502527	4599.58	190	40-60 80-140	Km ^{3, 4}	5	NA	Brown and Red Sandstone
GARNER 557	558557	4626.44	300	180-300	QTbf	NA	NA	Geologic Log
GARNER 635	587635	4628.29	680	580-660	Km	540	NA	Geologic Log
GGOOSE 546	628546	4700.51 ³	800	ND	Km ²	ND	ND	No Log
GGOOSE 547	628547	4717.11	800	ND	Km ²	ND	ND	No Log
GL-03	539782	4924.31	820	780-820	Kg ⁴	No Morita	175	Geologic Log
GOAR RANCH	610695	4631.13	250	ND	QTbf	NA	NA	No Log
HOBAN	805290	4597.21	316	ND	QTbf	NA	NA	No Log
HOWARD	NR	4589.7	200	ND	QTbf	NA	NA	No ADWR Record
KEEFER	209744	4572.03	245	185-245	QTbf	NA	NA	Geologic Log
MCCONNELL 265	539265	4600.7	216	174-216	QTbf	NA	NA	Geologic Log
METZLER	35-71891	4728.53	351	245-345	Km ²	ND	NA	No Log
MINOR 317	063317	4578.86	155	ND	QTbf	NA	NA	No Log
MOORE	538847	ND	220	180-220	QTbf	NA	NA	Geologic Log
NOTEMAN	212483	4800.68	400	0-400	Km ²	ND	ND	No Log
NSD 02	527587	4527 ⁵	120	75-115	QTbf	NA	NA	Geologic Log
NSD 03	527586	4515 ⁵	100	55-95	QTbf	NA	NA	Geologic Log
NWC 01	627682	ND	215	ND	QTbf	NA	NA	Geologic Log
NWC 02R	562944	4590 ¹	312	212-312	QTbf	NA	NA	Geologic Log
NWC 03R	203321	ND	312	252-312	QTbf	NA	NA	Geologic Log
NWC 04	627685	4685 ¹	379	322-462	Km	NA	NA	Geologic Log
NWC 05	627696	4687.71 ¹	175	ND	QTbf	NA	NA	Geologic Log
NWC 06	575700	ND	410	180-340	QTbf	NA	NA	Geologic Log
OSBORN	643436	4711.95	150	122-258	Kg	150	NA	Geologic Log
PALMER 819	578819	ND	220	122-258	Km ^{3, 4}	80	NA	Geologic Log
PANAGAKOS	35-76413	ND	200	141-200	Km ^{3, 4}	NA	NA	Geologic Log
PARRA	576415	4727.21	355	255-355	Km ²	ND	NA	Gravel, Rock, Sand, Clay
PIONKE	613395	ND	300	ND	QTbf	NA	NA	No Log
POOL	509518	4639.09	313	213-300	QTbf	NA	NA	Geologic Log
POWER	624535	4840.37	100	60-99	Kg ³	ND	ND	No Log
RAMIREZ	216425	ND	300	250-300	QTbf	NA	NA	No Log
RAY	803772	4647.91	100	ND	Km ³	ND	NA	No Log
ROGERS 803	641803	4579.02	140	230-290	QTbf ²	NA	NA	No Log
ROGERS E	216018	ND	290	240-285	QTbf ²	NA	NA	Brown Rock
RUIZ	531770	4735.18	312	252-312	QTbf / Km	265	NA	Redish Brown Sedimentary
SCHWARTZ	210865	4551.58	305	260-305	QTbf	NA	NA	Geologic Log
SRC	211345	4810.12	965	845-965	Km ²	500	NA	Red Shale
STEPHENS	808560	4651.22	NR	ND	Km ²	ND	ND	No ADWR Record
SUNBELT	201531	4806.52	380	300-380	Km / Kg ²	2	320	Red Clay and Conglomerate
SWAN	NR	4716.59	150	38-110	Kg ²	ND	ND	No ADWR Record
TM-02A	522574	4808.43	925	825-925	Kg ³	345	680	Geologic Log
TM-03	522575	4897.85	200	150-200	Kg	NA	32	Geologic Log
TM-05 MILLER	522694	4598.06 ³	160	120-160	QTbf ^{4, 5}	NA	NA	Geologic Log
TM-06 MILLER	522695	4707.88	200	150-200	Km ^{4, 5}	15	NA	Geologic Log
TM-07	522576	4768.93 ³	350	259-349	Km ^{4, 5}	195	NA	Geologic Log
TM-08 SWAN	522817	4725.44	817	757-817	Kg ³	No Morita	60	Geologic Log
TM-11 PIONKE	522815	4573.1 ³	160	99-159	QTbf ^{4, 5}	NA	NA	Geologic Log
TM-12 MILLER	522697	4589.44 ³	175	121-171	QTbf ^{4, 5}	NA	NA	Geologic Log
TM-13 MILLER	522698	4617.29 ³	200	140-200	QTbf ^{4, 5}	NA	NA	Geologic Log
TM-14 NELSON	522816	4643.48	215	165-215	QTbf ^{4, 5}	NA	NA	Geologic Log
TM-15 MILLER	522699	4729.26	325	260-320	Km ^{4, 5}	220	NA	Geologic Log
TM-16	522578	4717.71	115	65-115	Km ^{3, 4, 5}	40	NA	Geologic Log
TM-19A	522581	4645.87	210	585-695	Km ^{3, 4}	535	NA	Geologic Log
TM-41	562555	4774.58	210	145-200	Km ⁴	95	NA	Geologic Log
TM-42	562554	4666.67	250	180-240	Km ⁴	65	NA	Geologic Log
TM-43	564729	4971.44	830	720-800	Km ⁴	170	NA	Geologic Log
TM-43A	564726	4969.95	215	130-190	QTbf / Km ⁴	150	NA	Geologic Log
TM-43B	565004	4922.18	215	150-190	Km ⁴	80	NA	Geologic Log
TVI 236	802236	4561.98	222	ND	QTbf	NA	NA	No Log
TVI 713	567713	4567.22	200	80-144	QTbf ²	NA	NA	Geologic Log
TVI 875	568875	ND	330	166-320	QTbf	NA	NA	Geologic Log
WALKER	200393	4601.55	120	80-100	Km ^{3, 4}	18	NA	Geologic Log
WEED	544535	4675 ³	320	280-320	Km / Kg	270	317	Geologic Log
WEISKOPF	641802	4586.89	200	ND	QTbf ²	NA	NA	No Log
ZANDER	205126	4580.94	280	220-260	QTbf	NA	NA	Geologic Log

ADWR = Arizona Department of Water Resources
ft amsl = feet above mean sea level
ft bgs = feet below ground surface
QTbf = Quaternary-Tertiary basin fill
Km = Cretaceous Morita Formation
Kg = Cretaceous Glance Conglomerate
ND = No Data
NA = Not Applicable
NR = No Record
35-70000 = ADWR 35 Database
¹ Based on USGS topographic map
² Formation estimated based on well completion depth and lithology of nearby wells
³ Based on Well Depth and Geology Map, Hayes and Landis (1964)
⁴ Based on Well Drillers Report to ADWR (1994)
⁵ Based on Geologic Log in Phelps Dodge, Aquifer Protection Permit Application, Cochise County, Arizona. (1990)

FIGURES



Legend

- Well Location and Identification
- Faults

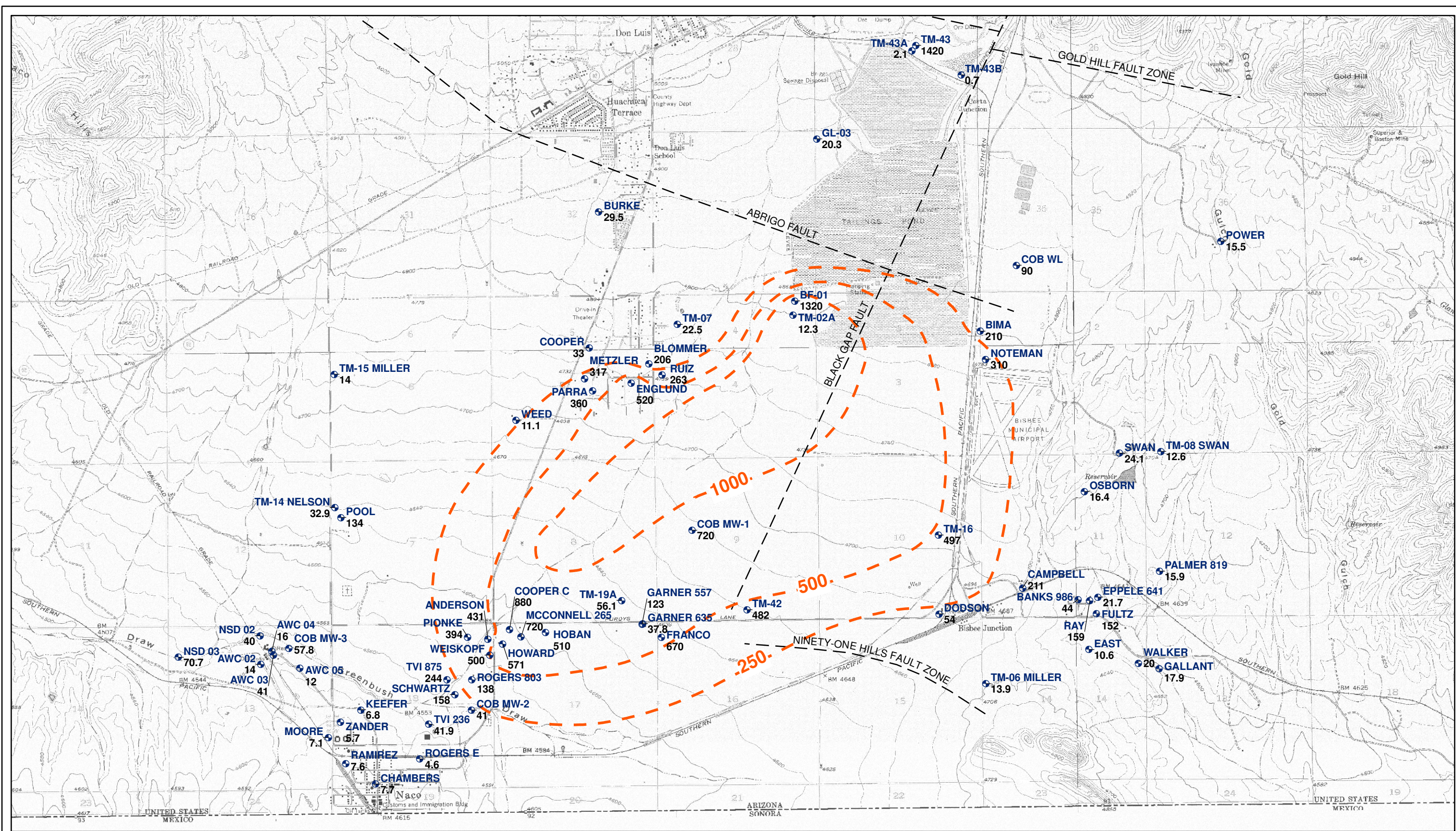
PROJECTION:
UTM Zone 12N NAD83
1 inch equals 3,000 feet

0 1000 2000 3000

**HYDRO
GEO
CHEM, INC.**

GENERALIZED GEOLOGY AND WELL LOCATIONS

Approved DRS	Date 07/15/08	Author RAM	Date 07/15/08	File Name 8720071G	Figure 1
------------------------	-------------------------	----------------------	-------------------------	------------------------------	--------------------



Legend

TM-19A Well ID

56.1 Sulfate Concentration (mg/L)


250 Sulfate Isoline (mg/L)

--- Faults

1 inch equals 3,000 feet

0 1000 2000 3000

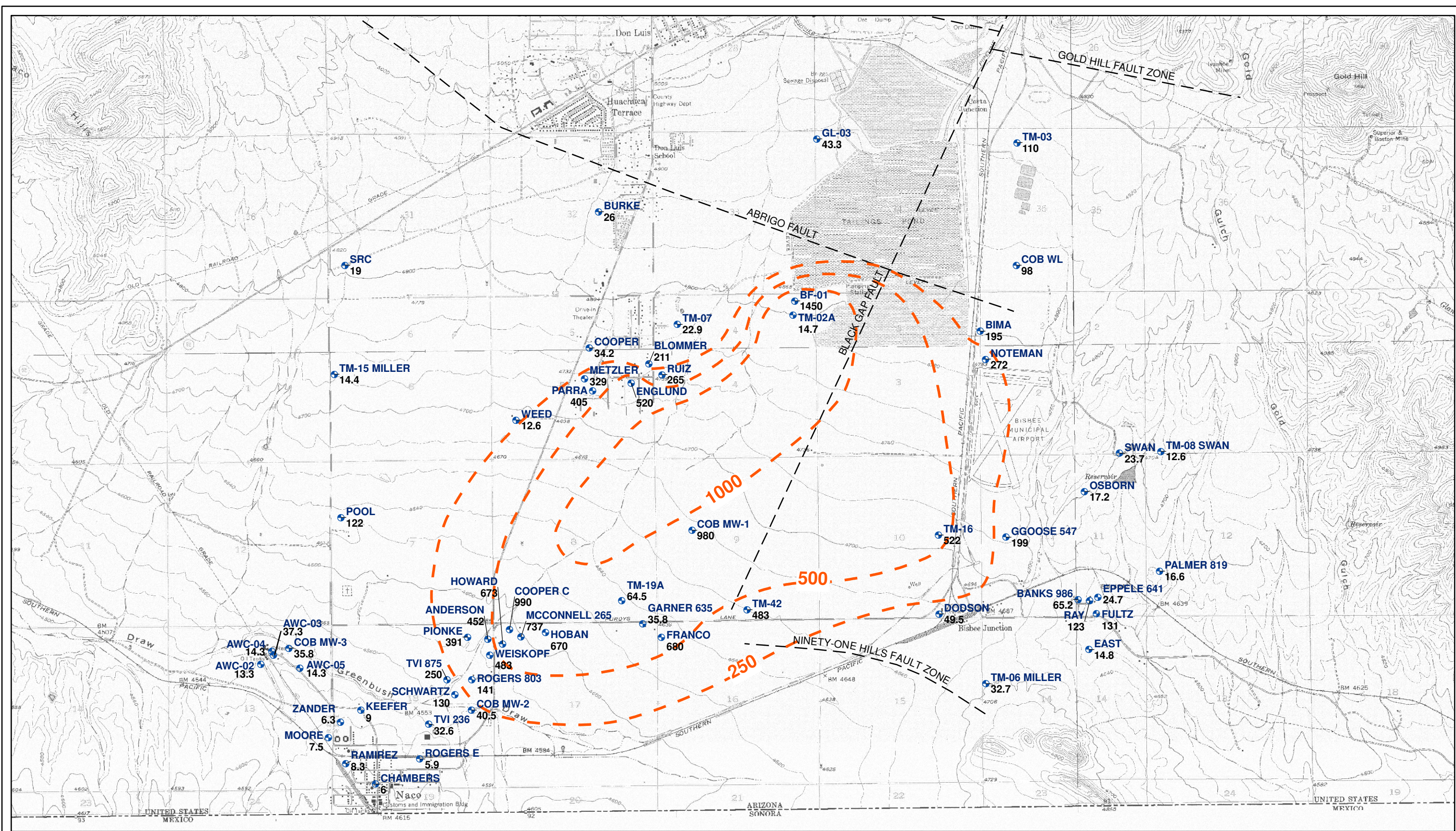
PROJECTION:
UTM Zone 12N NAD83



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**SULFATE CONCENTRATIONS FOR
FIRST QUARTER 2008**

Approved DRS	Date 07/28/08	Author RAM	Date 07/28/08	File Name 8720075G	Figure 2
------------------------	-------------------------	----------------------	-------------------------	------------------------------	--------------------



Legend

● **TM-19A** Well ID

56.1 Sulfate Concentration (mg/L)



--- **250** Sulfate Isoline (mg/L)

--- Faults

1 inch equals 3,000 feet

0 1000 2000 3000

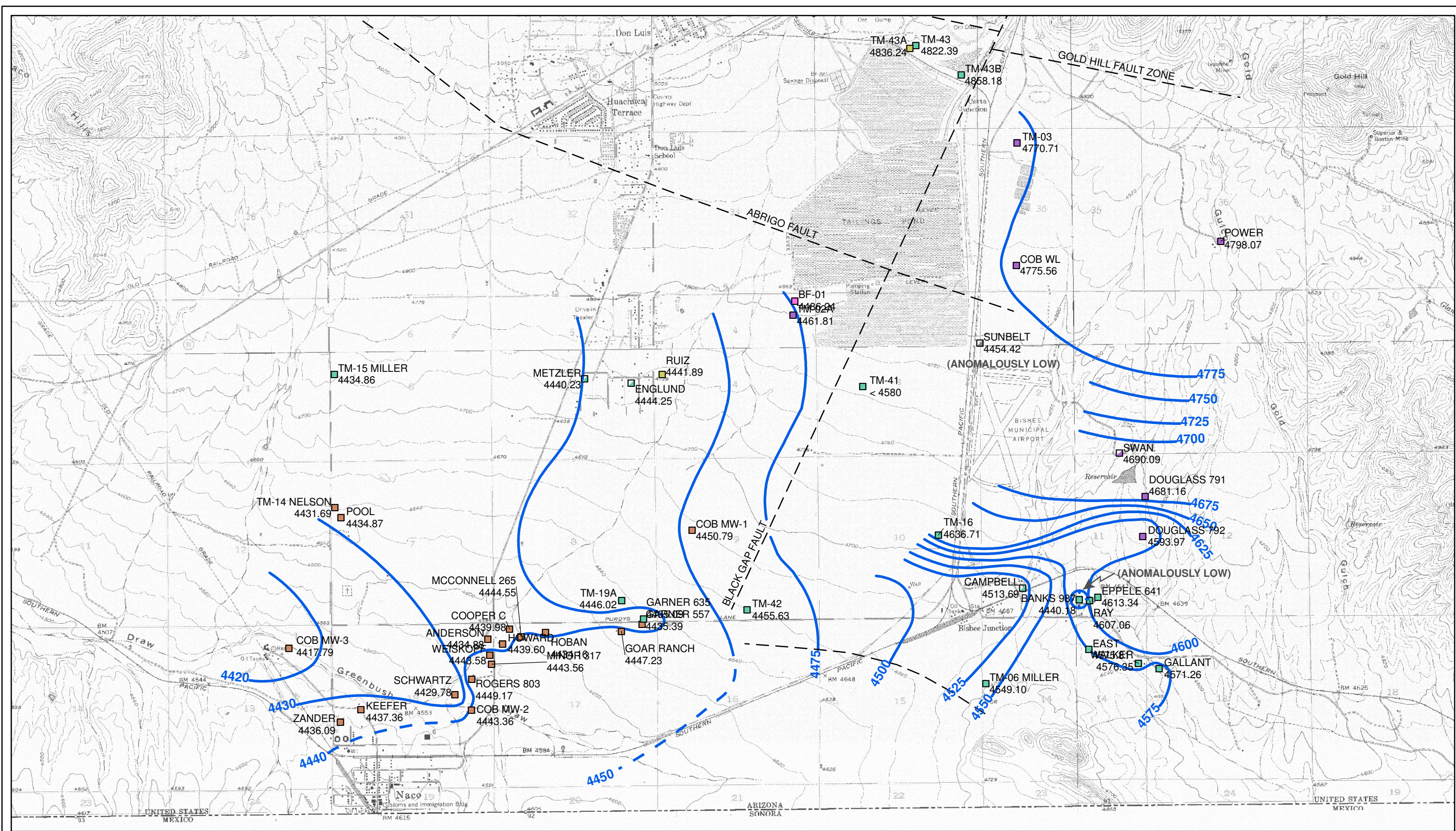
PROJECTION:
UTM Zone 12N NAD83



**HYDRO
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**SULFATE CONCENTRATIONS FOR
SECOND QUARTER 2008**

Approved DRS	Date 07/28/08	Author RAM	Date 07/28/08	File Name 8720081G	Figure 3
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Legend

■ ZANDER Well ID
4436.09 Groundwater Elevation (ft amsl)

— Faults

— Groundwater Contours

Screened Formation

- Basin Fill
- Morita Formation
- Glance Conglomerate
- Morita Formation- Estimated
- Glance Conglomerate- Estimated

Basin Fill and Morita Formation

- Basin Fill, Morita Formation and Glance Conglomerate
- Morita Formation and Glance Conglomerate- Estimated

1 inch equals 3,000 feet

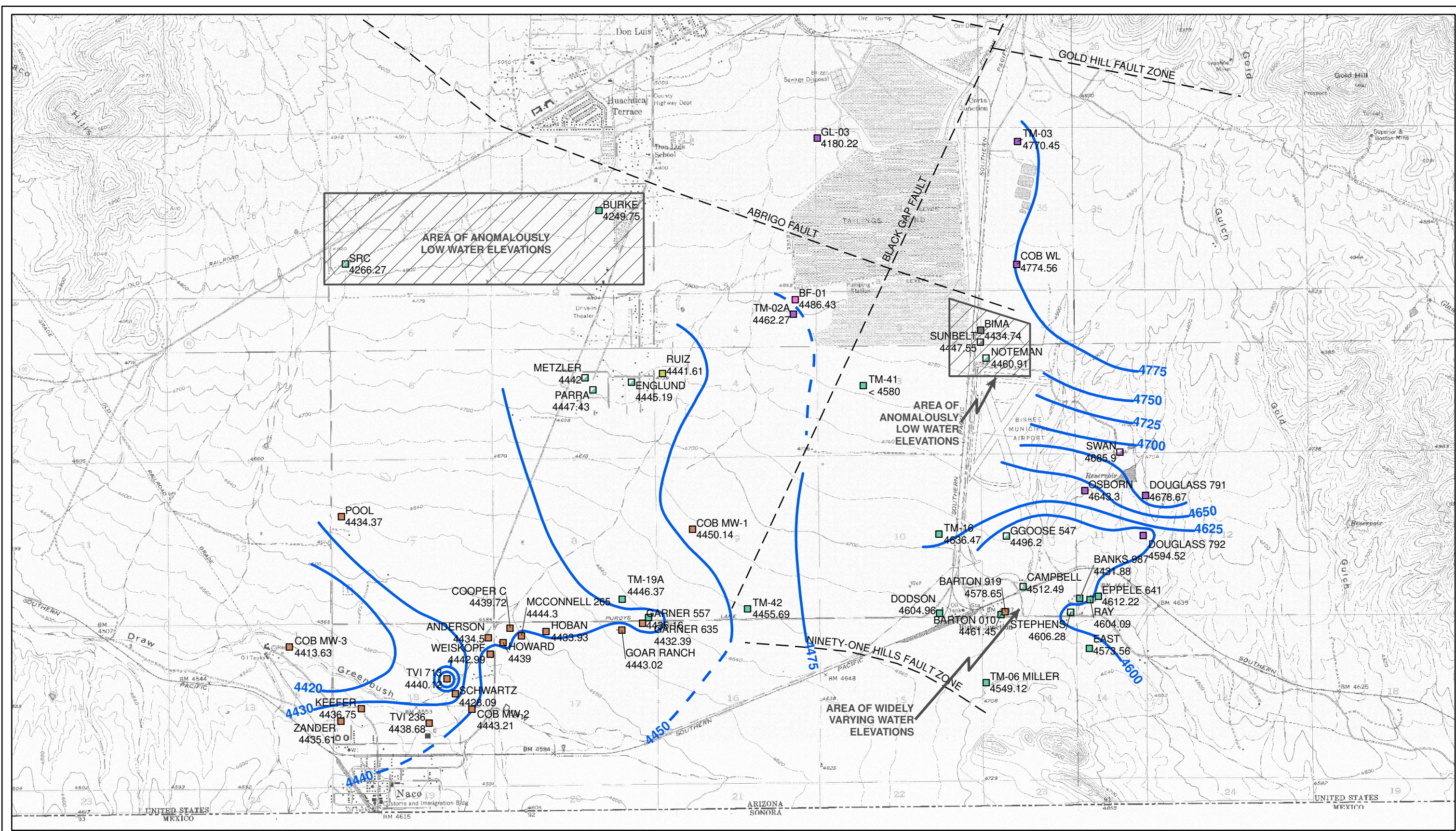
0 1000 2000 3000

PROJECTION:
UTM Zone 12N NAD83

**HYDRO
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CHEM, INC.**

**GROUNDWATER ELEVATIONS FOR
FIRST QUARTER 2008**

Approved DRS	Date 07/15/08	Author RAM	Date 07/15/08	File Name 8720077G	Figure 4
------------------------	-------------------------	----------------------	-------------------------	------------------------------	--------------------



Legend

Well ID

Groundwater Elevation (ft amsl)

Faults

Groundwater Contours

Screened Formation

- Basin Fill
- Morita Formation
- Glance Conglomerate
- Morita Formation- Estimated
- Glance Conglomerate- Estimated

Basin Fill and Morita Formation

- Basin Fill, Morita Formation and Glance Conglomerate
- Morita Formation and Glance Conglomerate- Estimated

0 1000 2000 3000

PROJECTION:
UTM Zone 12N NAD83

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**GROUNDWATER ELEVATIONS FOR
SECOND QUARTER 2008**

Approved DRS	Date 07/25/08	Author RAM	Date 07/25/08	File Name 8720082G	Figure 5
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APPENDIX A

FIRST QUARTER 2008 DATA VERIFICATION REPORT

APPENDIX A

**FIRST QUARTER 2008
DATA VERIFICATION REPORT**

Prepared for:

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

Prepared by:

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July 30, 2008

TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	HGC FIELD OPERATIONS	3
2.1	Water Level Monitoring	3
2.2	Groundwater Sampling	4
2.2.1	Pre-Sampling Field Activities	4
2.2.2	Well Purging, Field Measurements, and Sample Collection	5
2.2.3	Post-Sampling Field Activities	6
3.	SAMPLE HANDLING	7
4.	LABORATORY QUALITY CONTROL	9
4.1	Licensure	9
4.2	Analytical Methods	9
4.3	Method Detection Limits (MDLs) and Practical Quantification Limits (PQLs) ..	10
4.4	Timeliness	11
4.5	Quality Control Measurements	12
4.5.1	Preparation Blanks, Calibration Blanks, and Calibration Verification Standards	12
4.5.2	Analytical Spikes and Analytical Spike Duplicates	13
4.5.3	Laboratory Control Samples	14
4.5.4	Laboratory Duplicate Samples	14
4.5.5	Field Blank Samples	14
5.	DATA QUALITY INDICATORS	17
5.1	Precision	17
5.2	Bias	18
5.3	Accuracy	18
5.4	Representativeness	19
5.5	Comparability	19
5.6	Completeness	19
5.7	Sensitivity	20
5.8	Auxiliary Data Quality Indicators	20
5.8.1	Cation-Anion Balance	20
5.8.2	TDS Ratio	21
6.	REFERENCES	23

TABLE OF CONTENTS (Continued)

TABLES

- A.1 ACZ Project ID and Associated Wells
- A.2 Relative Percent Difference (RPD) of Duplicate Field Samples

1. INTRODUCTION

This report summarizes the data verification review of groundwater samples collected and analyzed during the first quarter 2008 (Q1-2008) 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 Table 1 of the Work Plan (HGC, 2008a) and groundwater samples collected as part of the well inventory investigation (HGC, 2008b). All analytical results for groundwater samples collected for this project during the first quarter of 2008 were provided to HGC by Arizona Water Company (AWC), Naco Sanitary District (NSD), or ACZ Laboratories, Inc. (ACZ) for preparation of the First and Second Quarters 2008 Groundwater Monitoring Report. Data verification for samples collected and analyzed by others entities and reported by HGC is not provided in this 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 D of the main text of this report contains laboratory reports for Q1-2008 samples collected by HGC including COC forms, laboratory correspondence, QC summaries, data qualifiers, and any case narratives. The Q1-2008 analytical results for all 71 samples

collected by HGC are contained in 36 reports having the ACZ Project numbers identified in Table A.1.

The results of the internal QA/QC tests performed by ACZ are presented with the laboratory reports included in Appendix D. 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, specific conductance [SC] in microsiemens per centimeter [$\mu\text{S}/\text{cm}$], and temperature in degrees Celsius [$^{\circ}\text{C}$]),
- 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 in the semi-annual regional monitoring schedule and well inventory tasks 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 pH¹ and SC² probes were 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 probes to ensure their 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 de-ionized water to properly decontaminate field equipment prior to the start of sampling each day and after sampling at each

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 $\mu\text{S}/\text{cm}$

well, and 5) obtaining the appropriate field notebook in order to document field activities related to the groundwater monitoring program.

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 E) 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 and unfiltered groundwater samples were collected for analysis from 65 plume monitor wells. Groundwater for filtered and unfiltered samples was collected using a single container to collect an initial sample for separation into bottles for filtered and unfiltered analyses. After collecting the initial sample, the unfiltered sample was collected by pouring a 500-milliliter (mL) aliquot of the initial sample into a non-preserved bottle for alkalinity analysis. Then each filtered sample was collected by filtering the remaining portion of the initial sample into a 250 mL bottle using a clean filtration apparatus and one unused, disposable 0.45-micron filter. All bottles were provided by ACZ. Bottles were

checked for the correct preservative 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 de-ionized water. After washing, the equipment was rinsed thoroughly with de-ionized 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.

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 temperatures of the following five shipping containers (identified by their laboratory login numbers) 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)
L67668	02/13/08	02/13/08	02/14/08	6.8
L67713	02/15/08	02/15/08	02/16/08	4.3
L67714	02/15/08	02/15/08	02/16/08	4.3
L67837	02/22/08	02/22/08	02/25/08	12.1
L67843	02/25/08	02/25/08	02/26/08	5.5

As noted in the above table, the samples were shipped the same day of sample collection, and the time between sample collection and receipt of samples by ACZ ranged from one 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 analysis 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 Methods

The following list identifies the approved U.S. Environmental Protection Agency (EPA) methods that meet the requirements stated in section 5.3 of the QAPP regarding target methods and target MDLs:

- EPA 375.4 (Turbidimetric): sulfate
- EPA 300.0 (Ion-Chromatography [IC]): sulfate, chloride, fluoride
- EPA 200.7 (Inductively Coupled Plasma [ICP]): calcium, magnesium, potassium, sodium
- EPA 353.2 (Automated Cadmium Reduction [ACR]): nitrate/nitrite
- SM2320B (Titration): alkalinity
- EPA 160.1 (Gravimetric): total dissolved solids
- SM4500 SO4-D (Gravimetric): sulfate

Two of these methods, IC (EPA 300.0) and ICP (EPA 200.7), involve direct injection of the sample into the analytical instrument, which does not require the analysis of preparation blanks. The other methods listed are classical wet chemistry techniques that require the use of preparation blanks under the ACZ quality assurance plan and the QAPP.

4.3 Method Detection Limits (MDLs) and Practical Quantification Limits (PQLs)

The MDLs and PQLs of the analytical methods used by ACZ are shown in the following table. The MDLs for analyses of samples were equal to or less than the target MDLs identified in the QAPP.

Method	MDL (mg/L)	PQL (mg/L)	Target MDL ¹ (mg/L)
EPA 300.0 (SO ₄)	0.5	3	10
EPA 375.4	1	5	10
SM4500 SO ₄ -D	10	50	10
EPA 200.7 (Ca and Mg)	0.2	1	0.2
EPA 200.7 (K and Na)	0.3	2	0.3
SM2320B	2	20	2
EPA 300.0 (Cl)	0.5	5	1
EPA 300.0 (F)	0.1	0.5	0.1
EPA 352.2	0.02	0.1	0.02
EPA 160.1	10	20	10

mg/L = milligrams per liter

¹ Target MDL from Table F.2 of QAPP

SM = Standard Method

4.4 Timeliness

Holding times were derived from the EPA methods utilized and were calculated beginning from the time of sample collection. The majority of samples submitted to the laboratory were analyzed within their recommended method specific holding time except for nitrate/nitrite as N and nitrite analyses in the following: Samples collected on February 12, 2008 (PARRA and GALLANT), were qualified with an “HE” flag, indicating analysis performed past the holding time because sample was received with less than half the holding time remaining. Samples collected on February 22, 2008 (COB MW-1, COB MW-2, COB WL, DUP022208, and FB022208) were qualified with an “H3” flag, indicating that the samples were received and analyzed past holding time. One sample collected on February 14, 2008 (WEED) was qualified with “H1” and “HC” flags, indicating that the sample and confirmatory analysis was performed past holding times. Samples (ROGERS 803, TVI 236, and COOPER C), collected on March 20,

were 2008 were qualified with a “HC” flag, indicating that the initial analysis for TDS was within the holding time. However, reanalysis was past holding time for both nitrate/nitrite as N and nitrite is 48 hours from collection to analysis. No data were rejected on the basis of the holding time exceedances and were accepted as usable.

4.5 Quality Control Measurements

The following QC samples were prepared and analyzed:

- Preparation blanks, calibration blanks, and calibration verification standards
- Analytical spikes and analytical spike duplicates
- Laboratory control samples
- Laboratory duplicate samples
- Field blank samples

4.5.1 Preparation Blanks, Calibration Blanks, and Calibration Verification Standards

Preparation blanks were run with each group of samples submitted for alkalinity and TDS analysis. All preparation blanks were prepared from analyte-free water and treated as routine samples. Analytical results of all of the preparation blanks showed that no target analytes were detected at the indicated MDL.

Results from the analyses of the initial calibration blanks and initial calibration verification standards conducted by EPA Methods 300.0, 375.4, 200.7, and 353.2 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 Spikes and Analytical Spike Duplicates

Analytical spike and spike duplicate samples were analyzed for the following EPA Methods: 300.0, 375.4, 200.7, and 353.2. 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 either high, low, or unusable were qualified with an “M1”, “M2”, or “M3” flag, respectively. In each case the method control sample recoveries were acceptable. Although some analytical spikes and analytical spike duplicates were outside the acceptance limits and qualified with an “MA” flag, these recoveries are not considered to affect the overall accuracy of the dataset because the Relative Percent Difference (RPD) was within the acceptance limits.

4.5.3 Laboratory Control Samples

Laboratory control samples were run for each group of samples submitted for alkalinity and total dissolved solids. Recoveries for all laboratory control samples were within the acceptance criteria specified by ACZ.

4.5.4 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.

4.5.5 Field Blank Samples

During the first quarter of 2008, three field blank samples were collected using unfiltered deionized water (FB020808, FB022208, and FB030608). 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 sample was collected for every twenty samples. Analytical results from all field blank samples submitted showed no detections. Revision 1 of the Work Plan, submitted on July 3, 2008 now includes the collection of one equipment blank sample for every 20 samples from decontaminated equipment.

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 Q1-2008 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, a total of three field duplicate samples (DUP020808, DUP022208, and DUP030608) were collected by HGC for filtered and

unfiltered analysis. The collection of three duplicate samples meets 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 three duplicate field samples collected are provided in the Table A.2. The range of RPD values was between zero and 10.42 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.

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, 2008a) 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, 2008a) 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 were 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.

5.8 Auxiliary Data Quality Indicators

Auxiliary DQIs are indicators that, although not mentioned in the QAPP, are useful for assessing the reliability of the laboratory analyses. These auxiliary DQIs include the laboratory measured cation-anion balance and the ratio between measured and calculated TDS. Each of these auxiliary indicators is discussed below.

5.8.1 Cation-Anion Balance

The concentration in milliequivalents per liter (meq/L) of cations and of anions in groundwater should theoretically be approximately the same. Therefore, the balance between anions and cations is one measure of the overall quality of the laboratory measurements. The cation-anion balance can be expressed as the difference between the milliequivalents of cations and the milliequivalents of anions divided by the sum of the milliequivalents of both cations and anions. When computed in this manner, a cation-anion balance of 5 percent is considered good (Scott Habermahl, ACZ project manager, personal communication). The cation-anion balance

for all samples is presented in Table 2 and was below 5 percent for all samples except for the samples listed below. Overall, the cation-anion balance for all samples does not indicate any analytical errors. Cation-anion balances outside of 5 percent may indicate the presence of other ions not included in the analysis and ion balance.

Well and Sample ID	Sum of Anions (meq/L)	Sum of Cations (meq/L)	Cation-Anion Balance (%)
GARNER 635	4.9	5.5	5.8
PARRA	12.3	14.5	8.2
TM-06 MILLER	4.9	6.1	10.9
TM-07	3.7	4.7	11.9
TM-19A	4.3	5.4	11.3

meq/L = milliequivalents per liter

5.8.2 TDS Ratio

The ratio between the measured and computed concentration of TDS is also an indicator of the overall quality of the sample analyses. A TDS ratio between 0.8 and 1.2 is considered good (Scott Habermahl, ACZ project manager, personal communication). The ratios for all samples are presented in Table 2 and fall inside the acceptance criteria specified by ACZ. Overall, the low TDS ratios for all samples indicate no apparent analytical errors.

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. (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. Well Inventory Report, Task 1 of Aquifer Characterization Plan for Mitigation Order on Consent No. P-121-07, Cochise County, Arizona. July 28, 2008.

TABLES

TABLE A.1
ACZ PROJECT ID AND ASSOCIATED WELLS

ACZ Project ID	Wells Reported
<i>Number of wells sampled: 62</i> <i>Number of duplicate samples collected: 3</i> <i>Number of field blank samples collected: 3</i>	
L67529	ROGERS E, RAMIREZ, ZANDER
L67530	GARNER 635
L67560	RUIZ, BLOMMER, NOTEMAN, CAMPBELL
L67573	KEEFER, FRANCO, PIONKE
L67574	BIMA
L67599	ROGERS 803
L67600	BURKE
L67605	EAST, TM-14 NELSON, DUP020808, FB020808
L67606	SCHWARTZ
L67648	ENGLUND
L67649	POWER, GALLANT, PARRA
L67668	WALKER, SWAN, TM-08 SWAN
L67684	WEED
L67685	COOPER, PALMER 819
L67713	RAY
L67714	WEISKOPF
L67789	DODSON
L67790	MOORE, MCCONNELL 265, POOL
L67812	TVI 875, GARNER 557
L67817	TVI 236
L67837	COB MW-1, COB MW-2, COB W L, DUP022208, FB022208
L67843	OSBORN
L67881	TM-06 MILLER, TM-15 MILLER
L67882	BANKS 986, FULTZ, HOBAN
L67911	COB MW-3
L67953	TM-43, TM43A, TM-43B
L67989	COOPER C
L67990	BF-01, GL-03, TM-02A
L68019	TM-16, TM-42
L68020	HOWARD, METZLER
L68038	TM-19A, TM-07
L68039	CHAMBERS, DUP030608, FB030608
L68145	EPPELE 641
L68296	ROGERS 803, TVI 236, COOPER C [All Extended Parameters]
L68297	ANDERSON

TABLE A.2
RELATIVE PERCENT DIFFERENCE (RPD) OF DUPLICATE FIELD SAMPLES

Well and Sample ID	TM-14 NELSON			COB MW-2			CHAMBERS		
ACZ Project ID	L67605	L67605		L67837	L67837		L68039	L68039	
Parameter	Field Sample (mg/L)	Duplicate (mg/L)	RPD (%)	Field Sample (mg/L)	Duplicate (mg/L)	RPD (%)	Field Sample (mg/L)	Duplicate (mg/L)	RPD (%)
Calcium	56.1	55.4	1.26	66.4	65.7	1.06	NA	NA	*
Magnesium	10.0	10.0	0.00	9	8.9	1.12	NA	NA	*
Potassium	2.8	2.9	3.51	2.1	2.1	0.00	NA	NA	*
Sodium	23.6	23.7	0.42	25.5	25.2	1.18	NA	NA	*
Bicarbonate as CaO ₃	166	165	0.60	156	156	0.00	NA	NA	*
Carbonate as CaCO ₃	<2	<2	*	12	12	0.00	NA	NA	*
Hydroxide as CaCO ₃	<2	<2	*	<2	<2	*	NA	NA	*
Total Alkalinity	166	165	0.60	168	169	0.59	NA	NA	*
Sum of Anions	4.5	4.4	2.25	5.2	5.2	0.00	NA	NA	*
Sum of Cations	4.7	4.7	0.00	5.2	5.1	1.94	NA	NA	*
Chloride	12.5	12.6	0.80	19.4	19.3	0.52	NA	NA	*
Fluoride	0.3	0.3	0.00	0.3	0.3	0.00	NA	NA	*
Nitrate	1.82	1.88	3.24	6.49	6.53	0.61	NA	NA	*
Nitrite	<0.01	<0.01	*	<0.01	<0.01	*	NA	NA	*
Nitrate/Nitrite	1.82	2.02	10.42	6.49	6.53	0.61	NA	NA	*
TDS	250	250	0.00	340	350	2.90	NA	NA	*
TDS calculated	246	245	0.41	298	297	0.34	NA	NA	*
TDS Ratio	1.02	1.02	0.00	1.14	1.11	2.67	NA	NA	*
Sulfate, dissolved	32.9	32.9	0.00	41	41	0.00	7.7	7.7	0.00

ACZ = ACZ Laboratories, Inc.

mg/L = milligrams per liter

* RPD was not used for data validation; sample concentration too low for accurate evaluation (<10x MDL)

NA = Not Analyzed

APPENDIX B

**SECOND QUARTER 2008
DATA VERIFICATION REPORT**

APPENDIX B

SECOND QUARTER 2008
DATA VERIFICATION REPORT

Prepared for:

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

Prepared by:

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July 30, 2008

TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	HGC FIELD OPERATIONS	3
2.1	Water Level Monitoring	3
2.2	Groundwater Sampling	4
2.2.1	Pre-Sampling Field Activities	4
2.2.2	Well Purging, Field Measurements, and Sample Collection	5
2.2.3	Post-Sampling Field Activities	6
2.3	Well Surveys	7
3.	SAMPLE HANDLING	9
4.	LABORATORY QUALITY CONTROL	11
4.1	Licensure	11
4.2	Analytical Methods	11
4.3	Method Detection Limits (MDLs) and Practical Quantification Limits (PQLs) ..	12
4.4	Timeliness	12
4.5	Quality Control Measurements	13
4.5.1	Calibration Blanks and Calibration Verification Standards	13
4.5.2	Analytical Spikes and Analytical Spike Duplicates	14
4.5.3	Laboratory Control Samples	14
4.5.4	Laboratory Duplicate Samples	14
4.5.5	Field Blank Samples	15
5.	DATA QUALITY INDICATORS	17
5.1	Precision	17
5.2	Bias	18
5.3	Accuracy	19
5.4	Representativeness	19
5.5	Comparability	19
5.6	Completeness	20
5.7	Sensitivity	20
6.	REFERENCES	21

TABLE

B.1 ACZ Project ID and Associated Wells

TABLE OF CONTENTS (Continued)

APPENDICES

- B.1 Gilbert Technical Services, Inc. Well Survey Report
- B.2 Arizona Land Specialists Well Survey Report

1. INTRODUCTION

This report summarizes the data verification review of groundwater samples collected and analyzed during the second quarter 2008 (Q2-2008) 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 Table 1 of the Work Plan (HGC, 2008a) and groundwater samples collected as part of the well inventory investigation (HGC, 2008b). All analytical results for groundwater samples collected for this project during the second quarter of 2008 were provided to HGC by ACZ Laboratories, Inc. (ACZ) for preparation of the First and Second Quarters 2008 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 D of the main text of this report contains laboratory reports for Q2-2008 samples collected by HGC including COC forms, laboratory correspondence, QC summaries, data qualifiers, and any case narratives. The Q2-2008 analytical results for all 63 samples collected by HGC and are contained in 10 reports having the ACZ Project numbers identified in Table B.1.

The results of the internal QA/QC tests performed by ACZ are presented with the laboratory reports included in Appendix C. 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, specific conductance [SC] in microsiemens per centimeter [$\mu\text{S}/\text{cm}$], and temperature in degrees Celsius [$^{\circ}\text{C}$]),
- Collection of groundwater samples for water quality analysis,
- Collection of groundwater quality assurance and quality control samples, and
- Equipment decontamination.

Documentation of 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 in the quarterly monitoring schedule of the Work Plan. In addition, wells identified during the well inventory investigation (HGC, 2008b) were sampled. 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 pH¹ and SC² probes were 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 probes to ensure their 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 de-ionized water to properly

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 $\mu\text{S}/\text{cm}$

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.

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 E) 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 57 plume monitor wells. Groundwater samples were collected by filtering the sample using a clean filtration apparatus and one unused, disposable 0.45-micron filter. All bottles were provided by ACZ. Bottles were checked for the correct preservative 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 de-ionized water. After washing, the equipment was rinsed thoroughly with de-ionized 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 Surveys

During the second quarter 2008, three measuring point elevation surveys were completed for wells that had a measurable water level. The initial well survey was conducted by Gilbert Technical Services, Inc. (GTS) and Arizona Land Specialists, Inc. (ALS) conducted the two following surveys. These data are shown in Tables 2 and 3 of the main report. Copies of the survey reports completed by GTS and ALS are included as Appendix B.1 and B.2, respectively.

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 temperatures of the following two shipping containers (identified by their laboratory login numbers) 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)
L68893	04/23/08	04/24/08	04/25/08	4.6
L69570	05/29/08	05/29/08	05/30/08	5.7

As noted in the above table, the samples were shipped within one day of collection, and the time between sample collection and receipt of samples by ACZ ranged from one to two 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 analysis 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 Methods

The following list identifies the methods used for sulfate analysis during this monitoring period:

- U.S. Environmental Protection Agency (EPA) 300.0 (Ion-Chromatography)
- EPA 375.5 (Turbidimetric)

4.3 Method Detection Limits (MDLs) and Practical Quantification Limits (PQLs)

The MDLs and PQLs of the analytical methods used by ACZ are shown in the following table. The MDLs for analyses of samples were equal to or less than the target MDLs identified in the QAPP.

Method	MDL (mg/L)	PQL (mg/L)	Target MDL ¹ (mg/L)
EPA 300.0	0.5	3	10
EPA 375.4	1	5	10

mg/L = milligrams per liter

¹ Target MDL from Table F.2 of QAPP

4.4 Timeliness

Holding time was derived from the EPA methods utilized and were calculated beginning from the time of sample collection. The majority of samples submitted to the laboratory were analyzed within their recommended method specific holding time for sulfate analysis except in the following: One sample collected on May 6, 2008 (RAMIREZ) was qualified with an “HC” flag, indicating initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.

4.5 Quality Control Measurements

The following QC samples were prepared and analyzed:

- Calibration blanks and calibration verification standards
- Analytical spikes and analytical spike duplicates
- Laboratory control 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 Methods 300.0 and 375.4 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 Spikes and Analytical Spike Duplicates

Analytical spike and spike duplicate samples were analyzed for all sulfate samples that were analyzed using EPA Methods 300.0 and 375.4. Spike recoveries for most analyses were between 90 and 110 percent. Instances in which analytical spike recoveries were either high or low were qualified with an “M1” or “M2” flag, respectively. One analytical spike sample was flagged “M3” indicating the matrix spike recovery was unusable since analyte concentration in the sample was disproportionate to the spike level recovery of associated control sample. However, in each case the method control sample recoveries were acceptable.

4.5.3 Laboratory Control Samples

Laboratory control samples were run for each group of samples submitted for sulfate analysis using the gravimetric method of analysis. Recoveries for all laboratory control samples were within the acceptance criteria specified by ACZ.

4.5.4 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 relative percent difference (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.

4.5.5 Field Blank Samples

During the second quarter of 2008, a total of four field blank samples were collected (FB051208, FB052908, EQB051208, and EQB052908). Two field blank samples containing unfiltered de-ionized water and two equipment blanks containing filtered de-ionized water. 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 revised Section 4.2.1.5 of the QAPP, a minimum of one field blank sample was collected every time an equipment blank sample was collected at a rate of one in every twenty samples. Analytical results from field blank samples FB052908 and EQB052908 showed no detections. However, field blank samples FB051208 and EQB051208 reported sulfate at 1.0 mg/L and 0.7 mg/L, respectively. Both samples were qualified with a “B” flag, indicating the analyte concentration was detected at a value between the MDL and PQL. The low level detections of sulfate are not considered significant given the concentration of this constituent in the sample.

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 Q2-2008 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 relative percent difference (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, a total of two field duplicate

samples were collected for filtered sulfate analysis (DUP051208, and DUP052908). The collection of two duplicate samples meets 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 two duplicate field samples collected are provided in the table below. The range of RPD values was between 0.31 and 5.61 percent. As discussed in section 2.5.4 there were no exceedance of RPD QA criteria for any laboratory duplicates, and the DQI for precision is deemed to be met.

Well ID	Duplicate Sample ID	ACZ Project Number	Sulfate Field Sample (mg/L)	Sulfate Duplicate Sample (mg/L)	RPD (%)
BANKS 986	DUP051208	L69231	65.2	65.4	0.31
ENGLUND	DUP052908	L69570	520	550	5.61

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, 2008a) using sampling procedures specified in the QAPP. Therefore, the samples are judged to provide a good representation of groundwater quality at the sample 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, 2008a) 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 were 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.
- Arizona Land Specialist, Inc. 2008. Freeport Well Survey Report. April 25, 2008.
- Gilbert Technical Services, Inc. 2008. Survey Report. June 2, 2008.
- 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. Well Inventory Report, Task 1 of Aquifer Characterization Plan for Mitigation Order on Consent No. P-121-07, Cochise County, Arizona. July 28, 2008.

TABLE

TABLE B.1
ACZ PROJECT ID AND ASSOCIATED WELLS

ACZ Project ID	Wells Reported
<i>Number of wells sampled: 57</i> <i>Number of duplicate samples collected: 2</i> <i>Number of field blank samples collected: 2</i> <i>Number of equipment blank samples collected: 2</i>	
L68800	PANAGAKOS
L68834	BURKE
L68893	SRC
L69063	CHAMBERS, ANDERSON, COOPER C, FRANCO, GARNER 635, KEEFER, ZANDER, RAMIREZ MCCONNELL 265
L69145	TVI 236, TVI 875, HOBAN, PIONKE, WEISKOPF, ROGERS E, ROGERS 803, MOORE, HOWARD
L69231	EPPELE 641, BANKS 986, DODSON, RAY, NOTEMAN, BIMA, PALMER 819, TM08 SWAN, SWAN, EAST, FULTZ, COOPER, OSBORN, DUP051208, EQB051208, FB051208
L69259	WEED, METZLER, RUIZ, BLOMMER, PARRA
L69397	POOL, SCHWARTZ, COB MW-1, COB MW-2, COB MW-3, COB WL, TM-03, TM-06 MILLER, GGOOSE 547
L69449	TM-07, TM-19A, TM-42, TM-16, GL-03, BF-01, TM-02A, TM-15 MILLER
L69570	ENGLUND, DUP052908, EQB 052908, FB052908

APPENDIX B.1

GILBERT TECHNICAL SERVICES, INC WELL SURVEY REPORT

GTS/Gilbert Technical Services, Inc.

1601 S. Paseo San Luis, Suite 203 ~ Sierra Vista, Arizona 85635
Office: 520.458.5730 ~ Fax: 520.458.5739 ~ E-mail: gts@theriver.com

Coordinate System/Projection: Universal Transverse Mercator, Zone 12 Band R

Horizontal Datum: NAD83 Unit: Metric

Vertical Datum: NAVD88 Unit: US Survey Foot

Point #	UTMN	UTME	Elevation	Description
1	3473292.3	601929.3	4895.74	AMARILLAS
5000	3471427.182	599617.574	4729.50	TM-15 MILLER
5003	3470111.613	599624.302	4643.48	TM-14 NELSON
5006	3467998.486	599678.880	4580.94	ZANDER
5009	3468119.015	599879.175	4572.03	KEEFER
5012	3468840.139	601463.094	4600.70	MCCONNELL 265
5015	3471263.549	602170.716	4727.21	PARRA
5018	3470013.823	599683.603	4639.09	POOL
5021	3468658.855	601154.951	4586.89	WEISKOPF
5024	3468114.836	600973.257	4566.21	COB MW-2
5030	3471576.400	606053.800	4800.68	NOTEMAN
5033	3471735.149	605998.250	4806.52	SUNBELT
5036	3470648.298	607378.547	4716.59	SWAN
5042	3469320.340	606420.836	4694.29	CAMPBELL
5045	3468712.215	607076.365	4626.01	EAST
5048	3468577.472	607564.689	4601.55	WALKER
5051	3468524.363	607769.640	4599.58	GALLANT
5054	3469206.175	606981.921	4648.18	BANKS 987
5057	3469195.147	607083.422	4647.91	RAY
5060	3468916.278	602217.331	4617.27	GOAR
5066	3468880.329	601705.848	4597.21	HOBAN
5073	3468268.057	600811.529	4551.58	SCHWARTZ
5079	3472738.941	608379.424	4840.37	POWER
5082	3472502.012	606357.506	4832.06	COB WARREN LAGOON
5088	3470222.677	607632.993	4703.27	DOUGLASS 791
5091	3469829.115	607607.541	4681.73	DOUGLASS 792
5094	3469889.700	603153.700	4680.36	COB MW-1
5097	3468913.011	601349.987	4595.06	COOPER C
5100	3468816.065	601134.729	4580.34	ANDERSON
5104	3468768.622	601281.936	4589.70	HOWARD
5107	3468486.607	601173.053	4582.75	MINOR 316
5114	3469229.942	607165.354	4642.86	EPPELE 641
5117	3471381.176	602091.308	4728.53	METZLER
5120	3471341.335	602551.286	4733.72	ENGLUND
5123	3471424.219	602857.357	4735.18	RUIZ
5126	3473029.816	602230.087	4856.30	BURKE
5129	3472502.400	599723.300	4807.37	SRC
5132	3468568.043	601172.150	4578.86	MINOR 317
5135	3469820.260	606256.657	4717.11	GGOOSE 547
5139	3468417.386	600977.690	4579.02	ROGERS 803
5140	3468967.902	602665.352	4628.29	GARNER 635
5142	3468962.415	602659.240	4626.44	GARNER 557



APPENDIX B.2

ARIZONA LAND SPECIALISTS, INC. WELL SURVEY REPORT

ARIZONA LAND SPECIALISTS - FREEPORT CQB WELL SURVEY				
ALS POINT #	DESCRIPTION	ELEVATION (FEET) NAVD 88	UTM N	UTM E
500	cp tn twn base	5195.17	3476437.833	604954.627
501	cp501	4996.50	3474702.449	604695.348
502	cp502	4951.79	3473820.833	601554.678
503	cp503	4630.48	3468894.585	602452.106
504	cp504	4630.48	3468893.983	602444.052
6900	TINTOWN (PID CF0397)	5070.12	3475060.983	604074.441
6901	RECORDS (CCLDP)	5088.01	3477526.103	605370.569
6902	AMARILLAS (PID DG9433)	4895.67	3473292.330	601929.297
6903	AVANT (CCLDP)	4857.26	3472267.450	607587.441
6904	TM-43A	4969.95	3474661.168	605358.451
6906	TM-43	4971.44	3474670.811	605365.062
6908	TM-43B	4922.18	3474379.892	605814.018
6910	GL-03	4924.31	3473747.943	604386.940
6912	BF-01	4835.23	3472151.593	604169.077
6914	TM-02A	4808.43	3472008.794	604152.059
6916	TM-03	4897.85	3473711.046	606366.130
6918	TM-16	4717.71	3469842.199	605588.075
6920	TM-42	4666.67	3469104.903	603698.271
6922	TM-19A	4645.87	3469197.426	602458.710
6924	PD BASE	5591.13	3477133.309	604148.435
6926	SRC	4810.12	3472503.260	599722.475
6928	TM-15 MILLER	4729.26	3471427.504	599617.331
6930	COB MW-1	4683.26	3469889.889	603153.259
6933	TM-06 MILLER	4707.88	3468376.658	606055.975
6934	BIMA	4802.05	3471852.804	606001.245
6936	GOAR RANCH	4631.13	3468892.471	602454.751
6937	TM-41	4774.58	3471305.648	604839.634
6938	TM-08 SWAN	4725.44	3470666.775	607787.041
6939	BARTON 919	4692.36	3469076.689	606243.850
6940	BARTON 010	4688.95	3469047.469	606201.084
6941	STEPHENS	4651.22	3469072.799	606981.766
6942	TVI 713	4567.22	3468412.946	600729.095
6943	OSBORN	4711.95	3470270.548	607031.823
6944	COB MW-3	4538.63	3468726.057	599169.255
6945	DODSON	4686.34	3469063.772	605594.560
6946	TVI 236	4561.98	3467978.431	600552.215



APPENDIX C

**SECOND QUARTER 2008
DATA VERIFICATION REPORT - EXTENDED PARAMETERS**

APPENDIX C
SECOND QUARTER 2008
DATA VERIFICATION REPORT - EXTENDED PARAMETERS

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 30, 2008

TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	LABORATORY QUALITY CONTROL.....	3
2.1	Licensure	3
2.2	Analytical Methods	4
2.3	Method Detection Limits (MDLs) and Practical Quantification Limits (PQLs)....	5
2.4	Timeliness	5
2.5	Quality Control Measurements	6
2.5.1	Preparation Blanks, Calibration Blanks, and Calibration Verification Standards	6
2.5.2	Analytical Spikes and Analytical Spike Duplicates.....	7
2.5.3	Laboratory Control Samples	8
2.5.4	Laboratory Duplicate Samples.....	8
2.5.5	Field Blank Samples	8
3.	DATA QUALITY INDICATORS	9
3.1	Precision.....	9
3.2	Bias	10
3.3	Accuracy	10
3.4	Representativeness.....	10
3.5	Comparability	11
3.6	Completeness	11
3.7	Sensitivity	11
4.	REFERENCES	13

1. INTRODUCTION

This report summarizes the data verification review of groundwater samples collected and analyzed for extended parameters¹ from three wells during the second quarter 2008 (Q2-2008) by Hydro Geo Chem, Inc. (HGC) pursuant to Mitigation Order on Consent Docket No. P-121-07 (MO) (ADEQ, 2007). Wells BURKE and GGOOSE 547 were identified for quarterly plume monitoring, and well SRC was discovered during the well inventory investigation. The BURKE and SRC wells have no pumps and GGOOSE 547 had its power disconnected. In addition, SRC well was capped. During Q2 2008 arrangements were made with the well owners to use a pump rig to collect groundwater samples from BURKE and SRC and to provide three-phase power to GGOOSE 547. Analytical results for groundwater samples collected from these wells were provided to HGC by ACZ Laboratories, Inc. (ACZ) for preparation of the First and Second Quarters 2008 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, 2008) for field sampling, chain-of-custody (COC) documentation, laboratory analysis, and reporting. This report does not review field sampling or sample handling for samples collected from these three wells since this information is evaluated in Appendix A of the main text. Laboratory QA/QC data for water quality samples submitted for wells BURKE, SRC, and GGOOSE 547 are evaluated according to the data quality indicators (DQIs) given in the QAPP.

Appendix D of the main text of this report contains laboratory reports for Q2-2008 samples collected by HGC including COC forms, laboratory correspondence, QC summaries, data qualifiers, and any case narratives. The analytical results for samples collected as part of this data verification report pertain to three samples collected by HGC and are contained in three reports having the following ACZ Project numbers:

ACZ Project ID	Wells Reported
L67668	BURKE
L67713	SRC
L67843	GGOOSE 547

The results of the internal QA/QC tests performed by ACZ are presented with the laboratory reports included in Appendix D. 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.

¹ Extended parameters consist of the following analytes: calcium, magnesium, sodium, potassium, alkalinity, total dissolved solids, chloride, fluoride, nitrate, and nitrite.

2. LABORATORY QUALITY CONTROL

As specified in the QAPP, laboratory QC was maintained for all analysis 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.

2.1 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.

2.2 Analytical Methods

The following list identifies the approved U.S. Environmental Protection Agency (EPA) methods that meet the requirements stated in section 5.3 of the QAPP regarding target methods and target MDLs:

- EPA 375.4 (Turbidimetric): sulfate
- EPA 300.0 (Ion-Chromatography [IC]): sulfate, chloride, fluoride
- EPA 200.7 (Inductively Coupled Plasma [ICP]): calcium, magnesium, potassium, sodium
- EPA 353.2 (Automated Cadmium Reduction [ACR]): nitrate/nitrite
- SM2320B (Titration): alkalinity
- EPA 160.1 (Gravimetric): total dissolved solids
- SM4500 SO4-D (Gravimetric): sulfate

Two of these methods, IC (EPA 300.0) and ICP (EPA 200.7), involve direct injection of the sample into the analytical instrument, which does not require the analysis of preparation blanks. The other methods listed are classical wet chemistry techniques that require the use of preparation blanks under the ACZ quality assurance plan and the QAPP.

2.3 Method Detection Limits (MDLs) and Practical Quantification Limits (PQLs)

The MDLs and PQLs of the analytical methods used by ACZ are shown in the following table. The MDLs for analyses of samples were equal to or less than the target MDLs identified in the QAPP.

Method	MDL (mg/L)	PQL (mg/L)	Target MDL ¹ (mg/L)
EPA 300.0 (SO4)	0.5	3	10
EPA 375.4	1	5	10
SM4500 SO4-D	10	50	10
EPA 200.7 (Ca and Mg)	0.2	1	0.2
EPA 200.7 (K and Na)	0.3	2	0.3
SM2320B	2	20	2
EPA 300.0 (Cl)	0.5	5	1
EPA 300.0 (F)	0.1	0.5	0.1
EPA 352.2	0.02	0.1	0.02
EPA 160.1	10	20	10

mg/L = milligrams per liter

¹ Target MDL from Table F.2 of QAPP

SM = Standard Method

2.4 Timeliness

Holding times were derived from the EPA methods utilized and were calculated beginning from the time of samples collection. The majority of samples submitted to the laboratory during Q2 2008 were analyzed within their recommended method specific holding time except for nitrate/nitrite as N and nitrite analyses in the following: Sample SRC collected on April 23, 2008 was qualified with an “HE” flag, indicating analysis performed past the

holding time because the sample was received with less than half the holding time remaining. Sample BURKE collected on April 22, 2008 was qualified with a “HC” flag, indicating that the initial analysis for TDS was within the holding time. However, reanalysis was past holding time, which was required due to a QC failure during the initial analysis. No data were rejected on the basis of the holding time exceedances and were accepted as usable.

2.5 Quality Control Measurements

The following QC samples were prepared and analyzed:

- Preparation blanks, calibration blanks, and calibration verification standards
- Analytical spikes and analytical spike duplicates
- Laboratory control samples
- Laboratory duplicate samples
- Field blank samples

2.5.1 Preparation Blanks, Calibration Blanks, and Calibration Verification Standards

Preparation blanks were run with each group of samples submitted for alkalinity and TDS analysis. All preparation blanks were prepared from analyte-free water and treated as routine samples. Analytical results of all of the preparation blanks showed that no target analytes were detected at the indicated MDL.

Results from the analyses of the initial calibration blanks and initial calibration verification standards conducted by EPA Methods 300.0, 375.4, 200.7, and 353.2 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.

2.5.2 Analytical Spikes and Analytical Spike Duplicates

Analytical spike and spike duplicate samples were analyzed for the following EPA Methods: 300.0, 375.4, 200.7, and 353.2. 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 either low or where the spiked sample required a dilution were qualified with an “M2” or “M4” flag, respectively. In each case the method control sample recoveries were acceptable. Although some analytical spikes and analytical spike duplicates were outside the acceptance limits and qualified with an “MA” flag, these recoveries are not considered to affect the overall accuracy of the dataset because the Relative Percent Difference (RPD) was within the acceptance limits.

2.5.3 Laboratory Control Samples

Laboratory control samples were run for each group of samples submitted for alkalinity and total dissolved solids. Recoveries for all laboratory control samples were within the acceptance criteria specified by ACZ.

2.5.4 Laboratory Duplicate Samples

Analyses of laboratory duplicate samples were also reviewed as part of this 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.

2.5.5 Field Blank Samples

Field blanks for analysis of the extended parameters analyzed were not submitted. Field blanks were submitted for analysis of sulfate and are discussed in Section 4.5.5 of Appendix B.

3. 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 Q2-2008 groundwater sampling and analysis conducted by HGC.

3.1 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 laboratory duplicates for each parameter analyzed. As discussed in Section 2.5.4, there were no exceedances of RPD QA criteria for any laboratory duplicates and the DQI for precision is deemed to be met.

3.2 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.

3.3 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 2.5.1, 2.5.2, and 2.5.3 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.

3.4 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 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.

3.5 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.

3.6 Completeness

All samples collected were 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.

3.7 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.

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. 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 D

ANALYTICAL REPORTS FROM ACZ LABORATORIES, INC.

February 19, 2008

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: 872001.0

ACZ Project ID: L67529

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 05, 2008. This project has been assigned to ACZ's project number, L67529. 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 L67529. 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 March 19, 2008. 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.



Scott Habermehl has reviewed
and approved this report.



Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: ROGERSE

ACZ Sample ID: **L67529-01**

Date Sampled: 02/04/08 09:40

Date Received: 02/05/08

Sample Matrix: Ground Water

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	4.6		*	mg/L	0.5	3	02/09/08 19:38	aml

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: RAMIREZ

ACZ Sample ID: **L67529-02**

Date Sampled: 02/04/08 11:00

Date Received: 02/05/08

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	02/09/08 20:32	aml

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: ZANDER

ACZ Sample ID: **L67529-03**

Date Sampled: 02/04/08 15:00

Date Received: 02/05/08

Sample Matrix: Ground Water

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	5.7		*	mg/L	0.5	3	02/09/08 20:50	aml

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67529**

Project ID: 872001.0

Sulfate

300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240083													
WG240083ICV	ICV	02/07/08 16:57	WI080128-8	50.1		50.44	mg/L	100.7	90	110			
WG240083ICB	ICB	02/07/08 17:15				U	mg/L		-1.5	1.5			
WG240083ICV1	ICV	02/09/08 11:47	WI080128-8	50.1		51.13	mg/L	102.1	90	110			
WG240083ICB1	ICB	02/09/08 12:05				U	mg/L		-1.5	1.5			
WG240236													
WG240236ICV	ICV	02/09/08 14:30	WI080128-8	50.1		51.88	mg/L	103.6	90	110			
WG240236ICB	ICB	02/09/08 14:48				U	mg/L		-1.5	1.5			
L67529-01AS	AS	02/09/08 19:56	WI080128-9	30	4.6	33.74	mg/L	97.1	90	110			
L67529-01DUP	DUP	02/09/08 20:14			4.6	4.59	mg/L				0.2	20	RA
WG240236ICV1	ICV	02/11/08 18:09	WI080128-8	50.1		51.63	mg/L	103.1	90	110			
WG240236ICB1	ICB	02/11/08 18:27				U	mg/L		-1.5	1.5			
WG240236LFB	LFB	02/11/08 18:45	WI080128-9					106.2	90	110			

Hydro Geo Chem, Inc.ACZ Project ID: **L67529**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L67529-01	WG240236	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).
L67529-02	WG240236	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).
L67529-03	WG240236	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).

Hydro Geo Chem, Inc.

ACZ Project ID: **L67529**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67529
 Date Received: 2/5/2008
 Received By:
 Date Printed: 2/5/2008

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)
NA5428	3.6	15

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

Notes

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67529
 Date Received: 2/5/2008
 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
L67529-01	ROGERSE									X		<input type="checkbox"/>
L67529-02	RAMIREZ									X		<input type="checkbox"/>
L67529-03	ZANDER									X		<input type="checkbox"/>

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: _____

PAGE 1 OF 1

CHAIN of CUSTODY

Report to:

Address: 51 W. WETMORE RD
TUCSON AZ 85705
Telephone: (520) 293-1500 X133

Copy of Report to:

E-mail: JIMN@H6CINC.COM
Telephone: (520) 293-1500 x112

Invoice to:

Address: 51 W. WETMORE RD
TUCSON AZ 85705
Telephone (520) 293 1500 x112

YES	<input checked="" type="checkbox"/>
NO	<input type="checkbox"/>

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

ANALYSES REQUESTED (attach list or use quote number)

of Containers

Soy - -

SAMPLE IDENTIFICATION	DATE:TIME	Matrix
-----------------------	-----------	--------

ROGERSE	02/04/2008 0940	W
RAMIREZ	02/04/2008 1100	GW
ZANDER	02/04/2008 1500	GW

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

REMARKS

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

RELINQUISHED BY:

DATE:TIME

RECEIVED BY:

DATE:TIME

FRMAD050.03.05.02

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

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

March 4, 2008

cc: Jim Norris

Project ID: 872001.0
ACZ Project ID: L67530

Dan Simpson:

Enclosed are revised analytical reports for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 05, 2008 and reported on February 19, 2008. Refer to the case narrative for an explanation of the changes. This project was assigned to ACZ's project number, L67530. 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 L67530. 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 March 19, 2008. 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.



Scott Habermehl has reviewed
and approved this report.



Hydro Geo Chem, Inc.

March 04, 2008

Project ID: 872001.0

ACZ Project ID: L67530

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 1 ground water sample from Hydro Geo Chem, Inc. on February 5, 2008. The sample was received in good condition. Upon receipt, the sample custodian removed the sample from the cooler, inspected the contents, and logged the sample into ACZ's computerized Laboratory Information Management System (LIMS). The sample was assigned ACZ LIMS project number L67530. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

Sample Analysis

This sample was 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:

1. This project has been revised to include an analysis for Fluoride which was originally missed.

Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: GARNER635

ACZ Sample ID: **L67530-01**

Date Sampled: 02/04/08 12:10

Date Received: 02/05/08

Sample Matrix: Ground Water

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	39.2			mg/L	0.2	1	02/11/08 22:14	wfg
Magnesium, dissolved	M200.7 ICP	8.2			mg/L	0.2	1	02/11/08 22:14	wfg
Potassium, dissolved	M200.7 ICP	2.8		*	mg/L	0.3	2	02/11/08 22:14	wfg
Sodium, dissolved	M200.7 ICP	65.0		*	mg/L	0.3	2	02/11/08 22:14	wfg

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration								
Bicarbonate as CaCO ₃		182			mg/L	2	20	02/06/08 0:00	lcp
Carbonate as CaCO ₃			U		mg/L	2	20	02/06/08 0:00	lcp
Hydroxide as CaCO ₃			U		mg/L	2	20	02/06/08 0:00	lcp
Total Alkalinity		182			mg/L	2	20	02/06/08 0:00	lcp
Cation-Anion Balance	Calculation								
Cation-Anion Balance		5.8			%			03/03/08 0:00	calc
Sum of Anions		4.9			meq/L	0.1	0.5	03/03/08 0:00	calc
Sum of Cations		5.5			meq/L	0.1	0.5	03/03/08 0:00	calc
Chloride	M300.0 - Ion Chromatography	13.7			mg/L	0.5	3	02/09/08 21:08	aml
Fluoride	SM4500F-C	0.2	B	*	mg/L	0.1	0.5	02/28/08 11:26	cas
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂	1.68			mg/L	0.02	0.1	03/03/08 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1.69		*	mg/L	0.02	0.1	02/05/08 18:29	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.01	B	*	mg/L	0.01	0.05	02/05/08 18:29	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	290			mg/L	10	20	02/06/08 15:02	lcp
Sulfate	300.0 - Ion Chromatography	37.8		*	mg/L	0.5	3	02/09/08 21:08	aml
TDS (calculated)	Calculation	284			mg/L	10	50	03/03/08 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.02						03/03/08 0:00	calc

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67530**

Project ID: 872001.0

Alkalinity as CaCO3

SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240091													
WG240091PBW1	PBW	02/06/08 14:09				U	mg/L		-20	20			
WG240091LCSW2	LCSW	02/06/08 14:20	WC080131-1	820		811.3	mg/L	98.9	90	110			
L67534-01DUP	DUP	02/06/08 17:01			490	497	mg/L				1.4	20	
WG240091PBW2	PBW	02/06/08 17:07				U	mg/L		-20	20			
WG240091LCSW5	LCSW	02/06/08 17:20	WC080131-1	820		815.1	mg/L	99.4	90	110			
WG240091LCSW8	LCSW	02/06/08 18:29	WC080131-1	820		810.5	mg/L	98.8	90	110			

Calcium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240225													
WG240225ICV	ICV	02/11/08 19:57	II080115-3	100		98.37	mg/L	98.4	95	105			
WG240225ICB	ICB	02/11/08 20:01				U	mg/L		-0.6	0.6			
WG240225LFB	LFB	02/11/08 20:17	II080125-1	67.97008		71.81	mg/L	105.6	85	115			
L67521-02AS	AS	02/11/08 21:24	II080125-1	67.97008	10	83.24	mg/L	107.8	85	115			
L67521-02ASD	ASD	02/11/08 21:28	II080125-1	67.97008	10	83.83	mg/L	108.6	85	115	0.71	20	

Chloride

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240236													
WG240236ICV	ICV	02/09/08 14:30	WI080128-8	19.98		20.48	mg/L	102.5	90	110			
WG240236ICB	ICB	02/09/08 14:48				U	mg/L		-1.5	1.5			
WG240236LFB	LFB	02/09/08 15:06	WI080128-9	30		31.21	mg/L	104	90	110			
L67529-01AS	AS	02/09/08 19:56	WI080128-9	30	23.2	52.44	mg/L	97.5	90	110			
L67529-01DUP	DUP	02/09/08 20:14			23.2	23.51	mg/L				1.3	20	
WG240236ICV1	ICV	02/11/08 18:09	WI080128-8	19.98		20.65	mg/L	103.4	90	110			
WG240236ICB1	ICB	02/11/08 18:27				U	mg/L		-1.5	1.5			

Fluoride

SM4500F-C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240886													
WG240886ICV	ICV	02/28/08 11:14	WC080227-1	2		1.97	mg/L	98.5	90	110			
WG240886ICB	ICB	02/28/08 11:19				U	mg/L		-0.3	0.3			
WG240886LFB1	LFB	02/28/08 11:24	WC080226-1	5		5.24	mg/L	104.8	90	110			
L67530-01AS	AS	02/28/08 11:29	WC080226-1	5	.2	6.26	mg/L	121.2	90	110			M1
L67530-01DUP	DUP	02/28/08 11:31			.2	.21	mg/L				4.9	20	RA
WG240886LFB2	LFB	02/28/08 12:51	WC080226-1	5		4.93	mg/L	98.6	90	110			

Magnesium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240225													
WG240225ICV	ICV	02/11/08 19:57	II080115-3	100		100.71	mg/L	100.7	95	105			
WG240225ICB	ICB	02/11/08 20:01				U	mg/L		-0.6	0.6			
WG240225LFB	LFB	02/11/08 20:17	II080125-1	54.96908		59.26	mg/L	107.8	85	115			
L67521-02AS	AS	02/11/08 21:24	II080125-1	54.96908	1.9	62.77	mg/L	110.7	85	115			
L67521-02ASD	ASD	02/11/08 21:28	II080125-1	54.96908	1.9	63.98	mg/L	112.9	85	115	1.91	20	

Hydro Geo Chem, Inc.

ACZ Project ID: **L67530**

Project ID: 872001.0

Nitrate/Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240054													
WG240054ICV	ICV	02/05/08 18:18	WI071212-1	2.416		2.401	mg/L	99.4	90	110			
WG240054ICB	ICB	02/05/08 18:19				U	mg/L		-0.06	0.06			
WG240054LFB	LFB	02/05/08 18:23	WI070911-4	2		1.961	mg/L	98.1	90	110			
L67496-01AS	AS	02/05/08 18:26	WI070911-4	2	.12	2.118	mg/L	99.9	90	110			
L67526-01DUP	DUP	02/05/08 18:28			.07	.069	mg/L				1.4	20	RA

Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240054													
WG240054ICV	ICV	02/05/08 18:18	WI071212-1	.609		.633	mg/L	103.9	90	110			
WG240054ICB	ICB	02/05/08 18:19				U	mg/L		-0.03	0.03			
WG240054LFB	LFB	02/05/08 18:23	WI070911-4	1		1.028	mg/L	102.8	90	110			
L67496-01AS	AS	02/05/08 18:26	WI070911-4	1	.02	1.024	mg/L	100.4	90	110			
L67526-01DUP	DUP	02/05/08 18:28			U	U	mg/L				0	20	RA

Potassium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240225													
WG240225ICV	ICV	02/11/08 19:57	II080115-3	20		21.05	mg/L	105.3	95	105			
WG240225ICB	ICB	02/11/08 20:01				U	mg/L		-0.9	0.9			
WG240225LFB	LFB	02/11/08 20:17	II080125-1	99.76186		112.8	mg/L	113.1	85	115			
L67521-02AS	AS	02/11/08 21:24	II080125-1	99.76186	.9	118	mg/L	117.4	85	115			M1
L67521-02ASD	ASD	02/11/08 21:28	II080125-1	99.76186	.9	120.95	mg/L	120.3	85	115	2.47	20	M1

Residue, Filterable (TDS) @180C

160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240101													
WG240101PBW	PBW	02/06/08 15:00				U	mg/L		-20	20			
WG240101LCSW	LCSW	02/06/08 15:01	PCN28840	260		272	mg/L	104.6	80	120			
L67537-02DUP	DUP	02/06/08 15:15			620	614	mg/L				1	20	

Sodium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240225													
WG240225ICV	ICV	02/11/08 19:57	II080115-3	100		104.05	mg/L	104.1	95	105			
WG240225ICV	ICV	02/11/08 19:57	II080115-3	100		101.7	mg/L	101.7	95	105			
WG240225ICB	ICB	02/11/08 20:01				U	mg/L		-6	6			
WG240225ICB	ICB	02/11/08 20:01				U	mg/L		-0.9	0.9			
WG240225LFB	LFB	02/11/08 20:17	II080125-1	98.21624		108.7	mg/L	110.7	85	115			
WG240225LFB	LFB	02/11/08 20:17	II080125-1	98.21624		110.3	mg/L	112.3	85	115			
L67521-02AS	AS	02/11/08 21:24	II080125-1	98.21624	3.4	115.1	mg/L	113.7	85	115			
L67521-02ASD	ASD	02/11/08 21:28	II080125-1	98.21624	3.4	118.17	mg/L	116.9	85	115	2.63	20	MA

Hydro Geo Chem, Inc.

ACZ Project ID: **L67530**

Project ID: 872001.0

Sulfate

300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240083													
WG240083ICV	ICV	02/07/08 16:57	WI080128-8	50.1		50.44	mg/L	100.7	90	110			
WG240083ICB	ICB	02/07/08 17:15				U	mg/L		-1.5	1.5			
WG240083ICV1	ICV	02/09/08 11:47	WI080128-8	50.1		51.13	mg/L	102.1	90	110			
WG240083ICB1	ICB	02/09/08 12:05				U	mg/L		-1.5	1.5			
WG240236													
WG240236ICV	ICV	02/09/08 14:30	WI080128-8	50.1		51.88	mg/L	103.6	90	110			
WG240236ICB	ICB	02/09/08 14:48				U	mg/L		-1.5	1.5			
L67529-01AS	AS	02/09/08 19:56	WI080128-9	30	4.6	33.74	mg/L	97.1	90	110			
L67529-01DUP	DUP	02/09/08 20:14			4.6	4.59	mg/L				0.2	20	RA
WG240236ICV1	ICV	02/11/08 18:09	WI080128-8	50.1		51.63	mg/L	103.1	90	110			
WG240236ICB1	ICB	02/11/08 18:27				U	mg/L		-1.5	1.5			
WG240236LFB	LFB	02/11/08 18:45	WI080128-9					106.2	90	110			

Hydro Geo Chem, Inc.

ACZ Project ID: **L67530**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L67530-01	WG240225	Potassium, dissolved	M200.7 ICP	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
		Sodium, dissolved	M200.7 ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG240886	Fluoride	SM4500F-C	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG240054	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG240236	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).

Hydro Geo Chem, Inc.

ACZ Project ID: **L67530**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67530
 Date Received: 2/5/2008
 Received By:
 Date Printed: 2/5/2008

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)
NA5428	3.6	15

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

Notes

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67530
 Date Received: 2/5/2008
 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
L67530-01	GARNER635		Y									<input type="checkbox"/>

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: _____

February 20, 2008

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: 872001.0

ACZ Project ID: L67573

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 07, 2008. This project has been assigned to ACZ's project number, L67573. 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 L67573. 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 March 20, 2008. 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.



Scott Habermehl has reviewed
and approved this report.



Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: KEEFER

ACZ Sample ID: **L67573-01**

Date Sampled: 02/06/08 09:00

Date Received: 02/07/08

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	02/09/08 23:32	aml

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: FRANCO

ACZ Sample ID: **L67573-02**

Date Sampled: 02/06/08 11:36

Date Received: 02/07/08

Sample Matrix: Ground Water

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	670			mg/L	10	50	02/15/08 12:41	aml

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: PIONKE

ACZ Sample ID: **L67573-03**

Date Sampled: 02/06/08 10:17

Date Received: 02/07/08

Sample Matrix: Ground Water

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	394			mg/L	5	30	02/15/08 13:36	aml

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67573**

Project ID: 872001.0

Sulfate

300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240083													
WG240083ICV	ICV	02/07/08 16:57	WI080128-8	50.1		50.44	mg/L	100.7	90	110			
WG240083ICB	ICB	02/07/08 17:15				U	mg/L		-1.5	1.5			
WG240083ICV1	ICV	02/09/08 11:47	WI080128-8	50.1		51.13	mg/L	102.1	90	110			
WG240083ICB1	ICB	02/09/08 12:05				U	mg/L		-1.5	1.5			
WG240236													
WG240236ICV	ICV	02/09/08 14:30	WI080128-8	50.1		51.88	mg/L	103.6	90	110			
WG240236ICB	ICB	02/09/08 14:48				U	mg/L		-1.5	1.5			
L67529-01AS	AS	02/09/08 19:56	WI080128-9	30	4.6	33.74	mg/L	97.1	90	110			
L67529-01DUP	DUP	02/09/08 20:14			4.6	4.59	mg/L				0.2	20	RA
WG240236ICV1	ICV	02/11/08 18:09	WI080128-8	50.1		51.63	mg/L	103.1	90	110			
WG240236ICB1	ICB	02/11/08 18:27				U	mg/L		-1.5	1.5			
WG240236LFB	LFB	02/11/08 18:45	WI080128-9					106.2	90	110			
WG240303													
WG240303ICV	ICV	02/13/08 13:23	WI080128-8	50.1		51.45	mg/L	102.7	90	110			
WG240303ICB	ICB	02/13/08 13:41				U	mg/L		-1.5	1.5			
WG240303LFB	LFB	02/13/08 13:59	WI080128-9	30		29.94	mg/L	99.8	90	110			
WG240303ICV1	ICV	02/15/08 12:05	WI080128-8	50.1		46.41	mg/L	92.6	90	110			
WG240303ICB1	ICB	02/15/08 12:23				.63	mg/L		-1.5	1.5			
L67573-02AS	AS	02/15/08 12:59	WI080128-9	600	670	1293	mg/L	103.8	90	110			
L67573-02DUP	DUP	02/15/08 13:18			670	627	mg/L				6.6	20	

Hydro Geo Chem, Inc.ACZ Project ID: **L67573**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L67573-01	WG240236	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).

Hydro Geo Chem, Inc.

ACZ Project ID: **L67573**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
872001.0

ACZ Project ID: L67573
Date Received: 2/7/2008
Received By:
Date Printed: 2/7/2008

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)
NA5451	0.2	15

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

Notes

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67573
 Date Received: 2/7/2008
 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
L67573-01	KEEFER									X		<input type="checkbox"/>
L67573-02	FRANCO									X		<input type="checkbox"/>
L67573-03	PIONKE									X		<input type="checkbox"/>

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.

CHAIN of CUSTODY

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

Report to:

Name: Dan Simpson
Company: Hydro Geo Chem Inc.
E-mail: dans@hgcinc.com

Address: 51 W. Wetmore Rd
Tucson AZ 85705
Telephone: 520 293-1500 x133

Copy of Report to:

Name: *Jim Morris*
Company: *Hydro Geo Chem Inc*

E-mail: *jimm@hgcinc.com*
Telephone: *520) 393-1500 x112*

Invoice to:

Name: Jim Norris
Company: Hydro Geo Chem Inc.
E-mail: jimm@hucinc.com

Address: 51 W. Wetmore Rd
Tucson AZ 85737
Telephone: (520) 293-1500 x113

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

ANALYSES REQUESTED (attach list or use quote number)

Quote #: 504-TC
Project/PO #: 872001.0
Reporting state for compliance testing: AZ
Sampler's Name: Mark Arneson
Are any samples NRC licensable material? No

of Containers

504-

SAMPLE IDENTIFICATION	DATE:TIME	Matrix
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KEEFER	2-6-08:0900	GW
FRANKO	2-6-08:1136	GW
PIONKE	2-6-08:1017	GW

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

REMARKS

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

RELINQUISHED BY:

DATE:TIME

RECEIVED BY:

DATE:TIME

1634: 2-6-08

WPL

2-7-08 10:43

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

March 4, 2008

cc: Jim Norris

Project ID: 872001.0
ACZ Project ID: L67574

Dan Simpson:

Enclosed are revised analytical reports for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 07, 2008 and reported on February 20, 2008. Refer to the case narrative for an explanation of the changes. This project was assigned to ACZ's project number, L67574. 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 L67574. 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 March 20, 2008. 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.



Scott Habermehl has reviewed
and approved this report.



Hydro Geo Chem, Inc.

March 04, 2008

Project ID: 872001.0

ACZ Project ID: L67574

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 2 ground water samples from Hydro Geo Chem, Inc. on February 7, 2008. 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 L67574. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Holding Times

All analyses were performed within EPA recommended holding times.

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:

1. This project has been revised to include an analysis for Fluoride which was originally missed.

Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: BIMA

ACZ Sample ID: **L67574-01**

Date Sampled: 02/06/08 15:50

Date Received: 02/07/08

Sample Matrix: Ground Water

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	224			mg/L	0.2	1	02/12/08 2:40	wfg
Magnesium, dissolved	M200.7 ICP	48.4			mg/L	0.2	1	02/12/08 2:40	wfg
Potassium, dissolved	M200.7 ICP	12.4			mg/L	0.3	2	02/12/08 2:40	wfg
Sodium, dissolved	M200.7 ICP	65.9			mg/L	0.3	2	02/12/08 2:40	wfg

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration								
Bicarbonate as CaCO ₃		510			mg/L	2	20	02/14/08 0:00	jlf
Carbonate as CaCO ₃			U		mg/L	2	20	02/14/08 0:00	jlf
Hydroxide as CaCO ₃			U		mg/L	2	20	02/14/08 0:00	jlf
Total Alkalinity		510		*	mg/L	2	20	02/14/08 0:00	jlf
Cation-Anion Balance	Calculation								
Cation-Anion Balance		1.1			%			03/03/08 0:00	calc
Sum of Anions		18.0			meq/L	0.1	0.5	03/03/08 0:00	calc
Sum of Cations		18.4			meq/L	0.1	0.5	03/03/08 0:00	calc
Chloride	M300.0 - Ion Chromatography	105			mg/L	3	10	02/15/08 13:54	aml
Fluoride	SM4500F-C	0.1	B	*	mg/L	0.1	0.5	02/28/08 11:34	cas
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂	6.8			mg/L	0.1	0.5	03/03/08 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	6.8			mg/L	0.1	0.5	02/07/08 18:31	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		U	*	mg/L	0.01	0.05	02/07/08 18:16	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	980			mg/L	10	20	02/13/08 15:47	cas
Sulfate	300.0 - Ion Chromatography	210			mg/L	3	10	02/15/08 13:54	aml
TDS (calculated)	Calculation	1000			mg/L	10	50	03/03/08 0:00	calc
TDS (ratio - measured/calculated)	Calculation	0.98						03/03/08 0:00	calc

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872001.0
Sample ID: SUNBELT

ACZ Sample ID: **L67574-02**

Date Sampled: 02/06/08 14:25

Date Received: 02/07/08

Sample Matrix: Ground Water

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	56.6			mg/L	0.2	1	02/12/08 2:44	wfg
Magnesium, dissolved	M200.7 ICP	7.9			mg/L	0.2	1	02/12/08 2:44	wfg
Potassium, dissolved	M200.7 ICP	2.4			mg/L	0.3	2	02/12/08 2:44	wfg
Sodium, dissolved	M200.7 ICP	40.7			mg/L	0.3	2	02/12/08 2:44	wfg

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration								
Bicarbonate as CaCO ₃		183			mg/L	2	20	02/14/08 0:00	jlf
Carbonate as CaCO ₃			U		mg/L	2	20	02/14/08 0:00	jlf
Hydroxide as CaCO ₃			U		mg/L	2	20	02/14/08 0:00	jlf
Total Alkalinity		183		*	mg/L	2	20	02/14/08 0:00	jlf
Cation-Anion Balance	Calculation								
Cation-Anion Balance		1.0			%			03/03/08 0:00	calc
Sum of Anions		5.2			meq/L	0.1	0.5	03/03/08 0:00	calc
Sum of Cations		5.3			meq/L	0.1	0.5	03/03/08 0:00	calc
Chloride	M300.0 - Ion Chromatography	34.2			mg/L	0.5	3	02/13/08 15:48	aml
Fluoride	SM4500F-C	0.8		*	mg/L	0.1	0.5	02/28/08 11:37	cas
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂	2.02			mg/L	0.02	0.1	03/03/08 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	2.02			mg/L	0.02	0.1	02/07/08 18:19	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		U	*	mg/L	0.01	0.05	02/07/08 18:19	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	270			mg/L	10	20	02/13/08 15:48	cas
Sulfate	300.0 - Ion Chromatography	18.7			mg/L	0.5	3	02/13/08 15:48	aml
TDS (calculated)	Calculation	280			mg/L	10	50	03/03/08 0:00	calc
TDS (ratio - measured/calculated)	Calculation	0.96						03/03/08 0:00	calc

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67574**

Project ID: 872001.0

Alkalinity as CaCO3

SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240436													
WG240436PBW1	PBW	02/14/08 16:49				25.4	mg/L		-20	20			B4 B7
WG240436LCSW2	LCSW	02/14/08 17:01	WC080131-1	820		850.9	mg/L	103.8	90	110			
L67612-01DUP	DUP	02/14/08 18:19			39	36.3	mg/L				7.2	20	
WG240436PBW2	PBW	02/14/08 20:47				U	mg/L		-20	20			
WG240436LCSW5	LCSW	02/14/08 20:58	WC080131-1	820		854.8	mg/L	104.2	90	110			

Calcium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240286													
WG240286ICV	ICV	02/12/08 1:38	II080115-3	100		98.94	mg/L	98.9	95	105			
WG240286ICB	ICB	02/12/08 1:42				U	mg/L		-0.6	0.6			
WG240286LFB	LFB	02/12/08 1:58	II080209-4	67.97008		68.63	mg/L	101	85	115			
L67490-01AS	AS	02/12/08 2:11	II080209-4	67.97008	63.3	131.1	mg/L	99.7	85	115			
L67490-01ASD	ASD	02/12/08 2:15	II080209-4	67.97008	63.3	130.44	mg/L	98.8	85	115	0.5	20	

Chloride

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240303													
WG240303ICV	ICV	02/13/08 13:23	WI080128-8	19.98		20.4	mg/L	102.1	90	110			
WG240303ICB	ICB	02/13/08 13:41				U	mg/L		-1.5	1.5			
WG240303LFB	LFB	02/13/08 13:59	WI080128-9	30		30	mg/L	100	90	110			
L67573-02AS	AS	02/13/08 14:35	WI080128-9	30	22.3	51.85	mg/L	98.5	90	110			
L67573-02DUP	DUP	02/13/08 14:53			22.3	22.38	mg/L				0.4	20	
WG240303ICV1	ICV	02/15/08 12:05	WI080128-8	19.98		18.41	mg/L	92.1	90	110			
WG240303ICB1	ICB	02/15/08 12:23				U	mg/L		-1.5	1.5			

Fluoride

SM4500F-C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240886													
WG240886ICV	ICV	02/28/08 11:14	WC080227-1	2		1.97	mg/L	98.5	90	110			
WG240886ICB	ICB	02/28/08 11:19				U	mg/L		-0.3	0.3			
WG240886LFB1	LFB	02/28/08 11:24	WC080226-1	5		5.24	mg/L	104.8	90	110			
L67530-01AS	AS	02/28/08 11:29	WC080226-1	5	.2	6.26	mg/L	121.2	90	110			M1
L67530-01DUP	DUP	02/28/08 11:31			.2	.21	mg/L				4.9	20	RA
WG240886LFB2	LFB	02/28/08 12:51	WC080226-1	5		4.93	mg/L	98.6	90	110			

Magnesium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240286													
WG240286ICV	ICV	02/12/08 1:38	II080115-3	100		101.87	mg/L	101.9	95	105			
WG240286ICB	ICB	02/12/08 1:42				U	mg/L		-0.6	0.6			
WG240286LFB	LFB	02/12/08 1:58	II080209-4	54.96908		55.97	mg/L	101.8	85	115			
L67490-01AS	AS	02/12/08 2:11	II080209-4	54.96908	30.9	87.98	mg/L	103.8	85	115			
L67490-01ASD	ASD	02/12/08 2:15	II080209-4	54.96908	30.9	87.52	mg/L	103	85	115	0.52	20	

Hydro Geo Chem, Inc.

ACZ Project ID: **L67574**

Project ID: 872001.0

Nitrate/Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240178													
WG240178ICV	ICV	02/07/08 18:09	WI071212-1	2.416		2.477	mg/L	102.5	90	110			
WG240178ICB	ICB	02/07/08 18:10				U	mg/L		-0.06	0.06			
WG240178LFB	LFB	02/07/08 18:15	WI070911-4	2		2.03	mg/L	101.5	90	110			
L67574-02DUP	DUP	02/07/08 18:20			2.02	2.049	mg/L				1.4	20	
L67574-01AS	AS	02/07/08 18:33	WI070911-4	10	6.8	17.7	mg/L	109	90	110			

Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240178													
WG240178ICV	ICV	02/07/08 18:09	WI071212-1	.609		.615	mg/L	101	90	110			
WG240178ICB	ICB	02/07/08 18:10				U	mg/L		-0.03	0.03			
WG240178LFB	LFB	02/07/08 18:15	WI070911-4	1		1.01	mg/L	101	90	110			
L67574-01AS	AS	02/07/08 18:18	WI070911-4	1	U	.994	mg/L	99.4	90	110			
L67574-02DUP	DUP	02/07/08 18:20			U	U	mg/L				0	20	RA

Potassium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240286													
WG240286ICV	ICV	02/12/08 1:38	II080115-3	20		20.81	mg/L	104.1	95	105			
WG240286ICB	ICB	02/12/08 1:42				U	mg/L		-0.9	0.9			
WG240286LFB	LFB	02/12/08 1:58	II080209-4	99.76186		103.27	mg/L	103.5	85	115			
L67490-01AS	AS	02/12/08 2:11	II080209-4	99.76186	4.8	114.3	mg/L	109.8	85	115			
L67490-01ASD	ASD	02/12/08 2:15	II080209-4	99.76186	4.8	113.45	mg/L	108.9	85	115	0.75	20	

Residue, Filterable (TDS) @180C

160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240388													
WG240388PBW	PBW	02/13/08 15:45				U	mg/L		-20	20			
WG240388LCSW	LCSW	02/13/08 15:46	PCN28840	260		288	mg/L	110.8	80	120			
L67637-01DUP	DUP	02/13/08 16:00			3440	3536	mg/L				2.8	20	

Sodium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240286													
WG240286ICV	ICV	02/12/08 1:38	II080115-3	100		103.13	mg/L	103.1	95	105			
WG240286ICB	ICB	02/12/08 1:42				U	mg/L		-0.9	0.9			
WG240286LFB	LFB	02/12/08 1:58	II080209-4	98.21624		101.41	mg/L	103.3	85	115			
L67490-01AS	AS	02/12/08 2:11	II080209-4	98.21624	97.8	200.73	mg/L	104.8	85	115			
L67490-01ASD	ASD	02/12/08 2:15	II080209-4	98.21624	97.8	199.08	mg/L	103.1	85	115	0.83	20	

Hydro Geo Chem, Inc.

ACZ Project ID: **L67574**

Project ID: 872001.0

Sulfate

300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240083													
WG240083ICV	ICV	02/07/08 16:57	WI080128-8	50.1		50.44	mg/L	100.7	90	110			
WG240083ICB	ICB	02/07/08 17:15				U	mg/L		-1.5	1.5			
WG240083ICV1	ICV	02/09/08 11:47	WI080128-8	50.1		51.13	mg/L	102.1	90	110			
WG240083ICB1	ICB	02/09/08 12:05				U	mg/L		-1.5	1.5			
WG240303													
WG240303ICV	ICV	02/13/08 13:23	WI080128-8	50.1		51.45	mg/L	102.7	90	110			
WG240303ICB	ICB	02/13/08 13:41				U	mg/L		-1.5	1.5			
WG240303LFB	LFB	02/13/08 13:59	WI080128-9	30		29.94	mg/L	99.8	90	110			
WG240303ICV1	ICV	02/15/08 12:05	WI080128-8	50.1		46.41	mg/L	92.6	90	110			
WG240303ICB1	ICB	02/15/08 12:23				.63	mg/L		-1.5	1.5			
L67573-02AS	AS	02/15/08 12:59	WI080128-9	600	670	1293	mg/L	103.8	90	110			
L67573-02DUP	DUP	02/15/08 13:18			670	627	mg/L				6.6	20	

Hydro Geo Chem, Inc.

ACZ Project ID: **L67574**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L67574-01	WG240886	Fluoride	SM4500F-C	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG240178	Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG240436	Total Alkalinity	SM2320B - Titration	B7	Target analyte detected in prep / method blank at or above acceptance limit. Sample value is > 10X the concentration in the method blank.
L67574-02	WG240886	Fluoride	SM4500F-C	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG240178	Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG240436	Total Alkalinity	SM2320B - Titration	B4	Target analyte detected in blank at or above the acceptance criteria.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67574**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67574
 Date Received: 2/7/2008
 Received By:
 Date Printed: 2/8/2008

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)
NA5451	0.2	15

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

Notes

Labels were switched at login. Samples IDs were changed in seedback to match the labels on the bottles, because analyses were in progress. Client IDs are backwards from COC

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67574
 Date Received: 2/7/2008
 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
L67574-01	BIMA		Y									<input type="checkbox"/>
L67574-02	SUNBELT		Y									<input type="checkbox"/>

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.

CHAIN of CUSTODY

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

Report to:

Name: DAN SIMPSON
Company: HYDRO GEO CHEM
E-mail: DANJ@HGC INC. COM

Address: 51 WESTWETMORE RD
#101 TUCSON AZ 85705
Telephone: (520) 293 1500 X133

Copy of Report to:

Name: JIM NORRIS
Company: HYDRO GEO CHEM

E-mail: JIMN@HGCINC.COM
Telephone: (520) 293 1500 X112

Invoice to:

Name: JIM NORRIS
Company: HYDRO GEO CHEM
E-mail: ^{ap} ~~JIMNORRIS~~ JIMN@HSCINC.COM

Address: 51 WEST 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
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

ANALYSES REQUESTED (attach list or use quote number)

Quote #: FMCCQB-GW
Project/PO #: 872001.0
Reporting state for compliance testing: AZ
Sampler's Name: ALI PANDAMOUZ
Are any samples NRC licensable material? NO

of Containers

Ca-Mg-Na-K

TDS 504

417

SAMPLE IDENTIFICATION	DATE:TIME	Matrix
-----------------------	-----------	--------

SUNBELT	↖	02/08/2008 1425	GW
BIMA	↘	02/06/2008 1550	GW

3
3

	✓
	✓

	✓
	L

✓
✓

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

REMARKS

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

RELINQUISHED BY:

DATE:TIME

RECEIVED BY:

DATE:TIME

for Pm 1	02/06/2008 1635	HP2	2-7-08 10:40

February 20, 2008

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: 872001.0

ACZ Project ID: L67599

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 08, 2008. This project has been assigned to ACZ's project number, L67599. 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 L67599. 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 March 20, 2008. 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.



Scott Habermehl has reviewed
and approved this report.



Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: ROGERS

ACZ Sample ID: **L67599-01**

Date Sampled: 02/07/08 14:20

Date Received: 02/08/08

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	1	5	02/15/08 14:12	aml

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67599**

Project ID: 872001.0

Sulfate

300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240083													
WG240083ICV	ICV	02/07/08 16:57	WI080128-8	50.1		50.44	mg/L	100.7	90	110			
WG240083ICB	ICB	02/07/08 17:15				U	mg/L		-1.5	1.5			
WG240083ICV1	ICV	02/09/08 11:47	WI080128-8	50.1		51.13	mg/L	102.1	90	110			
WG240083ICB1	ICB	02/09/08 12:05				U	mg/L		-1.5	1.5			
WG240303													
WG240303ICV	ICV	02/13/08 13:23	WI080128-8	50.1		51.45	mg/L	102.7	90	110			
WG240303ICB	ICB	02/13/08 13:41				U	mg/L		-1.5	1.5			
WG240303LFB	LFB	02/13/08 13:59	WI080128-9	30		29.94	mg/L	99.8	90	110			
WG240303ICV1	ICV	02/15/08 12:05	WI080128-8	50.1		46.41	mg/L	92.6	90	110			
WG240303ICB1	ICB	02/15/08 12:23				.63	mg/L		-1.5	1.5			
L67573-02AS	AS	02/15/08 12:59	WI080128-9	600	670	1293	mg/L	103.8	90	110			
L67573-02DUP	DUP	02/15/08 13:18			670	627	mg/L				6.6	20	

Hydro Geo Chem, Inc.ACZ Project ID: **L67599**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
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No extended qualifiers associated with this analysis

Hydro Geo Chem, Inc.

ACZ Project ID: **L67599**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67599
 Date Received: 2/8/2008
 Received By:
 Date Printed: 2/8/2008

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)
NA5455	0.3	16

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

Notes

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67599
 Date Received: 2/8/2008
 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
L67599-01	ROGERS									X		<input type="checkbox"/>

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.

CHAIN of CUSTODY

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

Report to:

Name: DAN SIMPSON
Company: HYDRO GLO CHEM
E-mail: DAN@HGCINC.COM

Address: 51 W. WETMORE RD #10/
TUCSON AZ 85705
Telephone: (520) 293-1500 x133

Copy of Report to:

Name: JIM NORRIS
Company: HYDRO GEO CHEM

E-mail: JIMN@HGCINC.COM
Telephone: (520) 293-1500 X112

Invoice to:

Name: JIM NORRIS
Company: HYDRO GEO CHEM
E-mail: JIMN@HGCINC.COM

Address: 51 W. WETMORE RD #101
TUCSON AZ 85705
Telephone: (520) 293-1500 x112

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?

YES NO

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO"

is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #:	504-
Project/PO #:	872601.0
Reporting state for compliance testing:	AZ
Sampler's Name:	ALPANDAMOLIZ
Are any samples NRC licensable material?	NO

of Containers

504-1

SAMPLE IDENTIFICATION	DATE:TIME	Matrix
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ROGERS	02/07/2008 1420	6W
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[illegible]

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

REMARKS

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

RELINQUISHED BY:

DATE:TIME

RECEIVED BY:

DATE:TIME

Per Band 1	02/05/08 1420	MS	2.8.02 10.29
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March 06, 2008

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: 872001.0

ACZ Project ID: L67600

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 08, 2008. This project has been assigned to ACZ's project number, L67600. 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 L67600. 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 April 06, 2008. 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: 872001.0

Sample ID: BURKE

ACZ Sample ID: **L67600-01**

Date Sampled: 02/07/08 12:40

Date Received: 02/08/08

Sample Matrix: Ground Water

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	62.3			mg/L	0.2	1	02/12/08 2:48	wfg
Magnesium, dissolved	M200.7 ICP	22.8			mg/L	0.2	1	02/12/08 2:48	wfg
Potassium, dissolved	M200.7 ICP	2.8			mg/L	0.3	2	02/12/08 2:48	wfg
Sodium, dissolved	M200.7 ICP	26.0			mg/L	0.3	2	02/12/08 2:48	wfg

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration								
Bicarbonate as CaCO ₃		212			mg/L	2	20	02/08/08 0:00	lcp
Carbonate as CaCO ₃			U		mg/L	2	20	02/08/08 0:00	lcp
Hydroxide as CaCO ₃			U		mg/L	2	20	02/08/08 0:00	lcp
Total Alkalinity		212		*	mg/L	2	20	02/08/08 0:00	lcp
Cation-Anion Balance	Calculation								
Cation-Anion Balance		2.5			%			03/06/08 0:00	calc
Sum of Anions		5.9			meq/L	0.1	0.5	03/06/08 0:00	calc
Sum of Cations		6.2			meq/L	0.1	0.5	03/06/08 0:00	calc
Chloride	M300.0 - Ion Chromatography	31.8			mg/L	0.5	3	02/13/08 17:36	aml
Fluoride	SM4500F-C	0.3	B	*	mg/L	0.1	0.5	02/28/08 11:39	cas
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂	1.83			mg/L	0.02	0.1	03/06/08 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1.83		*	mg/L	0.02	0.1	02/08/08 21:56	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		U	*	mg/L	0.01	0.05	02/08/08 21:56	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	360			mg/L	10	20	02/12/08 10:48	cas
Sulfate	300.0 - Ion Chromatography	29.5			mg/L	0.5	3	02/13/08 17:36	aml
TDS (calculated)	Calculation	311			mg/L	10	50	03/06/08 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.16						03/06/08 0:00	calc

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67600**

Project ID: 872001.0

Alkalinity as CaCO3

SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240221													
WG240221PBW1	PBW	02/08/08 16:46				2.1	mg/L		-20	20			
WG240221LCSW2	LCSW	02/08/08 16:58	WC080131-1	820		830.2	mg/L	101.2	90	110			
WG240221PBW2	PBW	02/08/08 19:45				U	mg/L		-20	20			
WG240221LCSW5	LCSW	02/08/08 19:56	WC080131-1	820		810.1	mg/L	98.8	90	110			
WG240221PBW3	PBW	02/08/08 23:07				U	mg/L		-20	20			
WG240221LCSW8	LCSW	02/08/08 23:19	WC080131-1	820		812.8	mg/L	99.1	90	110			
L67601-05DUP	DUP	02/09/08 0:38			U	U	mg/L				0	20	RA
WG240221LCSW11	LCSW	02/09/08 0:50	WC080131-1	820		826.5	mg/L	100.8	90	110			

Calcium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240286													
WG240286ICV	ICV	02/12/08 1:38	II080115-3	100		98.94	mg/L	98.9	95	105			
WG240286ICB	ICB	02/12/08 1:42				U	mg/L		-0.6	0.6			
WG240286LFB	LFB	02/12/08 1:58	II080209-4	67.97008		68.63	mg/L	101	85	115			
L67490-01AS	AS	02/12/08 2:11	II080209-4	67.97008	63.3	131.1	mg/L	99.7	85	115			
L67490-01ASD	ASD	02/12/08 2:15	II080209-4	67.97008	63.3	130.44	mg/L	98.8	85	115	0.5	20	

Chloride

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240303													
WG240303ICV	ICV	02/13/08 13:23	WI080128-8	19.98		20.4	mg/L	102.1	90	110			
WG240303ICB	ICB	02/13/08 13:41				U	mg/L		-1.5	1.5			
WG240303LFB	LFB	02/13/08 13:59	WI080128-9	30		30	mg/L	100	90	110			
L67573-02AS	AS	02/13/08 14:35	WI080128-9	30	22.3	51.85	mg/L	98.5	90	110			
L67573-02DUP	DUP	02/13/08 14:53			22.3	22.38	mg/L				0.4	20	
WG240303ICV1	ICV	02/15/08 12:05	WI080128-8	19.98		18.41	mg/L	92.1	90	110			
WG240303ICB1	ICB	02/15/08 12:23				U	mg/L		-1.5	1.5			

Fluoride

SM4500F-C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240886													
WG240886ICV	ICV	02/28/08 11:14	WC080227-1	2		1.97	mg/L	98.5	90	110			
WG240886ICB	ICB	02/28/08 11:19				U	mg/L		-0.3	0.3			
WG240886LFB1	LFB	02/28/08 11:24	WC080226-1	5		5.24	mg/L	104.8	90	110			
L67530-01AS	AS	02/28/08 11:29	WC080226-1	5	.2	6.26	mg/L	121.2	90	110			M1
L67530-01DUP	DUP	02/28/08 11:31			.2	.21	mg/L				4.9	20	RA
WG240886LFB2	LFB	02/28/08 12:51	WC080226-1	5		4.93	mg/L	98.6	90	110			

Magnesium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240286													
WG240286ICV	ICV	02/12/08 1:38	II080115-3	100		101.87	mg/L	101.9	95	105			
WG240286ICB	ICB	02/12/08 1:42				U	mg/L		-0.6	0.6			
WG240286LFB	LFB	02/12/08 1:58	II080209-4	54.96908		55.97	mg/L	101.8	85	115			
L67490-01AS	AS	02/12/08 2:11	II080209-4	54.96908	30.9	87.98	mg/L	103.8	85	115			
L67490-01ASD	ASD	02/12/08 2:15	II080209-4	54.96908	30.9	87.52	mg/L	103	85	115	0.52	20	

Hydro Geo Chem, Inc.

ACZ Project ID: **L67600**

Project ID: 872001.0

Nitrate/Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240234													
WG240234ICV	ICV	02/08/08 21:43	WI071212-1	2.416		2.43	mg/L	100.6	90	110			
WG240234ICB	ICB	02/08/08 21:44				U	mg/L		-0.06	0.06			
WG240234LFB	LFB	02/08/08 21:48	WI070911-4	2		1.987	mg/L	99.4	90	110			
L67594-01AS	AS	02/08/08 21:51	WI070911-4	2	.15	2.059	mg/L	95.5	90	110			
L67594-02DUP	DUP	02/08/08 21:53				U	mg/L				0	20	RA

Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240234													
WG240234ICV	ICV	02/08/08 21:43	WI071212-1	.609		.618	mg/L	101.5	90	110			
WG240234ICB	ICB	02/08/08 21:44				U	mg/L		-0.03	0.03			
WG240234LFB	LFB	02/08/08 21:48	WI070911-4	1		.991	mg/L	99.1	90	110			
L67594-01AS	AS	02/08/08 21:51	WI070911-4	1		.972	mg/L	97.2	90	110			
L67594-02DUP	DUP	02/08/08 21:53			.01	.013	mg/L				26.1	20	RA

Potassium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240286													
WG240286ICV	ICV	02/12/08 1:38	II080115-3	20		20.81	mg/L	104.1	95	105			
WG240286ICB	ICB	02/12/08 1:42				U	mg/L		-0.9	0.9			
WG240286LFB	LFB	02/12/08 1:58	II080209-4	99.76186		103.27	mg/L	103.5	85	115			
L67490-01AS	AS	02/12/08 2:11	II080209-4	99.76186	4.8	114.3	mg/L	109.8	85	115			
L67490-01ASD	ASD	02/12/08 2:15	II080209-4	99.76186	4.8	113.45	mg/L	108.9	85	115	0.75	20	

Residue, Filterable (TDS) @180C

160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240314													
WG240314PBW	PBW	02/12/08 10:45				U	mg/L		-20	20			
WG240314LCSW	LCSW	02/12/08 10:46	PCN28840	260		288	mg/L	110.8	80	120			
L67612-01DUP	DUP	02/12/08 11:00			140	140	mg/L				0	20	

Sodium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240286													
WG240286ICV	ICV	02/12/08 1:38	II080115-3	100		103.13	mg/L	103.1	95	105			
WG240286ICB	ICB	02/12/08 1:42				U	mg/L		-0.9	0.9			
WG240286LFB	LFB	02/12/08 1:58	II080209-4	98.21624		101.41	mg/L	103.3	85	115			
L67490-01AS	AS	02/12/08 2:11	II080209-4	98.21624	97.8	200.73	mg/L	104.8	85	115			
L67490-01ASD	ASD	02/12/08 2:15	II080209-4	98.21624	97.8	199.08	mg/L	103.1	85	115	0.83	20	

Hydro Geo Chem, Inc.

ACZ Project ID: **L67600**

Project ID: 872001.0

Sulfate

300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240083													
WG240083ICV	ICV	02/07/08 16:57	WI080128-8	50.1		50.44	mg/L	100.7	90	110			
WG240083ICB	ICB	02/07/08 17:15				U	mg/L		-1.5	1.5			
WG240083ICV1	ICV	02/09/08 11:47	WI080128-8	50.1		51.13	mg/L	102.1	90	110			
WG240083ICB1	ICB	02/09/08 12:05				U	mg/L		-1.5	1.5			
WG240303													
WG240303ICV	ICV	02/13/08 13:23	WI080128-8	50.1		51.45	mg/L	102.7	90	110			
WG240303ICB	ICB	02/13/08 13:41				U	mg/L		-1.5	1.5			
WG240303LFB	LFB	02/13/08 13:59	WI080128-9	30		29.94	mg/L	99.8	90	110			
WG240303ICV1	ICV	02/15/08 12:05	WI080128-8	50.1		46.41	mg/L	92.6	90	110			
WG240303ICB1	ICB	02/15/08 12:23				.63	mg/L		-1.5	1.5			
L67573-02AS	AS	02/15/08 12:59	WI080128-9	600	670	1293	mg/L	103.8	90	110			
L67573-02DUP	DUP	02/15/08 13:18			670	627	mg/L				6.6	20	

Hydro Geo Chem, Inc.

ACZ Project ID: **L67600**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L67600-01	WG240886	Fluoride	SM4500F-C	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG240234	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG240221	Total Alkalinity	SM2320B - Titration	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: **L67600**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
872001.0

ACZ Project ID: L67600
Date Received: 2/8/2008
Received By:
Date Printed: 2/8/2008

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)
NA5455	0.3	16

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

Notes

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67600
 Date Received: 2/8/2008
 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
L67600-01	BURKE		Y									<input type="checkbox"/>

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: _____

March 03, 2008

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: 872001.0

ACZ Project ID: L67605

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 09, 2008. This project has been assigned to ACZ's project number, L67605. 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 L67605. 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 April 03, 2008. 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.



Scott Habermehl has reviewed
and approved this report.



Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: EAST

ACZ Sample ID: **L67605-01**

Date Sampled: 02/08/08 09:00

Date Received: 02/09/08

Sample Matrix: Ground Water

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	59.9			mg/L	0.2	1	02/12/08 3:29	wfg
Magnesium, dissolved	M200.7 ICP	24.3			mg/L	0.2	1	02/12/08 3:29	wfg
Potassium, dissolved	M200.7 ICP	2.5			mg/L	0.3	2	02/12/08 3:29	wfg
Sodium, dissolved	M200.7 ICP	31.6			mg/L	0.3	2	02/12/08 3:29	wfg

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration								
Bicarbonate as CaCO ₃		227			mg/L	2	20	02/14/08 0:00	jlf
Carbonate as CaCO ₃			U		mg/L	2	20	02/14/08 0:00	jlf
Hydroxide as CaCO ₃			U		mg/L	2	20	02/14/08 0:00	jlf
Total Alkalinity		227		*	mg/L	2	20	02/14/08 0:00	jlf
Cation-Anion Balance	Calculation								
Cation-Anion Balance		2.4			%			03/03/08 0:00	calc
Sum of Anions		6.1			meq/L	0.1	0.5	03/03/08 0:00	calc
Sum of Cations		6.4			meq/L	0.1	0.5	03/03/08 0:00	calc
Chloride	M300.0 - Ion Chromatography	31.2			mg/L	0.5	3	02/13/08 17:54	aml
Fluoride	SM4500F-C	0.4	B	*	mg/L	0.1	0.5	02/28/08 11:42	cas
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂	6.3			mg/L	0.1	0.5	03/03/08 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	6.3			mg/L	0.1	0.5	02/09/08 16:21	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		U	*	mg/L	0.01	0.05	02/09/08 16:14	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	320			mg/L	10	20	02/15/08 16:03	cas
Sulfate	300.0 - Ion Chromatography	10.6			mg/L	0.5	3	02/13/08 17:54	aml
TDS (calculated)	Calculation	325			mg/L	10	50	03/03/08 0:00	calc
TDS (ratio - measured/calculated)	Calculation	0.98						03/03/08 0:00	calc

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: TM-14

ACZ Sample ID: **L67605-02**

Date Sampled: 02/08/08 11:25

Date Received: 02/09/08

Sample Matrix: Ground Water

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	56.1			mg/L	0.2	1	02/12/08 3:33	wfg
Magnesium, dissolved	M200.7 ICP	10.0			mg/L	0.2	1	02/12/08 3:33	wfg
Potassium, dissolved	M200.7 ICP	2.8			mg/L	0.3	2	02/12/08 3:33	wfg
Sodium, dissolved	M200.7 ICP	23.6			mg/L	0.3	2	02/12/08 3:33	wfg

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration								
Bicarbonate as CaCO ₃		166			mg/L	2	20	02/14/08 0:00	jlf
Carbonate as CaCO ₃			U		mg/L	2	20	02/14/08 0:00	jlf
Hydroxide as CaCO ₃			U		mg/L	2	20	02/14/08 0:00	jlf
Total Alkalinity		166		*	mg/L	2	20	02/14/08 0:00	jlf
Cation-Anion Balance	Calculation								
Cation-Anion Balance		2.2			%			03/03/08 0:00	calc
Sum of Anions		4.5			meq/L	0.1	0.5	03/03/08 0:00	calc
Sum of Cations		4.7			meq/L	0.1	0.5	03/03/08 0:00	calc
Chloride	M300.0 - Ion Chromatography	12.5			mg/L	0.5	3	02/13/08 18:12	aml
Fluoride	SM4500F-C	0.3	B	*	mg/L	0.1	0.5	02/28/08 11:45	cas
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂	1.82			mg/L	0.02	0.1	03/03/08 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1.82			mg/L	0.02	0.1	02/09/08 16:16	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		U	*	mg/L	0.01	0.05	02/09/08 16:16	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	250			mg/L	10	20	02/15/08 16:05	cas
Sulfate	300.0 - Ion Chromatography	32.9			mg/L	0.5	3	02/13/08 18:12	aml
TDS (calculated)	Calculation	246			mg/L	10	50	03/03/08 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.02						03/03/08 0:00	calc

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: DUP020808

ACZ Sample ID: **L67605-03**

Date Sampled: 02/08/08 00:00

Date Received: 02/09/08

Sample Matrix: Ground Water

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	55.4			mg/L	0.2	1	02/12/08 3:38	wfg
Magnesium, dissolved	M200.7 ICP	10.0			mg/L	0.2	1	02/12/08 3:38	wfg
Potassium, dissolved	M200.7 ICP	2.9			mg/L	0.3	2	02/12/08 3:38	wfg
Sodium, dissolved	M200.7 ICP	23.7			mg/L	0.3	2	02/12/08 3:38	wfg

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration								
Bicarbonate as CaCO ₃		165			mg/L	2	20	02/14/08 0:00	jlf
Carbonate as CaCO ₃			U		mg/L	2	20	02/14/08 0:00	jlf
Hydroxide as CaCO ₃			U		mg/L	2	20	02/14/08 0:00	jlf
Total Alkalinity		165		*	mg/L	2	20	02/14/08 0:00	jlf
Cation-Anion Balance	Calculation								
Cation-Anion Balance		3.3			%			03/03/08 0:00	calc
Sum of Anions		4.4			meq/L	0.1	0.5	03/03/08 0:00	calc
Sum of Cations		4.7			meq/L	0.1	0.5	03/03/08 0:00	calc
Chloride	M300.0 - Ion Chromatography	12.6			mg/L	0.5	3	02/13/08 18:30	aml
Fluoride	SM4500F-C	0.3	B	*	mg/L	0.1	0.5	02/28/08 11:47	cas
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂	1.88			mg/L	0.02	0.1	03/03/08 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1.88			mg/L	0.02	0.1	02/09/08 16:19	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		U	*	mg/L	0.01	0.05	02/09/08 16:19	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	250			mg/L	10	20	02/15/08 16:06	cas
Sulfate	300.0 - Ion Chromatography	32.9			mg/L	0.5	3	02/13/08 18:30	aml
TDS (calculated)	Calculation	245			mg/L	10	50	03/03/08 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.02						03/03/08 0:00	calc

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872001.0
Sample ID: FB020808

ACZ Sample ID: **L67605-04**
Date Sampled: 02/08/08 00:00
Date Received: 02/09/08
Sample Matrix: Ground Water

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP		U		mg/L	0.2	1	02/12/08 3:42	wfg
Magnesium, dissolved	M200.7 ICP		U		mg/L	0.2	1	02/12/08 3:42	wfg
Potassium, dissolved	M200.7 ICP		U		mg/L	0.3	2	02/12/08 3:42	wfg
Sodium, dissolved	M200.7 ICP		U		mg/L	0.3	2	02/12/08 3:42	wfg

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration								
Bicarbonate as CaCO ₃			U		mg/L	2	20	02/14/08 0:00	jlf
Carbonate as CaCO ₃			U		mg/L	2	20	02/14/08 0:00	jlf
Hydroxide as CaCO ₃			U		mg/L	2	20	02/14/08 0:00	jlf
Total Alkalinity			U	*	mg/L	2	20	02/14/08 0:00	jlf
Cation-Anion Balance	Calculation								
Cation-Anion Balance		n/a			%			03/03/08 0:00	calc
Sum of Anions		N/A			meq/L	0.1	0.5	03/03/08 0:00	calc
Sum of Cations			U		meq/L	0.1	0.5	03/03/08 0:00	calc
Chloride	M300.0 - Ion Chromatography		U		mg/L	0.5	3	02/13/08 19:27	aml
Fluoride	SM4500F-C		U	*	mg/L	0.1	0.5	02/28/08 11:59	cas
Lab Filtration	SM 3030 B			*				02/11/08 10:50	wpl
Lab Filtration & Acidification	SM 3030 B			*				02/11/08 10:10	wpl
Nitrate as N, dissolved	Calculation: NO ₃ NO ₂ minus NO ₂		U		mg/L	0.02	0.1	03/03/08 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		U		mg/L	0.02	0.1	02/09/08 16:20	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		U	*	mg/L	0.01	0.05	02/09/08 16:20	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C		U		mg/L	10	20	02/15/08 16:07	cas
Sulfate	300.0 - Ion Chromatography		U		mg/L	0.5	3	02/13/08 19:27	aml
TDS (calculated)	Calculation		U		mg/L	10	50	03/03/08 0:00	calc
TDS (ratio - measured/calculated)	Calculation	n/a						03/03/08 0:00	calc

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67605**

Project ID: 872001.0

Alkalinity as CaCO3

SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240436													
WG240436PBW1	PBW	02/14/08 16:49				25.4	mg/L		-20	20			B4 BF
WG240436LCSW2	LCSW	02/14/08 17:01	WC080131-1	820		850.9	mg/L	103.8	90	110			
L67612-01DUP	DUP	02/14/08 18:19			39	36.3	mg/L				7.2	20	
WG240436PBW2	PBW	02/14/08 20:47				U	mg/L		-20	20			
WG240436LCSW5	LCSW	02/14/08 20:58	WC080131-1	820		854.8	mg/L	104.2	90	110			

Calcium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240286													
WG240286ICV	ICV	02/12/08 1:38	II080115-3	100		98.94	mg/L	98.9	95	105			
WG240286ICB	ICB	02/12/08 1:42				U	mg/L		-0.6	0.6			
WG240286LFB	LFB	02/12/08 1:58	II080209-4	67.97008		68.63	mg/L	101	85	115			
L67601-02AS	AS	02/12/08 3:00	II080209-4	67.97008	17.9	87.36	mg/L	102.2	85	115			
L67601-02ASD	ASD	02/12/08 3:04	II080209-4	67.97008	17.9	88.42	mg/L	103.8	85	115	1.21	20	

Chloride

M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240303													
WG240303ICV	ICV	02/13/08 13:23	WI080128-8	19.98		20.4	mg/L	102.1	90	110			
WG240303ICB	ICB	02/13/08 13:41				U	mg/L		-1.5	1.5			
WG240303LFB	LFB	02/13/08 13:59	WI080128-9	30		30	mg/L	100	90	110			
L67573-02AS	AS	02/13/08 14:35	WI080128-9	30	22.3	51.85	mg/L	98.5	90	110			
L67573-02DUP	DUP	02/13/08 14:53			22.3	22.38	mg/L				0.4	20	
L67605-03AS	AS	02/13/08 18:49	WI080128-9	30	12.6	41.8	mg/L	97.3	90	110			
L67605-03DUP	DUP	02/13/08 19:09			12.6	12.55	mg/L				0.4	20	
WG240303ICV1	ICV	02/15/08 12:05	WI080128-8	19.98		18.41	mg/L	92.1	90	110			
WG240303ICB1	ICB	02/15/08 12:23				U	mg/L		-1.5	1.5			

Fluoride

SM4500F-C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240886													
WG240886ICV	ICV	02/28/08 11:14	WC080227-1	2		1.97	mg/L	98.5	90	110			
WG240886ICB	ICB	02/28/08 11:19				U	mg/L		-0.3	0.3			
WG240886LFB1	LFB	02/28/08 11:24	WC080226-1	5		5.24	mg/L	104.8	90	110			
L67530-01AS	AS	02/28/08 11:29	WC080226-1	5	.2	6.26	mg/L	121.2	90	110			M1
L67530-01DUP	DUP	02/28/08 11:31			.2	.21	mg/L				4.9	20	RA
WG240886LFB2	LFB	02/28/08 12:51	WC080226-1	5		4.93	mg/L	98.6	90	110			

Magnesium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240286													
WG240286ICV	ICV	02/12/08 1:38	II080115-3	100		101.87	mg/L	101.9	95	105			
WG240286ICB	ICB	02/12/08 1:42				U	mg/L		-0.6	0.6			
WG240286LFB	LFB	02/12/08 1:58	II080209-4	54.96908		55.97	mg/L	101.8	85	115			
L67601-02AS	AS	02/12/08 3:00	II080209-4	54.96908	3.5	61.27	mg/L	105.1	85	115			
L67601-02ASD	ASD	02/12/08 3:04	II080209-4	54.96908	3.5	61.99	mg/L	106.4	85	115	1.17	20	

Hydro Geo Chem, Inc.

ACZ Project ID: **L67605**

Project ID: 872001.0

Nitrate/Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240244													
WG240244ICV	ICV	02/09/08 16:07	WI071212-1	2.416		2.448	mg/L	101.3	90	110			
WG240244ICB	ICB	02/09/08 16:08				U	mg/L		-0.06	0.06			
WG240244LFB	LFB	02/09/08 16:12	WI070911-4	2		2.027	mg/L	101.4	90	110			
L67605-02DUP	DUP	02/09/08 16:17			1.82	1.823	mg/L				0.2	20	
L67605-01AS	AS	02/09/08 16:26	WI070911-4	10	6.3	16.38	mg/L	100.8	90	110			

Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240244													
WG240244ICV	ICV	02/09/08 16:07	WI071212-1	.609		.62	mg/L	101.8	90	110			
WG240244ICB	ICB	02/09/08 16:08				U	mg/L		-0.03	0.03			
WG240244LFB	LFB	02/09/08 16:12	WI070911-4	1		1.023	mg/L	102.3	90	110			
L67605-01AS	AS	02/09/08 16:15	WI070911-4	1	U	.999	mg/L	99.9	90	110			
L67605-02DUP	DUP	02/09/08 16:17			U	U	mg/L				0	20	RA

Potassium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240286													
WG240286ICV	ICV	02/12/08 1:38	II080115-3	20		20.81	mg/L	104.1	95	105			
WG240286ICB	ICB	02/12/08 1:42				U	mg/L		-0.9	0.9			
WG240286LFB	LFB	02/12/08 1:58	II080209-4	99.76186		103.27	mg/L	103.5	85	115			
L67601-02AS	AS	02/12/08 3:00	II080209-4	99.76186	1.2	108.54	mg/L	107.6	85	115			
L67601-02ASD	ASD	02/12/08 3:04	II080209-4	99.76186	1.2	110.31	mg/L	109.4	85	115	1.62	20	

Residue, Filterable (TDS) @180C

160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240485													
WG240485PBW	PBW	02/15/08 16:00				U	mg/L		-20	20			
WG240485LCSW	LCSW	02/15/08 16:01	PCN28840	260		274	mg/L	105.4	80	120			
L67633-04DUP	DUP	02/15/08 16:15			9070	9164	mg/L				1	20	

Sodium, dissolved

M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240286													
WG240286ICV	ICV	02/12/08 1:38	II080115-3	100		103.13	mg/L	103.1	95	105			
WG240286ICB	ICB	02/12/08 1:42				U	mg/L		-0.9	0.9			
WG240286LFB	LFB	02/12/08 1:58	II080209-4	98.21624		101.41	mg/L	103.3	85	115			
L67601-02AS	AS	02/12/08 3:00	II080209-4	98.21624	4.6	109.57	mg/L	106.9	85	115			
L67601-02ASD	ASD	02/12/08 3:04	II080209-4	98.21624	4.6	110.8	mg/L	108.1	85	115	1.12	20	

Hydro Geo Chem, Inc.

ACZ Project ID: **L67605**

Project ID: 872001.0

Sulfate

300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG240083													
WG240083ICV	ICV	02/07/08 16:57	WI080128-8	50.1		50.44	mg/L	100.7	90	110			
WG240083ICB	ICB	02/07/08 17:15				U	mg/L		-1.5	1.5			
WG240083ICV1	ICV	02/09/08 11:47	WI080128-8	50.1		51.13	mg/L	102.1	90	110			
WG240083ICB1	ICB	02/09/08 12:05				U	mg/L		-1.5	1.5			
WG240303													
WG240303ICV	ICV	02/13/08 13:23	WI080128-8	50.1		51.45	mg/L	102.7	90	110			
WG240303ICB	ICB	02/13/08 13:41				U	mg/L		-1.5	1.5			
WG240303LFB	LFB	02/13/08 13:59	WI080128-9	30		29.94	mg/L	99.8	90	110			
L67605-03AS	AS	02/13/08 18:49	WI080128-9	30	32.9	61.17	mg/L	94.2	90	110			
L67605-03DUP	DUP	02/13/08 19:09			32.9	32.87	mg/L				0.1	20	
WG240303ICV1	ICV	02/15/08 12:05	WI080128-8	50.1		46.41	mg/L	92.6	90	110			
WG240303ICB1	ICB	02/15/08 12:23				.63	mg/L		-1.5	1.5			
L67573-02AS	AS	02/15/08 12:59	WI080128-9	600	670	1293	mg/L	103.8	90	110			
L67573-02DUP	DUP	02/15/08 13:18			670	627	mg/L				6.6	20	

Hydro Geo Chem, Inc.

ACZ Project ID: **L67605**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L67605-01	WG240886	Fluoride	SM4500F-C	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG240244	Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG240436	Total Alkalinity	SM2320B - Titration	B4	Target analyte detected in blank at or above the acceptance criteria.
L67605-02	WG240886	Fluoride	SM4500F-C	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG240244	Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG240436	Total Alkalinity	SM2320B - Titration	B4	Target analyte detected in blank at or above the acceptance criteria.
L67605-03	WG240886	Fluoride	SM4500F-C	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG240244	Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG240436	Total Alkalinity	SM2320B - Titration	B4	Target analyte detected in blank at or above the acceptance criteria.
L67605-04	WG240886	Fluoride	SM4500F-C	M1	Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
			SM4500F-C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG240244	Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG240436	Total Alkalinity	SM2320B - Titration	BF	Target analyte in prep / method blank at or above the acceptance criteria. Target analyte was not detected in the sample [$< MDL$].

Hydro Geo Chem, Inc.ACZ Project ID: **L67605**

Wet Chemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Lab Filtration	SM 3030 B
Lab Filtration & Acidification	SM 3030 B

Hydro Geo Chem, Inc.
872001.0

ACZ Project ID: L67605
Date Received: 2/9/2008
Received By:
Date Printed: 2/9/2008

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)
2004	1.4	15

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

Notes

For sample#4 had to pour off a green and a white from the raw.

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67605
 Date Received: 2/9/2008
 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
L67605-01	EAST		Y									<input type="checkbox"/>
L67605-02	TM-14		Y									<input type="checkbox"/>
L67605-03	DUP020808		Y									<input type="checkbox"/>
L67605-04	FB020808									X		<input type="checkbox"/>

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: _____

CHAIN of CUSTODY

Report to:

Address: 51 W. Wetmore Rd
Tucson AZ 85705
Telephone: 520 293-1500 x133

Copy of Report to:

E-mail: jimn@hgcinc
Telephone: 520 293-1500 x112

Invoice to:

Address: 51 W. Wetmore Rd
Tucson AZ 85705
Telephone: (520) 293-1500 x112

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	<input checked="" type="checkbox"/>
NO	<input type="checkbox"/>

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

ANALYSES REQUESTED (attach list or use quote number)

[illegible]

SAMPLE IDENTIFICATION

DATE:TIME

Matrix

of Containers

NaMgK

DS 504

41K
23 Apr 1963

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 84

1

100

| | |
|-----------|------------------|
| EAST | 02/08/2008 09:00 |
| TM-14 | 02/08/2008 11:25 |
| DUP020808 | 02/08/2008 |
| FB020808 | 02/08/2008 |

Matrix

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

REMARKS

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

RELINQUISHED BY:

DATE:TIME

RECEIVED BY:

DATE:TIME

| | | | |
|------------|---------------|----|-----------------|
| See Pardon | 02/08/08 1430 | MS | 2.9.08
11:50 |
| | | | |
| | | | |

February 29, 2008

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: 872001.0

ACZ Project ID: L67668

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 14, 2008. This project has been assigned to ACZ's project number, L67668. 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 L67668. 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 March 29, 2008. 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.



Scott Habermehl has reviewed
and approved this report.



Hydro Geo Chem, Inc.

February 29, 2008

Project ID: 872001.0

ACZ Project ID: L67668

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 3 ground water samples from Hydro Geo Chem, Inc. on February 14, 2008. 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 L67668. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Samples were received outside the EPA recommended temperature of 0-6 degrees C.

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.

Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: WALKER

ACZ Sample ID: **L67668-01**

Date Sampled: 02/13/08 10:55

Date Received: 02/14/08

Sample Matrix: Ground Water

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|----------------------|------------|--------|------|----|-------|-----|-----|----------------|---------|
| Calcium, dissolved | M200.7 ICP | 117 | | * | mg/L | 0.2 | 1 | 02/14/08 20:03 | aeH/erf |
| Magnesium, dissolved | M200.7 ICP | 14.4 | | * | mg/L | 0.2 | 1 | 02/14/08 20:03 | aeH/erf |
| Potassium, dissolved | M200.7 ICP | 3.6 | | | mg/L | 0.3 | 2 | 02/14/08 20:03 | aeH/erf |
| Sodium, dissolved | M200.7 ICP | 14.3 | | | mg/L | 0.3 | 2 | 02/14/08 20:03 | aeH/erf |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------------------------------|--|--------|------|----|-------|------|------|----------------|---------|
| Alkalinity as CaCO ₃ | SM2320B - Titration | | | | | | | | |
| Bicarbonate as CaCO ₃ | | 355 | | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Carbonate as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Hydroxide as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Total Alkalinity | | 355 | | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Cation-Anion Balance | Calculation | | | | | | | | |
| Cation-Anion Balance | | -0.6 | | | % | | | 02/29/08 0:00 | calc |
| Sum of Anions | | 7.8 | | | meq/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Sum of Cations | | 7.7 | | | meq/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 4.0 | | | mg/L | 0.5 | 3 | 02/20/08 20:40 | aml/ccp |
| Fluoride | SM4500F-C | 0.2 | B | * | mg/L | 0.1 | 0.5 | 02/28/08 12:16 | cas |
| Nitrate as N, dissolved | Calculation: NO ₃ NO ₂ minus NO ₂ | 2.26 | | | mg/L | 0.02 | 0.1 | 02/29/08 0:00 | calc |
| Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | 2.26 | | * | mg/L | 0.02 | 0.1 | 02/14/08 20:51 | pjb |
| Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | | U | * | mg/L | 0.01 | 0.05 | 02/14/08 20:51 | pjb |
| Residue, Filterable (TDS) @180C | 160.1 / SM2540C | 440 | | | mg/L | 10 | 20 | 02/16/08 13:41 | cas |
| Sulfate | 300.0 - Ion Chromatography | 20.0 | | | mg/L | 0.5 | 3 | 02/20/08 20:40 | aml/ccp |
| TDS (calculated) | Calculation | 396 | | | mg/L | 10 | 50 | 02/29/08 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | 1.11 | | | | | | 02/29/08 0:00 | calc |

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: SWAN-OLD

ACZ Sample ID: **L67668-02**

Date Sampled: 02/13/08 13:15

Date Received: 02/14/08

Sample Matrix: Ground Water

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|----------------------|------------|--------|------|----|-------|-----|-----|----------------|---------|
| Calcium, dissolved | M200.7 ICP | 77.5 | | * | mg/L | 0.2 | 1 | 02/14/08 20:07 | aeh/erf |
| Magnesium, dissolved | M200.7 ICP | 11.1 | | * | mg/L | 0.2 | 1 | 02/14/08 20:07 | aeh/erf |
| Potassium, dissolved | M200.7 ICP | 3.3 | | | mg/L | 0.3 | 2 | 02/14/08 20:07 | aeh/erf |
| Sodium, dissolved | M200.7 ICP | 14.1 | | | mg/L | 0.3 | 2 | 02/14/08 20:07 | aeh/erf |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------------------------------|--|--------|------|----|-------|------|------|----------------|---------|
| Alkalinity as CaCO ₃ | SM2320B - Titration | | | | | | | | |
| Bicarbonate as CaCO ₃ | | 213 | | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Carbonate as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Hydroxide as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Total Alkalinity | | 213 | | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Cation-Anion Balance | Calculation | | | | | | | | |
| Cation-Anion Balance | | 0.0 | | | % | | | 02/29/08 0:00 | calc |
| Sum of Anions | | 5.4 | | | meq/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Sum of Cations | | 5.4 | | | meq/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 10.3 | | | mg/L | 0.5 | 3 | 02/20/08 20:58 | aml/ccp |
| Fluoride | SM4500F-C | 0.3 | B | * | mg/L | 0.1 | 0.5 | 02/28/08 12:18 | cas |
| Nitrate as N, dissolved | Calculation: NO ₃ NO ₂ minus NO ₂ | 5.51 | | | mg/L | 0.06 | 0.3 | 02/29/08 0:00 | calc |
| Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | 5.51 | | * | mg/L | 0.06 | 0.3 | 02/14/08 21:01 | pjb |
| Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | | U | * | mg/L | 0.01 | 0.05 | 02/14/08 20:52 | pjb |
| Residue, Filterable (TDS) @180C | 160.1 / SM2540C | 320 | | | mg/L | 10 | 20 | 02/16/08 13:43 | cas |
| Sulfate | 300.0 - Ion Chromatography | 24.1 | | | mg/L | 0.5 | 3 | 02/20/08 20:58 | aml/ccp |
| TDS (calculated) | Calculation | 293 | | | mg/L | 10 | 50 | 02/29/08 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | 1.09 | | | | | | 02/29/08 0:00 | calc |

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: SWAN-NEW-TM-8

ACZ Sample ID: **L67668-03**

Date Sampled: 02/13/08 14:05

Date Received: 02/14/08

Sample Matrix: Ground Water

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|----------------------|------------|--------|------|----|-------|-----|-----|----------------|---------|
| Calcium, dissolved | M200.7 ICP | 43.4 | | * | mg/L | 0.2 | 1 | 02/14/08 20:11 | aeH/erf |
| Magnesium, dissolved | M200.7 ICP | 21.4 | | * | mg/L | 0.2 | 1 | 02/14/08 20:11 | aeH/erf |
| Potassium, dissolved | M200.7 ICP | 4.9 | | | mg/L | 0.3 | 2 | 02/14/08 20:11 | aeH/erf |
| Sodium, dissolved | M200.7 ICP | 35.5 | | | mg/L | 0.3 | 2 | 02/14/08 20:11 | aeH/erf |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------------------------------|--|--------|------|----|-------|------|------|----------------|---------|
| Alkalinity as CaCO ₃ | SM2320B - Titration | | | | | | | | |
| Bicarbonate as CaCO ₃ | | 204 | | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Carbonate as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Hydroxide as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Total Alkalinity | | 204 | | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Cation-Anion Balance | Calculation | | | | | | | | |
| Cation-Anion Balance | | 0.0 | | | % | | | 02/29/08 0:00 | calc |
| Sum of Anions | | 5.6 | | | meq/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Sum of Cations | | 5.6 | | | meq/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 32.1 | | * | mg/L | 0.5 | 3 | 02/20/08 21:16 | aml/ccp |
| Fluoride | SM4500F-C | 0.3 | B | * | mg/L | 0.1 | 0.5 | 02/28/08 12:21 | cas |
| Nitrate as N, dissolved | Calculation: NO ₃ NO ₂ minus NO ₂ | 5.30 | | | mg/L | 0.06 | 0.3 | 02/29/08 0:00 | calc |
| Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | 5.30 | | * | mg/L | 0.06 | 0.3 | 02/14/08 21:02 | pjb |
| Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | | U | * | mg/L | 0.01 | 0.05 | 02/14/08 20:54 | pjb |
| Residue, Filterable (TDS) @180C | 160.1 / SM2540C | 310 | | | mg/L | 10 | 20 | 02/16/08 13:44 | cas |
| Sulfate | 300.0 - Ion Chromatography | 12.6 | | * | mg/L | 0.5 | 3 | 02/20/08 21:16 | aml/ccp |
| TDS (calculated) | Calculation | 296 | | | mg/L | 10 | 50 | 02/29/08 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | 1.05 | | | | | | 02/29/08 0:00 | calc |

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | Analyte was analyzed for but not detected at the indicated MDL |

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67668**

Project ID: 872001.0

Alkalinity as CaCO3

SM2320B - Titration

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-----|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240540 | | | | | | | | | | | | | |
| WG240540PBW1 | PBW | 02/18/08 16:27 | | | | U | mg/L | | -20 | 20 | | | |
| WG240540LCSW2 | LCSW | 02/18/08 16:38 | WC080131-1 | 820 | | 831.6 | mg/L | 101.4 | 90 | 110 | | | |
| WG240540PBW2 | PBW | 02/18/08 19:16 | | | | U | mg/L | | -20 | 20 | | | |
| WG240540LCSW5 | LCSW | 02/18/08 19:28 | WC080131-1 | 820 | | 857.9 | mg/L | 104.6 | 90 | 110 | | | |
| L67670-03DUP | DUP | 02/18/08 20:45 | | | 194 | 197.7 | mg/L | | | | 1.9 | 20 | |
| WG240540PBW3 | PBW | 02/18/08 23:03 | | | | U | mg/L | | -20 | 20 | | | |
| WG240540LCSW8 | LCSW | 02/18/08 23:15 | WC080131-1 | 820 | | 867.2 | mg/L | 105.8 | 90 | 110 | | | |
| WG240540PBW5 | PBW | 02/19/08 11:41 | | | | U | mg/L | | -20 | 20 | | | |
| WG240540LCSW14 | LCSW | 02/19/08 11:53 | WC080131-1 | 820 | | 832 | mg/L | 101.5 | 90 | 110 | | | |
| WG240540LCSW17 | LCSW | 02/19/08 15:01 | WC080131-1 | 820 | | 882.6 | mg/L | 107.6 | 90 | 110 | | | |

Calcium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|-----|-------|------|
| WG240430 | | | | | | | | | | | | | |
| WG240430ICV | ICV | 02/14/08 18:03 | II080115-3 | 100 | | 96.65 | mg/L | 96.7 | 95 | 105 | | | |
| WG240430ICB | ICB | 02/14/08 18:07 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG240430LFB | LFB | 02/14/08 18:24 | II080209-4 | 67.97008 | | 69.26 | mg/L | 101.9 | 85 | 115 | | | |
| L67666-01AS | AS | 02/14/08 19:34 | II080209-4 | 67.97008 | 469 | 511.15 | mg/L | 62 | 85 | 115 | | | M3 |
| L67666-01ASD | ASD | 02/14/08 19:38 | II080209-4 | 67.97008 | 469 | 517.32 | mg/L | 71.1 | 85 | 115 | 1.2 | 20 | M3 |

Chloride

M300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240628 | | | | | | | | | | | | | |
| WG240628ICV | ICV | 02/20/08 16:08 | WI080220-1 | 19.98 | | 20.1 | mg/L | 100.6 | 90 | 110 | | | |
| WG240628ICB | ICB | 02/20/08 16:26 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240628LFB | LFB | 02/20/08 16:44 | WI080128-9 | 30 | | 29.95 | mg/L | 99.8 | 90 | 110 | | | |
| L67648-01AS | AS | 02/20/08 18:33 | WI080128-9 | 30 | 27.9 | 56.16 | mg/L | 94.2 | 90 | 110 | | | |
| L67648-01DUP | DUP | 02/20/08 18:51 | | | 27.9 | 27.89 | mg/L | | | | 0 | 20 | |
| L67668-03AS | AS | 02/20/08 21:34 | WI080213-1 | 50 | 32.1 | 58.57 | mg/L | 52.9 | 90 | 110 | | | M2 |
| L67668-03DUP | DUP | 02/20/08 21:52 | | | 32.1 | 32.13 | mg/L | | | | 0.1 | 20 | |

Fluoride

SM4500F-C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----|--------|-------|-------|-------|-------|-------|------|-------|------|
| WG240886 | | | | | | | | | | | | | |
| WG240886ICV | ICV | 02/28/08 11:14 | WC080227-1 | 2 | | 1.97 | mg/L | 98.5 | 90 | 110 | | | |
| WG240886ICB | ICB | 02/28/08 11:19 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG240886LFB1 | LFB | 02/28/08 11:24 | WC080226-1 | 5 | | 5.24 | mg/L | 104.8 | 90 | 110 | | | |
| L67649-03AS | AS | 02/28/08 12:10 | WC080226-1 | 5 | .1 | 5.29 | mg/L | 103.8 | 90 | 110 | | | |
| L67649-03DUP | DUP | 02/28/08 12:13 | | | .1 | .13 | mg/L | | | | 26.1 | 20 | RA |
| WG240886LFB2 | LFB | 02/28/08 12:51 | WC080226-1 | 5 | | 4.93 | mg/L | 98.6 | 90 | 110 | | | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67668**

Project ID: 872001.0

Magnesium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG240430 | | | | | | | | | | | | | |
| WG240430ICV | ICV | 02/14/08 18:03 | II080115-3 | 100 | | 100.17 | mg/L | 100.2 | 95 | 105 | | | |
| WG240430ICB | ICB | 02/14/08 18:07 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG240430LFB | LFB | 02/14/08 18:24 | II080209-4 | 54.96908 | | 58.01 | mg/L | 105.5 | 85 | 115 | | | |
| L67666-01AS | AS | 02/14/08 19:34 | II080209-4 | 54.96908 | 354 | 401.3 | mg/L | 86 | 85 | 115 | | | |
| L67666-01ASD | ASD | 02/14/08 19:38 | II080209-4 | 54.96908 | 354 | 398.29 | mg/L | 80.6 | 85 | 115 | 0.75 | 20 | M3 |

Nitrate/Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240451 | | | | | | | | | | | | | |
| WG240451ICV | ICV | 02/14/08 20:40 | WI071212-1 | 2.416 | | 2.395 | mg/L | 99.1 | 90 | 110 | | | |
| WG240451ICB | ICB | 02/14/08 20:41 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| WG240451LFB | LFB | 02/14/08 20:45 | WI070911-4 | 2 | | 2.035 | mg/L | 101.8 | 90 | 110 | | | |
| L67667-01AS | AS | 02/14/08 20:47 | WI070911-4 | 2 | U | 2.135 | mg/L | 106.8 | 90 | 110 | | | |
| L67667-02DUP | DUP | 02/14/08 20:50 | | | U | U | mg/L | | | | 0 | 20 | RA |

Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240451 | | | | | | | | | | | | | |
| WG240451ICV | ICV | 02/14/08 20:40 | WI071212-1 | .609 | | .618 | mg/L | 101.5 | 90 | 110 | | | |
| WG240451ICB | ICB | 02/14/08 20:41 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG240451LFB | LFB | 02/14/08 20:45 | WI070911-4 | 1 | | 1.065 | mg/L | 106.5 | 90 | 110 | | | |
| L67667-01AS | AS | 02/14/08 20:47 | WI070911-4 | 1 | U | 1.118 | mg/L | 111.8 | 90 | 110 | | | M1 |
| L67667-02DUP | DUP | 02/14/08 20:50 | | | U | U | mg/L | | | | 0 | 20 | RA |

Potassium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG240430 | | | | | | | | | | | | | |
| WG240430ICV | ICV | 02/14/08 18:03 | II080115-3 | 20 | | 19.81 | mg/L | 99.1 | 95 | 105 | | | |
| WG240430ICB | ICB | 02/14/08 18:07 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG240430LFB | LFB | 02/14/08 18:24 | II080209-4 | 99.76186 | | 103.99 | mg/L | 104.2 | 85 | 115 | | | |
| L67666-01AS | AS | 02/14/08 19:34 | II080209-4 | 99.76186 | 18.5 | 126.71 | mg/L | 108.5 | 85 | 115 | | | |
| L67666-01ASD | ASD | 02/14/08 19:38 | II080209-4 | 99.76186 | 18.5 | 122.91 | mg/L | 104.7 | 85 | 115 | 3.04 | 20 | |

Residue, Filterable (TDS) @180C

160.1 / SM2540C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|----------|-----|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240504 | | | | | | | | | | | | | |
| WG240504PBW | PBW | 02/16/08 13:30 | | | | U | mg/L | | -20 | 20 | | | |
| WG240504LCSW | LCSW | 02/16/08 13:31 | PCN28840 | 260 | | 306 | mg/L | 117.7 | 80 | 120 | | | |
| L67668-03DUP | DUP | 02/16/08 13:45 | | | 310 | 308 | mg/L | | | | 0.6 | 20 | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67668**

Project ID: 872001.0

Sodium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG240430 | | | | | | | | | | | | | |
| WG240430ICV | ICV | 02/14/08 18:03 | II080115-3 | 100 | | 98.07 | mg/L | 98.1 | 95 | 105 | | | |
| WG240430ICB | ICB | 02/14/08 18:07 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG240430LFB | LFB | 02/14/08 18:24 | II080209-4 | 98.21624 | | 101.78 | mg/L | 103.6 | 85 | 115 | | | |
| L67666-01AS | AS | 02/14/08 19:34 | II080209-4 | 98.21624 | 144 | 244.55 | mg/L | 102.4 | 85 | 115 | | | |
| L67666-01ASD | ASD | 02/14/08 19:38 | II080209-4 | 98.21624 | 144 | 236.82 | mg/L | 94.5 | 85 | 115 | 3.21 | 20 | |

Sulfate

300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240083 | | | | | | | | | | | | | |
| WG240083ICV | ICV | 02/07/08 16:57 | WI080128-8 | 50.1 | | 50.44 | mg/L | 100.7 | 90 | 110 | | | |
| WG240083ICB | ICB | 02/07/08 17:15 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240083ICV1 | ICV | 02/09/08 11:47 | WI080128-8 | 50.1 | | 51.13 | mg/L | 102.1 | 90 | 110 | | | |
| WG240083ICB1 | ICB | 02/09/08 12:05 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240628 | | | | | | | | | | | | | |
| WG240628ICV | ICV | 02/20/08 16:08 | WI080220-1 | 50.1 | | 50.64 | mg/L | 101.1 | 90 | 110 | | | |
| WG240628ICB | ICB | 02/20/08 16:26 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240628LFB | LFB | 02/20/08 16:44 | WI080128-9 | 30 | | 30.49 | mg/L | 101.6 | 90 | 110 | | | |
| L67668-03AS | AS | 02/20/08 21:34 | WI080213-1 | 50 | 12.6 | 39.09 | mg/L | 53 | 90 | 110 | | | M2 |
| L67668-03DUP | DUP | 02/20/08 21:52 | | | 12.6 | 12.58 | mg/L | | | | 0.2 | 20 | |
| WG240628ICV1 | ICV | 02/21/08 11:56 | WI080220-1 | 50.1 | | 50.19 | mg/L | 100.2 | 90 | 110 | | | |
| WG240628ICB1 | ICB | 02/21/08 12:14 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| L67648-01AS | AS | 02/21/08 12:50 | WI080128-9 | 600 | 520 | 1146 | mg/L | 104.3 | 90 | 110 | | | |
| L67648-01DUP | DUP | 02/21/08 13:08 | | | 520 | 486 | mg/L | | | | 6.8 | 20 | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67668**

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|------------------|----------|---------------------------------|--|----------|---|
| L67668-01 | WG240430 | Calcium, dissolved | M200.7 ICP | M3 | The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable. |
| | | Magnesium, dissolved | M200.7 ICP | M3 | The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable. |
| | WG240886 | Fluoride | SM4500F-C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG240451 | Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction
M353.2 - Automated Cadmium Reduction | M1
RA | Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| L67668-02 | WG240430 | Calcium, dissolved | M200.7 ICP | M3 | The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable. |
| | | Magnesium, dissolved | M200.7 ICP | M3 | The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable. |
| | WG240886 | Fluoride | SM4500F-C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG240451 | Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction
M353.2 - Automated Cadmium Reduction | M1
RA | Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| L67668-03 | WG240430 | Calcium, dissolved | M200.7 ICP | M3 | The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable. |
| | | Magnesium, dissolved | M200.7 ICP | M3 | The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable. |
| | WG240628 | Chloride | M300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| | WG240886 | Fluoride | SM4500F-C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG240451 | Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction
M353.2 - Automated Cadmium Reduction | M1
RA | Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable.
Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG240628 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67668**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67668
 Date Received: 2/14/2008
 Received By:
 Date Printed: 2/14/2008

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) |
|-----------|-----------|-------------|
| 2115 | 6.8 | 15 |
| | | |
| | | |
| | | |

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

Notes

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67668
 Date Received: 2/14/2008
 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 |
|-----------|---------------|-------|-------|--------|-------|--------|-------|-------|--------|-----|-----|--------------------------|
| L67668-01 | WALKER | | Y | | | | | | | | | <input type="checkbox"/> |
| L67668-02 | SWAN-OLD | | Y | | | | | | | | | <input type="checkbox"/> |
| L67668-03 | SWAN-NEW-TM-8 | | Y | | | | | | | | | <input type="checkbox"/> |

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: _____

L67668

ACZ Laboratories, Inc.

CHAIN of CUSTODY

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

Report to:

Name: Dan Simpson
 Company: Hydro Geo Chem (HGC)
 E-mail: dans@hgcinc.com

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

Copy of Report to:

Name: Jim Norris
 Company: HGC

E-mail: jimn@hgcinc.com
 Telephone: (520) 293-1500 x112

Invoice to:

Name: Jim Norris
 Company: HGC
 E-mail: jimn@hgcinc.com

Address: as above
 Telephone: (520) 293-1500 x112

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?

YES ☒
 NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO"

is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: FMCQB - GW
 Project/PO #: 872001.0
 Reporting state for compliance testing: AZ
 Sampler's Name: Kim Wilson + Ali Pandamouz
 Are any samples NRC licensable material? NO

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | Ca Na, Mg, K | TDS SO ₄ | NO ₂ NO ₃ Cl ⁻ F ⁻ | ALK | | | | | | |
|-----------------------|---------------|--------|-----------------|--------------|---------------------|--|-----|--|--|--|--|--|--|
| WALKER | 2/13/08 10:55 | GW | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | |
| SWAN - OLD | 2/13/08 13:15 | GW | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | |
| SWAN - NEW - TM-8 | 2/13/08 14:05 | GW | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | |
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Matrix SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|-------------------|----------------|--------------|----------------------|
| <u>Kim Wilson</u> | <u>16:30</u> | <u>WPL</u> | <u>2-14-08 10:58</u> |
| | <u>2/13/08</u> | | |
| | | | |

February 29, 2008

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: 872001.0

ACZ Project ID: L67649

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 13, 2008. This project has been assigned to ACZ's project number, L67649. 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 L67649. 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 March 29, 2008. 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.



Scott Habermehl has reviewed
and approved this report.



Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: PARRA

ACZ Sample ID: **L67649-01**

Date Sampled: 02/11/08 13:30

Date Received: 02/13/08

Sample Matrix: Ground Water

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|----------------------|------------|--------|------|----|-------|-----|-----|----------------|---------|
| Calcium, dissolved | M200.7 ICP | 178 | | | mg/L | 0.2 | 1 | 02/13/08 21:46 | erf |
| Magnesium, dissolved | M200.7 ICP | 50.4 | | | mg/L | 0.2 | 1 | 02/13/08 21:46 | erf |
| Potassium, dissolved | M200.7 ICP | 4.4 | | | mg/L | 0.3 | 2 | 02/13/08 21:46 | erf |
| Sodium, dissolved | M200.7 ICP | 31.6 | | * | mg/L | 0.3 | 2 | 02/13/08 21:46 | erf |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------------------------------|--|--------|------|----|-------|------|------|----------------|---------|
| Alkalinity as CaCO ₃ | SM2320B - Titration | | | | | | | | |
| Bicarbonate as CaCO ₃ | | 177 | | | mg/L | 2 | 20 | 02/15/08 0:00 | jlf |
| Carbonate as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/15/08 0:00 | jlf |
| Hydroxide as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/15/08 0:00 | jlf |
| Total Alkalinity | | 177 | | | mg/L | 2 | 20 | 02/15/08 0:00 | jlf |
| Cation-Anion Balance | Calculation | | | | | | | | |
| Cation-Anion Balance | | 8.2 | | | % | | | 02/29/08 0:00 | calc |
| Sum of Anions | | 12.3 | | | meq/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Sum of Cations | | 14.5 | | | meq/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 33.4 | | | mg/L | 0.5 | 3 | 02/20/08 19:09 | aml/ccp |
| Fluoride | SM4500F-C | 0.1 | B | * | mg/L | 0.1 | 0.5 | 02/28/08 12:02 | cas |
| Nitrate as N, dissolved | Calculation: NO ₃ NO ₂ minus NO ₂ | 4.17 | | | mg/L | 0.04 | 0.2 | 02/29/08 0:00 | calc |
| Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | 4.17 | H | * | mg/L | 0.04 | 0.2 | 02/13/08 17:43 | aml/pjb |
| Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | | HU | * | mg/L | 0.01 | 0.05 | 02/13/08 18:27 | aml/pjb |
| Residue, Filterable (TDS) @180C | 160.1 / SM2540C | 880 | | | mg/L | 10 | 20 | 02/13/08 16:05 | cas |
| Sulfate | 300.0 - Ion Chromatography | 360 | | | mg/L | 10 | 50 | 02/21/08 13:26 | aml/ccp |
| TDS (calculated) | Calculation | 783 | | | mg/L | 10 | 50 | 02/29/08 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | 1.12 | | | | | | 02/29/08 0:00 | calc |

Arizona license number: AZ0102

Hydro Geo Chem, Inc.Project ID: 872001.0
Sample ID: GALLANTACZ Sample ID: **L67649-02**

Date Sampled: 02/11/08 15:40

Date Received: 02/13/08

Sample Matrix: Ground Water

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|----------------------|------------|--------|------|----|-------|-----|-----|----------------|---------|
| Calcium, dissolved | M200.7 ICP | 106 | | | mg/L | 0.2 | 1 | 02/13/08 21:50 | erf |
| Magnesium, dissolved | M200.7 ICP | 15.9 | | | mg/L | 0.2 | 1 | 02/13/08 21:50 | erf |
| Potassium, dissolved | M200.7 ICP | 4.3 | | | mg/L | 0.3 | 2 | 02/13/08 21:50 | erf |
| Sodium, dissolved | M200.7 ICP | 25.6 | | * | mg/L | 0.3 | 2 | 02/13/08 21:50 | erf |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------------------------------|--|--------|------|----|-------|------|------|----------------|---------|
| Alkalinity as CaCO ₃ | SM2320B - Titration | | | | | | | | |
| Bicarbonate as CaCO ₃ | | 344 | | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Carbonate as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Hydroxide as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Total Alkalinity | | 344 | | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Cation-Anion Balance | Calculation | | | | | | | | |
| Cation-Anion Balance | | 0.0 | | | % | | | 02/29/08 0:00 | calc |
| Sum of Anions | | 7.8 | | | meq/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Sum of Cations | | 7.8 | | | meq/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 12.7 | | | mg/L | 0.5 | 3 | 02/20/08 19:27 | aml/ccp |
| Fluoride | SM4500F-C | 0.2 | B | * | mg/L | 0.1 | 0.5 | 02/28/08 12:05 | cas |
| Nitrate as N, dissolved | Calculation: NO ₃ NO ₂ minus NO ₂ | 3.04 | | | mg/L | 0.02 | 0.1 | 02/29/08 0:00 | calc |
| Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | 3.04 | H | * | mg/L | 0.02 | 0.1 | 02/13/08 17:44 | aml/pjb |
| Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | | HU | * | mg/L | 0.01 | 0.05 | 02/13/08 17:44 | aml/pjb |
| Residue, Filterable (TDS) @180C | 160.1 / SM2540C | 400 | | | mg/L | 10 | 20 | 02/13/08 16:07 | cas |
| Sulfate | 300.0 - Ion Chromatography | 17.9 | | | mg/L | 0.5 | 3 | 02/20/08 19:27 | aml/ccp |
| TDS (calculated) | Calculation | 402 | | | mg/L | 10 | 50 | 02/29/08 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | 1.00 | | | | | | 02/29/08 0:00 | calc |

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: POWER

ACZ Sample ID: **L67649-03**

Date Sampled: 02/12/08 09:20

Date Received: 02/13/08

Sample Matrix: Ground Water

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|----------------------|------------|--------|------|----|-------|-----|-----|----------------|---------|
| Calcium, dissolved | M200.7 ICP | 95.0 | | | mg/L | 0.2 | 1 | 02/13/08 21:54 | erf |
| Magnesium, dissolved | M200.7 ICP | 7.6 | | | mg/L | 0.2 | 1 | 02/13/08 21:54 | erf |
| Potassium, dissolved | M200.7 ICP | 3.8 | | | mg/L | 0.3 | 2 | 02/13/08 21:54 | erf |
| Sodium, dissolved | M200.7 ICP | 7.4 | | | mg/L | 0.3 | 2 | 02/14/08 16:23 | erf |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------------------------------|--|--------|------|----|-------|------|------|----------------|---------|
| Alkalinity as CaCO ₃ | SM2320B - Titration | | | | | | | | |
| Bicarbonate as CaCO ₃ | | 242 | | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Carbonate as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Hydroxide as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Total Alkalinity | | 242 | | | mg/L | 2 | 20 | 02/18/08 0:00 | jlf |
| Cation-Anion Balance | Calculation | | | | | | | | |
| Cation-Anion Balance | | 0.0 | | | % | | | 02/29/08 0:00 | calc |
| Sum of Anions | | 5.8 | | | meq/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Sum of Cations | | 5.8 | | | meq/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 6.1 | | | mg/L | 0.5 | 3 | 02/20/08 20:22 | aml/ccp |
| Fluoride | SM4500F-C | 0.1 | B | * | mg/L | 0.1 | 0.5 | 02/28/08 12:08 | cas |
| Nitrate as N, dissolved | Calculation: NO ₃ NO ₂ minus NO ₂ | 7.0 | | | mg/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | 7.0 | | * | mg/L | 0.1 | 0.5 | 02/13/08 17:46 | aml/pjb |
| Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | | U | * | mg/L | 0.01 | 0.05 | 02/13/08 18:28 | aml/pjb |
| Residue, Filterable (TDS) @180C | 160.1 / SM2540C | 310 | | | mg/L | 10 | 20 | 02/13/08 16:08 | cas |
| Sulfate | 300.0 - Ion Chromatography | 15.5 | | | mg/L | 0.5 | 3 | 02/20/08 20:22 | aml/ccp |
| TDS (calculated) | Calculation | 312 | | | mg/L | 10 | 50 | 02/29/08 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | 0.99 | | | | | | 02/29/08 0:00 | calc |

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | Analyte was analyzed for but not detected at the indicated MDL |

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67649**

Project ID: 872001.0

Alkalinity as CaCO3

SM2320B - Titration

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-----|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240436 | | | | | | | | | | | | | |
| WG240436PBW2 | PBW | 02/14/08 20:47 | | | | U | mg/L | | -20 | 20 | | | |
| WG240436LCSW5 | LCSW | 02/14/08 20:58 | WC080131-1 | 820 | | 854.8 | mg/L | 104.2 | 90 | 110 | | | |
| L67649-01DUP | DUP | 02/15/08 9:01 | | | 177 | 197.6 | mg/L | | | | 11 | 20 | |
| WG240540 | | | | | | | | | | | | | |
| WG240540PBW1 | PBW | 02/18/08 16:27 | | | | U | mg/L | | -20 | 20 | | | |
| WG240540LCSW2 | LCSW | 02/18/08 16:38 | WC080131-1 | 820 | | 831.6 | mg/L | 101.4 | 90 | 110 | | | |
| L67660-03DUP | DUP | 02/18/08 18:08 | | | 164 | 155.4 | mg/L | | | | 5.4 | 20 | |
| WG240540PBW2 | PBW | 02/18/08 19:16 | | | | U | mg/L | | -20 | 20 | | | |
| WG240540LCSW5 | LCSW | 02/18/08 19:28 | WC080131-1 | 820 | | 857.9 | mg/L | 104.6 | 90 | 110 | | | |
| WG240540PBW3 | PBW | 02/18/08 23:03 | | | | U | mg/L | | -20 | 20 | | | |
| WG240540LCSW8 | LCSW | 02/18/08 23:15 | WC080131-1 | 820 | | 867.2 | mg/L | 105.8 | 90 | 110 | | | |
| WG240540PBW5 | PBW | 02/19/08 11:41 | | | | U | mg/L | | -20 | 20 | | | |
| WG240540LCSW14 | LCSW | 02/19/08 11:53 | WC080131-1 | 820 | | 832 | mg/L | 101.5 | 90 | 110 | | | |
| WG240540LCSW17 | LCSW | 02/19/08 15:01 | WC080131-1 | 820 | | 882.6 | mg/L | 107.6 | 90 | 110 | | | |

Calcium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG240401 | | | | | | | | | | | | | |
| WG240401ICV | ICV | 02/13/08 20:17 | II080115-3 | 100 | | 101.22 | mg/L | 101.2 | 95 | 105 | | | |
| WG240401ICB | ICB | 02/13/08 20:21 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG240401LFB | LFB | 02/13/08 20:35 | II080209-4 | 67.97008 | | 70.32 | mg/L | 103.5 | 85 | 115 | | | |
| L67643-01AS | AS | 02/13/08 21:35 | II080209-4 | 67.97008 | .3 | 69.52 | mg/L | 101.8 | 85 | 115 | | | |
| L67643-01ASD | ASD | 02/13/08 21:39 | II080209-4 | 67.97008 | .3 | 70.37 | mg/L | 103.1 | 85 | 115 | 1.22 | 20 | |

Chloride

M300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240628 | | | | | | | | | | | | | |
| WG240628ICV | ICV | 02/20/08 16:08 | WI080220-1 | 19.98 | | 20.1 | mg/L | 100.6 | 90 | 110 | | | |
| WG240628ICB | ICB | 02/20/08 16:26 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240628LFB | LFB | 02/20/08 16:44 | WI080128-9 | 30 | | 29.95 | mg/L | 99.8 | 90 | 110 | | | |
| L67648-01AS | AS | 02/20/08 18:33 | WI080128-9 | 30 | 27.9 | 56.16 | mg/L | 94.2 | 90 | 110 | | | |
| L67648-01DUP | DUP | 02/20/08 18:51 | | | 27.9 | 27.89 | mg/L | | | | 0 | 20 | |

Fluoride

SM4500F-C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----|--------|-------|-------|-------|-------|-------|------|-------|------|
| WG240886 | | | | | | | | | | | | | |
| WG240886ICV | ICV | 02/28/08 11:14 | WC080227-1 | 2 | | 1.97 | mg/L | 98.5 | 90 | 110 | | | |
| WG240886ICB | ICB | 02/28/08 11:19 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG240886LFB1 | LFB | 02/28/08 11:24 | WC080226-1 | 5 | | 5.24 | mg/L | 104.8 | 90 | 110 | | | |
| L67530-01AS | AS | 02/28/08 11:29 | WC080226-1 | 5 | .2 | 6.26 | mg/L | 121.2 | 90 | 110 | | | M1 |
| L67530-01DUP | DUP | 02/28/08 11:31 | | | .2 | .21 | mg/L | | | | 4.9 | 20 | RA |
| L67649-03AS | AS | 02/28/08 12:10 | WC080226-1 | 5 | .1 | 5.29 | mg/L | 103.8 | 90 | 110 | | | |
| L67649-03DUP | DUP | 02/28/08 12:13 | | | .1 | .13 | mg/L | | | | 26.1 | 20 | RA |
| WG240886LFB2 | LFB | 02/28/08 12:51 | WC080226-1 | 5 | | 4.93 | mg/L | 98.6 | 90 | 110 | | | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67649**

Project ID: 872001.0

Magnesium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG240401 | | | | | | | | | | | | | |
| WG240401ICV | ICV | 02/13/08 20:17 | II080115-3 | 100 | | 102.17 | mg/L | 102.2 | 95 | 105 | | | |
| WG240401ICB | ICB | 02/13/08 20:21 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG240401LFB | LFB | 02/13/08 20:35 | II080209-4 | 54.96908 | | 57.27 | mg/L | 104.2 | 85 | 115 | | | |
| L67643-01AS | AS | 02/13/08 21:35 | II080209-4 | 54.96908 | U | 56.48 | mg/L | 102.7 | 85 | 115 | | | |
| L67643-01ASD | ASD | 02/13/08 21:39 | II080209-4 | 54.96908 | U | 57.29 | mg/L | 104.2 | 85 | 115 | 1.42 | 20 | |

Nitrate/Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240387 | | | | | | | | | | | | | |
| WG240387ICV | ICV | 02/13/08 16:53 | WI071212-1 | 2.416 | | 2.435 | mg/L | 100.8 | 90 | 110 | | | |
| WG240387ICB | ICB | 02/13/08 16:55 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| WG240387LFB | LFB | 02/13/08 17:00 | WI070911-4 | 2 | | 2.057 | mg/L | 102.9 | 90 | 110 | | | |
| L67611-01AS | AS | 02/13/08 17:02 | WI070911-4 | 2 | .52 | 2.387 | mg/L | 93.4 | 90 | 110 | | | |
| L67611-02DUP | DUP | 02/13/08 17:05 | | | U | U | mg/L | | | | 0 | 20 | RA |
| L67652-02AS | AS | 02/13/08 17:49 | WI070911-4 | 2 | .24 | 2.159 | mg/L | 96 | 90 | 110 | | | |
| L67652-03DUP | DUP | 02/13/08 17:52 | | | .07 | .075 | mg/L | | | | 6.9 | 20 | RA |

Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240387 | | | | | | | | | | | | | |
| WG240387ICV | ICV | 02/13/08 16:53 | WI071212-1 | .609 | | .606 | mg/L | 99.5 | 90 | 110 | | | |
| WG240387ICB | ICB | 02/13/08 16:55 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG240387LFB | LFB | 02/13/08 17:00 | WI070911-4 | 1 | | 1.017 | mg/L | 101.7 | 90 | 110 | | | |
| L67611-01AS | AS | 02/13/08 17:02 | WI070911-4 | 1 | U | .931 | mg/L | 93.1 | 90 | 110 | | | |
| L67611-02DUP | DUP | 02/13/08 17:05 | | | U | U | mg/L | | | | 0 | 20 | RA |
| L67652-02AS | AS | 02/13/08 17:49 | WI070911-4 | 1 | | .942 | mg/L | 94.2 | 90 | 110 | | | |
| L67652-03DUP | DUP | 02/13/08 17:52 | | | | U | mg/L | | | | 0 | 20 | RA |

Potassium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG240401 | | | | | | | | | | | | | |
| WG240401ICV | ICV | 02/13/08 20:17 | II080115-3 | 20 | | 20.31 | mg/L | 101.6 | 95 | 105 | | | |
| WG240401ICB | ICB | 02/13/08 20:21 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG240401LFB | LFB | 02/13/08 20:35 | II080209-4 | 99.76186 | | 102.86 | mg/L | 103.1 | 85 | 115 | | | |
| L67643-01AS | AS | 02/13/08 21:35 | II080209-4 | 99.76186 | .7 | 102.86 | mg/L | 102.4 | 85 | 115 | | | |
| L67643-01ASD | ASD | 02/13/08 21:39 | II080209-4 | 99.76186 | .7 | 104.98 | mg/L | 104.5 | 85 | 115 | 2.04 | 20 | |

Residue, Filterable (TDS) @180C

160.1 / SM2540C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|----------|-----|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240388 | | | | | | | | | | | | | |
| WG240388PBW | PBW | 02/13/08 15:45 | | | | U | mg/L | | -20 | 20 | | | |
| WG240388LCSW | LCSW | 02/13/08 15:46 | PCN28840 | 260 | | 288 | mg/L | 110.8 | 80 | 120 | | | |
| L67654-01DUP | DUP | 02/13/08 16:14 | | | 4390 | 4312 | mg/L | | | | 1.8 | 20 | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67649**

Project ID: 872001.0

Sodium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG240401 | | | | | | | | | | | | | |
| WG240401ICV | ICV | 02/13/08 20:17 | II080115-3 | 100 | | 98.7 | mg/L | 98.7 | 95 | 105 | | | |
| WG240401ICV | ICV | 02/13/08 20:17 | II080115-3 | 100 | | 101.24 | mg/L | 101.2 | 95 | 105 | | | |
| WG240401ICB | ICB | 02/13/08 20:21 | | | | U | mg/L | | -6 | 6 | | | |
| WG240401ICB | ICB | 02/13/08 20:21 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG240401LFB | LFB | 02/13/08 20:35 | II080209-4 | 98.21624 | | 100.71 | mg/L | 102.5 | 85 | 115 | | | |
| WG240401LFB | LFB | 02/13/08 20:35 | II080209-4 | 98.21624 | | 98.6 | mg/L | 100.4 | 85 | 115 | | | |
| L67643-01AS | AS | 02/13/08 21:35 | II080209-4 | 98.21624 | U | 101.14 | mg/L | 101 | 85 | 115 | | | |
| L67643-01ASD | ASD | 02/13/08 21:39 | II080209-4 | 98.21624 | U | 102.39 | mg/L | 102.3 | 85 | 115 | 2.35 | 20 | |

WG240420

| | | | | | | | | | | | | | |
|--------------|-----|----------------|------------|----------|----|--------|------|-------|------|-----|------|----|--|
| WG240420ICV | ICV | 02/14/08 14:47 | II080115-3 | 100 | | 98.5 | mg/L | 98.5 | 95 | 105 | | | |
| WG240420ICV | ICV | 02/14/08 14:47 | II080115-3 | 100 | | 99.1 | mg/L | 99.1 | 95 | 105 | | | |
| WG240420ICB | ICB | 02/14/08 14:50 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG240420LFB | LFB | 02/14/08 15:04 | II080209-4 | 98.21624 | | 101.4 | mg/L | 103.2 | 85 | 115 | | | |
| WG240420LFB | LFB | 02/14/08 15:04 | II080209-4 | 98.21624 | | 101.69 | mg/L | 103.5 | 85 | 115 | | | |
| L67643-01AS | AS | 02/14/08 16:13 | II080209-4 | 98.21624 | .4 | 105.66 | mg/L | 107.2 | 85 | 115 | | | |
| L67643-01ASD | ASD | 02/14/08 16:16 | II080209-4 | 98.21624 | .4 | 105.83 | mg/L | 107.3 | 85 | 115 | 0.16 | 20 | |

Sulfate

300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240083 | | | | | | | | | | | | | |
| WG240083ICV | ICV | 02/07/08 16:57 | WI080128-8 | 50.1 | | 50.44 | mg/L | 100.7 | 90 | 110 | | | |
| WG240083ICB | ICB | 02/07/08 17:15 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240083ICV1 | ICV | 02/09/08 11:47 | WI080128-8 | 50.1 | | 51.13 | mg/L | 102.1 | 90 | 110 | | | |
| WG240083ICB1 | ICB | 02/09/08 12:05 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240628 | | | | | | | | | | | | | |
| WG240628ICV | ICV | 02/20/08 16:08 | WI080220-1 | 50.1 | | 50.64 | mg/L | 101.1 | 90 | 110 | | | |
| WG240628ICB | ICB | 02/20/08 16:26 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240628LFB | LFB | 02/20/08 16:44 | WI080128-9 | 30 | | 30.49 | mg/L | 101.6 | 90 | 110 | | | |
| WG240628ICV1 | ICV | 02/21/08 11:56 | WI080220-1 | 50.1 | | 50.19 | mg/L | 100.2 | 90 | 110 | | | |
| WG240628ICB1 | ICB | 02/21/08 12:14 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| L67648-01AS | AS | 02/21/08 12:50 | WI080128-9 | 600 | 520 | 1146 | mg/L | 104.3 | 90 | 110 | | | |
| L67648-01DUP | DUP | 02/21/08 13:08 | | | 520 | 486 | mg/L | | | | 6.8 | 20 | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67649**

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|------------------|----------|---------------------------------|--------------------------------------|------|---|
| L67649-01 | WG240401 | Sodium, dissolved | M200.7 ICP | BB | Target analyte detected in calibration blank at or above acceptance limit. Sample value was > 10X the concentration in the calibration blank. |
| | WG240886 | Fluoride | SM4500F-C | M1 | Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| | | | SM4500F-C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG240387 | Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | HE | Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions). |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | HE | Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions). |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | | | |
| L67649-02 | WG240401 | Sodium, dissolved | M200.7 ICP | BB | Target analyte detected in calibration blank at or above acceptance limit. Sample value was > 10X the concentration in the calibration blank. |
| | WG240886 | Fluoride | SM4500F-C | M1 | Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| | | | SM4500F-C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG240387 | Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | HE | Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions). |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | HE | Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions). |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | | | |
| L67649-03 | WG240886 | Fluoride | SM4500F-C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG240387 | Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | | | |
| | | Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67649**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67649
 Date Received: 2/13/2008
 Received By:
 Date Printed: 2/13/2008

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) |
|-----------|-----------|-------------|
| NA5477 | 1.5 | 15 |
| | | |
| | | |
| | | |

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

Notes

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67649
 Date Received: 2/13/2008
 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 |
|-----------|-----------|-------|-------|--------|-------|--------|-------|-------|--------|-----|-----|--------------------------|
| L67649-01 | PARRA | | Y | | | | | | | | | <input type="checkbox"/> |
| L67649-02 | GALLANT | | Y | | | | | | | | | <input type="checkbox"/> |
| L67649-03 | POWER | | Y | | | | | | | | | <input type="checkbox"/> |

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: _____

February 27, 2008

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: 87201.0

ACZ Project ID: L67648

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 13, 2008. This project has been assigned to ACZ's project number, L67648. 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 L67648. 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 March 27, 2008. 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.



Scott Habermehl has reviewed
and approved this report.



Hydro Geo Chem, Inc.

Project ID: 87201.0

Sample ID: ENGLUND

ACZ Sample ID: **L67648-01**

Date Sampled: 02/12/08 13:35

Date Received: 02/13/08

Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------|----------------------------|--------|------|----|-------|-----|-----|----------------|---------|
| Sulfate | 300.0 - Ion Chromatography | 520 | | | mg/L | 10 | 50 | 02/21/08 12:32 | aml/ccp |

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | Analyte was analyzed for but not detected at the indicated MDL |

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67648**

Project ID: 87201.0

Sulfate

300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240083 | | | | | | | | | | | | | |
| WG240083ICV | ICV | 02/07/08 16:57 | WI080128-8 | 50.1 | | 50.44 | mg/L | 100.7 | 90 | 110 | | | |
| WG240083ICB | ICB | 02/07/08 17:15 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240083ICV1 | ICV | 02/09/08 11:47 | WI080128-8 | 50.1 | | 51.13 | mg/L | 102.1 | 90 | 110 | | | |
| WG240083ICB1 | ICB | 02/09/08 12:05 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240628 | | | | | | | | | | | | | |
| WG240628ICV | ICV | 02/20/08 16:08 | WI080220-1 | 50.1 | | 50.64 | mg/L | 101.1 | 90 | 110 | | | |
| WG240628ICB | ICB | 02/20/08 16:26 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240628LFB | LFB | 02/20/08 16:44 | WI080128-9 | 30 | | 30.49 | mg/L | 101.6 | 90 | 110 | | | |
| WG240628ICV1 | ICV | 02/21/08 11:56 | WI080220-1 | 50.1 | | 50.19 | mg/L | 100.2 | 90 | 110 | | | |
| WG240628ICB1 | ICB | 02/21/08 12:14 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| L67648-01AS | AS | 02/21/08 12:50 | WI080128-9 | 600 | 520 | 1146 | mg/L | 104.3 | 90 | 110 | | | |
| L67648-01DUP | DUP | 02/21/08 13:08 | | | 520 | 486 | mg/L | | | | 6.8 | 20 | |

Hydro Geo Chem, Inc.ACZ Project ID: **L67648**

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

No extended qualifiers associated with this analysis

Hydro Geo Chem, Inc.

ACZ Project ID: **L67648**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
 87201.0

ACZ Project ID: L67648
 Date Received: 2/13/2008
 Received By:
 Date Printed: 2/13/2008

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) |
|-----------|-----------|-------------|
| NA5477 | 1.5 | 15 |
| | | |
| | | |
| | | |

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

Notes

Hydro Geo Chem, Inc.
 87201.0

ACZ Project ID: L67648
 Date Received: 2/13/2008
 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 |
|-----------|-----------|-------|-------|--------|-------|--------|-------|-------|--------|-----|-----|--------------------------|
| L67648-01 | ENGLUND | | | | | | | | | X | | <input type="checkbox"/> |

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.

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

L67648

CHAIN of CUSTODY

Report to:

Name: Dan Simpson
Company: Hydro Geo Chem
E-mail: dans@hgcinc.com

Address: 51 W. Wetmore Rd
TUCSON AZ 85705
Telephone: (520) 293-1500 x 133

Copy of Report to:

Name: Jim Norris
Company: Hydro Geo Chem Inc

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

Invoice to:

Name: Jim Norris
Company: HGC Inc
E-mail: jimn@hgcinc.com

Address: 51 W. Wetmore Rd
TUCSON AZ 85705
Telephone: (520) 293-1500 x 112

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?

YES ☒
NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO"

is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: FM CAB - GW
Project/PO #: 872001.0
Reporting state for compliance testing: AZ
Sampler's Name: Kim Wilson/Al Pandamouz
Are any samples NRC licensable material? NO

of Containers

504

SAMPLE IDENTIFICATION DATE: TIME Matrix

| | | | | | | | | | | | | | | | | | | | |
|---------|---------------|----|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| ENGLUND | 2/12/08 13:35 | GW | 1 | ✓ | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | |

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

REMARKS

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

RELINQUISHED BY:

DATE: TIME

RECEIVED BY:

DATE: TIME

Kim Wilson

2/12/08 16:35

WRL

2-13-08 11:12

February 27, 2008

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: 872001.0

ACZ Project ID: L67606

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 09, 2008. This project has been assigned to ACZ's project number, L67606. 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 L67606. 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 March 27, 2008. 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.



Scott Habermehl has reviewed
and approved this report.



Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: SCHWARTZ

ACZ Sample ID: **L67606-01**

Date Sampled: 02/08/08 10:30

Date Received: 02/09/08

Sample Matrix: Ground Water

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------|----------------------------|--------|------|----|-------|-----|-----|----------------|---------|
| Sulfate | 300.0 - Ion Chromatography | 158 | | | mg/L | 1 | 5 | 02/15/08 14:30 | aml |

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | Analyte was analyzed for but not detected at the indicated MDL |

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67606**

Project ID: 872001.0

Sulfate

300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240083 | | | | | | | | | | | | | |
| WG240083ICV | ICV | 02/07/08 16:57 | WI080128-8 | 50.1 | | 50.44 | mg/L | 100.7 | 90 | 110 | | | |
| WG240083ICB | ICB | 02/07/08 17:15 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240083ICV1 | ICV | 02/09/08 11:47 | WI080128-8 | 50.1 | | 51.13 | mg/L | 102.1 | 90 | 110 | | | |
| WG240083ICB1 | ICB | 02/09/08 12:05 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240303 | | | | | | | | | | | | | |
| WG240303ICV | ICV | 02/13/08 13:23 | WI080128-8 | 50.1 | | 51.45 | mg/L | 102.7 | 90 | 110 | | | |
| WG240303ICB | ICB | 02/13/08 13:41 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240303LFB | LFB | 02/13/08 13:59 | WI080128-9 | 30 | | 29.94 | mg/L | 99.8 | 90 | 110 | | | |
| L67605-03AS | AS | 02/13/08 18:49 | WI080128-9 | 30 | 32.9 | 61.17 | mg/L | 94.2 | 90 | 110 | | | |
| L67605-03DUP | DUP | 02/13/08 19:09 | | | 32.9 | 32.87 | mg/L | | | | 0.1 | 20 | |
| WG240303ICV1 | ICV | 02/15/08 12:05 | WI080128-8 | 50.1 | | 46.41 | mg/L | 92.6 | 90 | 110 | | | |
| WG240303ICB1 | ICB | 02/15/08 12:23 | | | | .63 | mg/L | | -1.5 | 1.5 | | | |

Hydro Geo Chem, Inc.ACZ Project ID: **L67606**

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

No extended qualifiers associated with this analysis

Hydro Geo Chem, Inc.

ACZ Project ID: **L67606**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
872001.0

ACZ Project ID: L67606
Date Received: 2/9/2008
Received By:
Date Printed: 2/9/2008

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) |
|-----------|-----------|-------------|
| 2004 | 1.4 | 15 |
| | | |
| | | |
| | | |

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

Notes

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67606
 Date Received: 2/9/2008
 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 |
|-----------|-----------|-------|-------|--------|-------|--------|-------|-------|--------|-----|-----|--------------------------|
| L67606-01 | SCHWARTZ | | | | | | | | | X | | <input type="checkbox"/> |

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: _____

Report to:

Address: 31 W WETMORE RD #101
TUCSON, AZ, 85705
Telephone: (520) 293-1500 X133

Copy of Report to:

E-mail: JIMN@hgcine.com
Telephone: (520) 293-1500 X112

Invoice to:

Address: 51 W. WETMORE RD
#TUCSON AZ 85705
Telephone: (520) 293-1500 X112 ✓

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 | <input checked="" type="checkbox"/> |
| NO | <input type="checkbox"/> |

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

ANALYSES REQUESTED (attach list or use quote number)

Quote #: 504--IC
Project/PO #: 872001-0
Reporting state for compliance testing: AZ
Sampler's Name: ALI PANDAMOUNT
Are any samples NRC licensable material? NO

of Containers

150

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix |
|-----------------------|-----------|--------|
|-----------------------|-----------|--------|

| | | |
|----------|-----------------|----|
| SCHWARTZ | 02/08/2008 1030 | GW |
|----------|-----------------|----|

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

REMARKS

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

RELINQUISHED BY:

DATE:TIME

RECEIVED BY:

DATE:TIME

| | | | |
|--------------------|---------------|------|-----------------|
| Per <u>Finan</u> / | 02/08/08 1930 | 11/8 | 2.9.08
11.50 |
| | | | |
| | | | |

February 29, 2008

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: L67685

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 15, 2008. This project has been assigned to ACZ's project number, L67685. 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 L67685. 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 March 29, 2008. 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.



Scott Habermehl has reviewed
and approved this report.



Hydro Geo Chem, Inc.

Project ID: 872002.2

Sample ID: COOPER

ACZ Sample ID: **L67685-01**

Date Sampled: 02/14/08 10:00

Date Received: 02/15/08

Sample Matrix: Ground Water

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|----------------------|------------|--------|------|----|-------|-----|-----|----------------|---------|
| Calcium, dissolved | M200.7 ICP | 47.9 | | | mg/L | 0.2 | 1 | 02/18/08 19:45 | aeH/erf |
| Magnesium, dissolved | M200.7 ICP | 13.8 | | | mg/L | 0.2 | 1 | 02/18/08 19:45 | aeH/erf |
| Potassium, dissolved | M200.7 ICP | 2.2 | | | mg/L | 0.3 | 2 | 02/18/08 19:45 | aeH/erf |
| Sodium, dissolved | M200.7 ICP | 25.3 | | | mg/L | 0.3 | 2 | 02/18/08 19:45 | aeH/erf |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------------------------------|--|--------|------|----|-------|------|------|----------------|---------|
| Alkalinity as CaCO ₃ | SM2320B - Titration | | | | | | | | |
| Bicarbonate as CaCO ₃ | | 154 | | | mg/L | 2 | 20 | 02/19/08 0:00 | jlf |
| Carbonate as CaCO ₃ | | 9 | B | | mg/L | 2 | 20 | 02/19/08 0:00 | jlf |
| Hydroxide as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/19/08 0:00 | jlf |
| Total Alkalinity | | 163 | | * | mg/L | 2 | 20 | 02/19/08 0:00 | jlf |
| Cation-Anion Balance | Calculation | | | | | | | | |
| Cation-Anion Balance | | 1.1 | | | % | | | 02/29/08 0:00 | calc |
| Sum of Anions | | 4.6 | | | meq/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Sum of Cations | | 4.7 | | | meq/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 17.5 | | * | mg/L | 0.5 | 3 | 02/20/08 22:29 | aml/ccp |
| Fluoride | SM4500F-C | 0.3 | B | * | mg/L | 0.1 | 0.5 | 02/28/08 12:23 | cas |
| Nitrate as N, dissolved | Calculation: NO ₃ NO ₂ minus NO ₂ | 2.82 | | | mg/L | 0.02 | 0.1 | 02/29/08 0:00 | calc |
| Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | 2.82 | | * | mg/L | 0.02 | 0.1 | 02/15/08 18:59 | pjb |
| Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | | U | * | mg/L | 0.01 | 0.05 | 02/15/08 18:59 | pjb |
| Residue, Filterable (TDS) @180C | 160.1 / SM2540C | 270 | | | mg/L | 10 | 20 | 02/20/08 9:58 | ear |
| Sulfate | 300.0 - Ion Chromatography | 33.0 | | * | mg/L | 0.5 | 3 | 02/20/08 22:29 | aml/ccp |
| TDS (calculated) | Calculation | 254 | | | mg/L | 10 | 50 | 02/29/08 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | 1.06 | | | | | | 02/29/08 0:00 | calc |

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872002.2

Sample ID: PALMER 819

ACZ Sample ID: **L67685-02**

Date Sampled: 02/14/08 13:50

Date Received: 02/15/08

Sample Matrix: Ground Water

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|----------------------|------------|--------|------|----|-------|-----|-----|----------------|---------|
| Calcium, dissolved | M200.7 ICP | 31.9 | | | mg/L | 0.2 | 1 | 02/19/08 22:22 | aeH/erf |
| Magnesium, dissolved | M200.7 ICP | 27.1 | | | mg/L | 0.2 | 1 | 02/19/08 22:22 | aeH/erf |
| Potassium, dissolved | M200.7 ICP | 5.4 | | | mg/L | 0.3 | 2 | 02/19/08 22:22 | aeH/erf |
| Sodium, dissolved | M200.7 ICP | 50.1 | | | mg/L | 0.3 | 2 | 02/19/08 22:22 | aeH/erf |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------------------------------|--|--------|------|----|-------|------|------|----------------|---------|
| Alkalinity as CaCO ₃ | SM2320B - Titration | | | | | | | | |
| Bicarbonate as CaCO ₃ | | 235 | | | mg/L | 2 | 20 | 02/19/08 0:00 | jlf |
| Carbonate as CaCO ₃ | | 15 | B | | mg/L | 2 | 20 | 02/19/08 0:00 | jlf |
| Hydroxide as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/19/08 0:00 | jlf |
| Total Alkalinity | | 251 | | * | mg/L | 2 | 20 | 02/19/08 0:00 | jlf |
| Cation-Anion Balance | Calculation | | | | | | | | |
| Cation-Anion Balance | | 2.5 | | | % | | | 02/29/08 0:00 | calc |
| Sum of Anions | | 5.8 | | | meq/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Sum of Cations | | 6.1 | | | meq/L | 0.1 | 0.5 | 02/29/08 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 11.3 | | * | mg/L | 0.5 | 3 | 02/20/08 22:47 | aml/ccp |
| Fluoride | SM4500F-C | 0.4 | B | * | mg/L | 0.1 | 0.5 | 02/28/08 12:35 | cas |
| Nitrate as N, dissolved | Calculation: NO ₃ NO ₂ minus NO ₂ | 2.13 | | | mg/L | 0.02 | 0.1 | 02/29/08 0:00 | calc |
| Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | 2.13 | | * | mg/L | 0.02 | 0.1 | 02/15/08 19:04 | pjb |
| Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | | U | * | mg/L | 0.01 | 0.05 | 02/15/08 19:04 | pjb |
| Residue, Filterable (TDS) @180C | 160.1 / SM2540C | 300 | | | mg/L | 10 | 20 | 02/20/08 10:00 | ear |
| Sulfate | 300.0 - Ion Chromatography | 15.9 | | * | mg/L | 0.5 | 3 | 02/20/08 22:47 | aml/ccp |
| TDS (calculated) | Calculation | 308 | | | mg/L | 10 | 50 | 02/29/08 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | 0.97 | | | | | | 02/29/08 0:00 | calc |

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | Analyte was analyzed for but not detected at the indicated MDL |

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67685**

Project ID: 872002.2

Alkalinity as CaCO3

SM2320B - Titration

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-----|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240540 | | | | | | | | | | | | | |
| WG240540PBW1 | PBW | 02/18/08 16:27 | | | | U | mg/L | | -20 | 20 | | | |
| WG240540LCSW2 | LCSW | 02/18/08 16:38 | WC080131-1 | 820 | | 831.6 | mg/L | 101.4 | 90 | 110 | | | |
| WG240540PBW2 | PBW | 02/18/08 19:16 | | | | U | mg/L | | -20 | 20 | | | |
| WG240540LCSW5 | LCSW | 02/18/08 19:28 | WC080131-1 | 820 | | 857.9 | mg/L | 104.6 | 90 | 110 | | | |
| WG240540PBW3 | PBW | 02/18/08 23:03 | | | | U | mg/L | | -20 | 20 | | | |
| WG240540LCSW8 | LCSW | 02/18/08 23:15 | WC080131-1 | 820 | | 867.2 | mg/L | 105.8 | 90 | 110 | | | |
| WG240540PBW4 | PBW | 02/19/08 8:33 | | | | 29.5 | mg/L | | -20 | 20 | | | B4 |
| WG240540LCSW11 | LCSW | 02/19/08 8:45 | WC080131-1 | 820 | | 856 | mg/L | 104.4 | 90 | 110 | | | |
| L67689-01DUP | DUP | 02/19/08 10:19 | | | 508 | 507.8 | mg/L | | | | 0 | 20 | |
| WG240540PBW5 | PBW | 02/19/08 11:41 | | | | U | mg/L | | -20 | 20 | | | |
| WG240540LCSW14 | LCSW | 02/19/08 11:53 | WC080131-1 | 820 | | 832 | mg/L | 101.5 | 90 | 110 | | | |
| WG240540LCSW17 | LCSW | 02/19/08 15:01 | WC080131-1 | 820 | | 882.6 | mg/L | 107.6 | 90 | 110 | | | |

Calcium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG240487 | | | | | | | | | | | | | |
| WG240487ICV | ICV | 02/18/08 18:30 | II080115-3 | 100 | | 94.57 | mg/L | 94.6 | 95 | 105 | | | |
| WG240487ICB | ICB | 02/18/08 18:34 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG240487LFB | LFB | 02/18/08 18:50 | II080214-5 | 67.97008 | | 66.94 | mg/L | 98.5 | 85 | 115 | | | |
| L67670-03AS | AS | 02/18/08 19:26 | II080214-5 | 67.97008 | 68.1 | 132.12 | mg/L | 94.2 | 85 | 115 | | | |
| L67670-03ASD | ASD | 02/18/08 19:29 | II080214-5 | 67.97008 | 68.1 | 132.19 | mg/L | 94.3 | 85 | 115 | 0.05 | 20 | |
| WG240577 | | | | | | | | | | | | | |
| WG240577ICV | ICV | 02/19/08 21:25 | II080115-3 | 100 | | 96.13 | mg/L | 96.1 | 95 | 105 | | | |
| WG240577ICB | ICB | 02/19/08 21:29 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG240577LFB | LFB | 02/19/08 21:44 | II080214-5 | 67.97008 | | 69.65 | mg/L | 102.5 | 85 | 115 | | | |
| L67670-03AS | AS | 02/19/08 21:55 | II080214-5 | 67.97008 | 71.8 | 138.32 | mg/L | 97.9 | 85 | 115 | | | |
| L67670-03ASD | ASD | 02/19/08 21:59 | II080214-5 | 67.97008 | 71.8 | 137.81 | mg/L | 97.1 | 85 | 115 | 0.37 | 20 | |
| L67685-02AS | AS | 02/19/08 22:26 | II080214-5 | 67.97008 | 31.9 | 99.1 | mg/L | 98.9 | 85 | 115 | | | |
| L67685-02ASD | ASD | 02/19/08 22:29 | II080214-5 | 67.97008 | 31.9 | 98.06 | mg/L | 97.3 | 85 | 115 | 1.05 | 20 | |

Chloride

M300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240628 | | | | | | | | | | | | | |
| WG240628ICV | ICV | 02/20/08 16:08 | WI080220-1 | 19.98 | | 20.1 | mg/L | 100.6 | 90 | 110 | | | |
| WG240628ICB | ICB | 02/20/08 16:26 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240628LFB | LFB | 02/20/08 16:44 | WI080128-9 | 30 | | 29.95 | mg/L | 99.8 | 90 | 110 | | | |
| L67668-03AS | AS | 02/20/08 21:34 | WI080213-1 | 50 | 32.1 | 58.57 | mg/L | 52.9 | 90 | 110 | | | M2 |
| L67668-03DUP | DUP | 02/20/08 21:52 | | | 32.1 | 32.13 | mg/L | | | | 0.1 | 20 | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67685**

Project ID: 872002.2

Fluoride

SM4500F-C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----|--------|-------|-------|-------|-------|-------|------|-------|------|
| WG240886 | | | | | | | | | | | | | |
| WG240886ICV | ICV | 02/28/08 11:14 | WC080227-1 | 2 | | 1.97 | mg/L | 98.5 | 90 | 110 | | | |
| WG240886ICB | ICB | 02/28/08 11:19 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG240886LFB1 | LFB | 02/28/08 11:24 | WC080226-1 | 5 | | 5.24 | mg/L | 104.8 | 90 | 110 | | | |
| L67649-03AS | AS | 02/28/08 12:10 | WC080226-1 | 5 | .1 | 5.29 | mg/L | 103.8 | 90 | 110 | | | |
| L67649-03DUP | DUP | 02/28/08 12:13 | | | .1 | .13 | mg/L | | | | 26.1 | 20 | RA |
| WG240886LFB2 | LFB | 02/28/08 12:51 | WC080226-1 | 5 | | 4.93 | mg/L | 98.6 | 90 | 110 | | | |

Magnesium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|-------|-------|-------|-------|-------|------|-------|------|
| WG240487 | | | | | | | | | | | | | |
| WG240487ICV | ICV | 02/18/08 18:30 | II080115-3 | 100 | | 96.43 | mg/L | 96.4 | 95 | 105 | | | |
| WG240487ICB | ICB | 02/18/08 18:34 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG240487LFB | LFB | 02/18/08 18:50 | II080214-5 | 54.96908 | | 54.86 | mg/L | 99.8 | 85 | 115 | | | |
| L67670-03AS | AS | 02/18/08 19:26 | II080214-5 | 54.96908 | 7.2 | 63.33 | mg/L | 102.1 | 85 | 115 | | | |
| L67670-03ASD | ASD | 02/18/08 19:29 | II080214-5 | 54.96908 | 7.2 | 64.09 | mg/L | 103.5 | 85 | 115 | 1.19 | 20 | |

WG240577

| | | | | | | | | | | | | | |
|--------------|-----|----------------|------------|----------|------|-------|------|-------|------|-----|------|----|--|
| WG240577ICV | ICV | 02/19/08 21:25 | II080115-3 | 100 | | 98.02 | mg/L | 98 | 95 | 105 | | | |
| WG240577ICB | ICB | 02/19/08 21:29 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG240577LFB | LFB | 02/19/08 21:44 | II080214-5 | 54.96908 | | 56.43 | mg/L | 102.7 | 85 | 115 | | | |
| L67670-03AS | AS | 02/19/08 21:55 | II080214-5 | 54.96908 | 7.6 | 66.62 | mg/L | 107.4 | 85 | 115 | | | |
| L67670-03ASD | ASD | 02/19/08 21:59 | II080214-5 | 54.96908 | 7.6 | 66.86 | mg/L | 107.8 | 85 | 115 | 0.36 | 20 | |
| L67685-02AS | AS | 02/19/08 22:26 | II080214-5 | 54.96908 | 27.1 | 83.15 | mg/L | 102 | 85 | 115 | | | |
| L67685-02ASD | ASD | 02/19/08 22:29 | II080214-5 | 54.96908 | 27.1 | 82.29 | mg/L | 100.4 | 85 | 115 | 1.04 | 20 | |

Nitrate/Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240496 | | | | | | | | | | | | | |
| WG240496ICV | ICV | 02/15/08 18:46 | WI071212-1 | 2.416 | | 2.435 | mg/L | 100.8 | 90 | 110 | | | |
| WG240496ICB | ICB | 02/15/08 18:47 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| WG240496LFB | LFB | 02/15/08 18:51 | WI070911-4 | 2 | | 1.942 | mg/L | 97.1 | 90 | 110 | | | |
| L67680-01AS | AS | 02/15/08 18:53 | WI070911-4 | 2 | .21 | 2.256 | mg/L | 102.3 | 90 | 110 | | | |
| L67681-01DUP | DUP | 02/15/08 18:56 | | | .09 | .088 | mg/L | | | | 2.2 | 20 | RA |

Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240496 | | | | | | | | | | | | | |
| WG240496ICV | ICV | 02/15/08 18:46 | WI071212-1 | .609 | | .621 | mg/L | 102 | 90 | 110 | | | |
| WG240496ICB | ICB | 02/15/08 18:47 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG240496LFB | LFB | 02/15/08 18:51 | WI070911-4 | 1 | | .98 | mg/L | 98 | 90 | 110 | | | |
| L67680-01AS | AS | 02/15/08 18:53 | WI070911-4 | 1 | | 1.001 | mg/L | 100.1 | 90 | 110 | | | |
| L67681-01DUP | DUP | 02/15/08 18:56 | | | U | U | mg/L | | | | 0 | 20 | RA |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67685**

Project ID: 872002.2

Potassium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG240487 | | | | | | | | | | | | | |
| WG240487ICV | ICV | 02/18/08 18:30 | II080115-3 | 20 | | 20.46 | mg/L | 102.3 | 95 | 105 | | | |
| WG240487ICB | ICB | 02/18/08 18:34 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG240487LFB | LFB | 02/18/08 18:50 | II080214-5 | 99.76186 | | 104.25 | mg/L | 104.5 | 85 | 115 | | | |
| L67670-03AS | AS | 02/18/08 19:26 | II080214-5 | 99.76186 | 1.6 | 109.56 | mg/L | 108.2 | 85 | 115 | | | |
| L67670-03ASD | ASD | 02/18/08 19:29 | II080214-5 | 99.76186 | 1.6 | 111.26 | mg/L | 109.9 | 85 | 115 | 1.54 | 20 | |

WG240577

| | | | | | | | | | | | | | |
|--------------|-----|----------------|------------|----------|-----|--------|------|-------|------|-----|------|----|--|
| WG240577ICV | ICV | 02/19/08 21:25 | II080115-3 | 20 | | 19.86 | mg/L | 99.3 | 95 | 105 | | | |
| WG240577ICB | ICB | 02/19/08 21:29 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG240577LFB | LFB | 02/19/08 21:44 | II080214-5 | 99.76186 | | 103.96 | mg/L | 104.2 | 85 | 115 | | | |
| L67670-03AS | AS | 02/19/08 21:55 | II080214-5 | 99.76186 | 1.6 | 112.98 | mg/L | 111.6 | 85 | 115 | | | |
| L67670-03ASD | ASD | 02/19/08 21:59 | II080214-5 | 99.76186 | 1.6 | 113.47 | mg/L | 112.1 | 85 | 115 | 0.43 | 20 | |
| L67685-02AS | AS | 02/19/08 22:26 | II080214-5 | 99.76186 | 5.4 | 114.93 | mg/L | 109.8 | 85 | 115 | | | |
| L67685-02ASD | ASD | 02/19/08 22:29 | II080214-5 | 99.76186 | 5.4 | 113.98 | mg/L | 108.8 | 85 | 115 | 0.83 | 20 | |

Residue, Filterable (TDS) @180C

160.1 / SM2540C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|----------|-----|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240612 | | | | | | | | | | | | | |
| WG240612PBW | PBW | 02/20/08 9:50 | | | | U | mg/L | | -20 | 20 | | | |
| WG240612LCSW | LCSW | 02/20/08 9:51 | PCN28840 | 260 | | 284 | mg/L | 109.2 | 80 | 120 | | | |
| L67708-01DUP | DUP | 02/20/08 10:10 | | | 380 | 390 | mg/L | | | | 2.6 | 20 | |

Sodium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG240487 | | | | | | | | | | | | | |
| WG240487ICV | ICV | 02/18/08 18:30 | II080115-3 | 100 | | 100.82 | mg/L | 100.8 | 95 | 105 | | | |
| WG240487ICV | ICV | 02/18/08 18:30 | II080115-3 | 100 | | 96.7 | mg/L | 96.7 | 95 | 105 | | | |
| WG240487ICB | ICB | 02/18/08 18:34 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG240487LFB | LFB | 02/18/08 18:50 | II080214-5 | 98.21624 | | 101.59 | mg/L | 103.4 | 85 | 115 | | | |
| WG240487LFB | LFB | 02/18/08 18:50 | II080214-5 | 98.21624 | | 98.3 | mg/L | 100.1 | 85 | 115 | | | |
| L67670-03AS | AS | 02/18/08 19:26 | II080214-5 | 98.21624 | 13.4 | 116.19 | mg/L | 104.7 | 85 | 115 | | | |
| L67670-03ASD | ASD | 02/18/08 19:29 | II080214-5 | 98.21624 | 13.4 | 117.31 | mg/L | 105.8 | 85 | 115 | 0.96 | 20 | |

WG240577

| | | | | | | | | | | | | | |
|--------------|-----|----------------|------------|----------|------|--------|------|-------|------|-----|------|----|--|
| WG240577ICV | ICV | 02/19/08 21:25 | II080115-3 | 100 | | 99.03 | mg/L | 99 | 95 | 105 | | | |
| WG240577ICV | ICV | 02/19/08 21:25 | II080115-3 | 100 | | 97.1 | mg/L | 97.1 | 95 | 105 | | | |
| WG240577ICB | ICB | 02/19/08 21:29 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG240577ICB | ICB | 02/19/08 21:29 | | | | U | mg/L | | -6 | 6 | | | |
| WG240577LFB | LFB | 02/19/08 21:44 | II080214-5 | 98.21624 | | 100.7 | mg/L | 102.5 | 85 | 115 | | | |
| WG240577LFB | LFB | 02/19/08 21:44 | II080214-5 | 98.21624 | | 100.92 | mg/L | 102.8 | 85 | 115 | | | |
| L67670-03AS | AS | 02/19/08 21:55 | II080214-5 | 98.21624 | 13.7 | 120.52 | mg/L | 108.8 | 85 | 115 | | | |
| L67670-03ASD | ASD | 02/19/08 21:59 | II080214-5 | 98.21624 | 13.7 | 120.81 | mg/L | 109.1 | 85 | 115 | 0.24 | 20 | |
| L67685-02AS | AS | 02/19/08 22:26 | II080214-5 | 98.21624 | 50.1 | 151.43 | mg/L | 103.2 | 85 | 115 | | | |
| L67685-02ASD | ASD | 02/19/08 22:29 | II080214-5 | 98.21624 | 50.1 | 150.1 | mg/L | 101.8 | 85 | 115 | 0.88 | 20 | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67685**

Project ID: 872002.2

Sulfate

300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240083 | | | | | | | | | | | | | |
| WG240083ICV | ICV | 02/07/08 16:57 | WI080128-8 | 50.1 | | 50.44 | mg/L | 100.7 | 90 | 110 | | | |
| WG240083ICB | ICB | 02/07/08 17:15 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240083ICV1 | ICV | 02/09/08 11:47 | WI080128-8 | 50.1 | | 51.13 | mg/L | 102.1 | 90 | 110 | | | |
| WG240083ICB1 | ICB | 02/09/08 12:05 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240628 | | | | | | | | | | | | | |
| WG240628ICV | ICV | 02/20/08 16:08 | WI080220-1 | 50.1 | | 50.64 | mg/L | 101.1 | 90 | 110 | | | |
| WG240628ICB | ICB | 02/20/08 16:26 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240628LFB | LFB | 02/20/08 16:44 | WI080128-9 | 30 | | 30.49 | mg/L | 101.6 | 90 | 110 | | | |
| L67668-03AS | AS | 02/20/08 21:34 | WI080213-1 | 50 | 12.6 | 39.09 | mg/L | 53 | 90 | 110 | | | M2 |
| L67668-03DUP | DUP | 02/20/08 21:52 | | | 12.6 | 12.58 | mg/L | | | | 0.2 | 20 | |
| WG240628ICV1 | ICV | 02/21/08 11:56 | WI080220-1 | 50.1 | | 50.19 | mg/L | 100.2 | 90 | 110 | | | |
| WG240628ICB1 | ICB | 02/21/08 12:14 | | | | U | mg/L | | -1.5 | 1.5 | | | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67685**

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|------------------|----------|---------------------------------|--------------------------------------|------|---|
| L67685-01 | WG240628 | Chloride | M300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| | WG240886 | Fluoride | SM4500F-C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG240496 | Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG240628 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| | WG240540 | Total Alkalinity | SM2320B - Titration | B4 | Target analyte detected in blank at or above the acceptance criteria. |
| L67685-02 | WG240628 | Chloride | M300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| | WG240886 | Fluoride | SM4500F-C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG240496 | Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG240628 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| | WG240540 | Total Alkalinity | SM2320B - Titration | B4 | Target analyte detected in blank at or above the acceptance criteria. |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67685**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
 872002.2

ACZ Project ID: L67685
 Date Received: 2/15/2008
 Received By:
 Date Printed: 2/15/2008

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) |
|-----------|-----------|-------------|
| 1996 | 1.8 | 15 |
| | | |
| | | |
| | | |

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

Notes

Hydro Geo Chem, Inc.
 872002.2

ACZ Project ID: L67685
 Date Received: 2/15/2008
 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 |
|-----------|------------|-------|-------|--------|-------|--------|-------|-------|--------|-----|-----|--------------------------|
| L67685-01 | COOPER | | Y | | | | | | | | | <input type="checkbox"/> |
| L67685-02 | PALMER 819 | | Y | | | | | | | | | <input type="checkbox"/> |

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: _____



Laboratories, Inc.

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

CHAIN of CUSTODY

Report to:

Name: Dan Simpson
 Company: Hydro Geo Chem (HGC)
 E-mail: dans@hgcinc.com

Address: 51 W. Wetmore Rd
TUCSON AZ 85705
 Telephone: (520) 293-1500 x 133

Copy of Report to:

Name: Jim Norris
 Company: HGC

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

Invoice to:

Name: Jim Norris
 Company: HGC
 E-mail: jimn@hgcinc.com

Address: above
 Telephone: above

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?

YES ☒
 NO ☐

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

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: FMCQ13 - GW
 Project/PO #: 872002.2
 Reporting state for compliance testing: AZ
 Sampler's Name: KW + AP
 Are any samples NRC licensable material? NO

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix | # of Containers | Ca | Na | Mg | K | TDS | SO ₄ ⁻ | NO ₂ ⁻ | NO ₃ ⁻ | Cl ⁻ | F ⁻ | ALK | | | | | |
|-----------------------|---------------|--------|-----------------|----|----|----|---|-----|------------------------------|------------------------------|------------------------------|-----------------|----------------|-----|--|--|--|--|--|
| COOPER | 2/14/08 10:00 | GW | 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | |
| PALMER 819 | 2/14/08 13:50 | GW | 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | |
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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

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

Kim Wilson

2/14/08 16:30

Will

2-15-08 11:34

March 10, 2008

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: L67789

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 21, 2008. This project has been assigned to ACZ's project number, L67789. 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 L67789. 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 April 10, 2008. 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: 872002.2

Sample ID: DODSON

ACZ Sample ID: **L67789-01**

Date Sampled: 02/20/08 11:50

Date Received: 02/21/08

Sample Matrix: Ground Water

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|----------------------|------------|--------|------|----|-------|-----|-----|----------------|---------|
| Calcium, dissolved | M200.7 ICP | 111 | | | mg/L | 0.2 | 1 | 02/22/08 18:19 | aeh/erf |
| Magnesium, dissolved | M200.7 ICP | 37.5 | | | mg/L | 0.2 | 1 | 02/22/08 18:19 | aeh/erf |
| Potassium, dissolved | M200.7 ICP | 12.3 | | | mg/L | 0.3 | 2 | 02/25/08 15:14 | aeh/erf |
| Sodium, dissolved | M200.7 ICP | 41.2 | | | mg/L | 0.3 | 2 | 02/25/08 15:14 | aeh/erf |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------------------------------|--|--------|------|----|-------|------|------|----------------|---------|
| Alkalinity as CaCO ₃ | SM2320B - Titration | | | | | | | | |
| Bicarbonate as CaCO ₃ | | 252 | | | mg/L | 2 | 20 | 02/26/08 0:00 | jlf |
| Carbonate as CaCO ₃ | | 14 | B | | mg/L | 2 | 20 | 02/26/08 0:00 | jlf |
| Hydroxide as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/26/08 0:00 | jlf |
| Total Alkalinity | | 266 | | | mg/L | 2 | 20 | 02/26/08 0:00 | jlf |
| Cation-Anion Balance | Calculation | | | | | | | | |
| Cation-Anion Balance | | 0.0 | | | % | | | 03/07/08 0:00 | calc |
| Sum of Anions | | 10.8 | | | meq/L | 0.1 | 0.5 | 03/07/08 0:00 | calc |
| Sum of Cations | | 10.8 | | | meq/L | 0.1 | 0.5 | 03/07/08 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 129 | | * | mg/L | 1 | 5 | 03/06/08 21:52 | aml/ccp |
| Fluoride | SM4500F-C | 0.3 | B | * | mg/L | 0.1 | 0.5 | 02/28/08 15:06 | cas |
| Nitrate as N, dissolved | Calculation: NO ₃ NO ₂ minus NO ₂ | 10.7 | | | mg/L | 0.1 | 0.5 | 03/07/08 0:00 | calc |
| Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | 10.7 | | | mg/L | 0.1 | 0.5 | 02/21/08 21:22 | pjb |
| Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | | U | * | mg/L | 0.01 | 0.05 | 02/21/08 20:57 | pjb |
| Residue, Filterable (TDS) @180C | 160.1 / SM2540C | 590 | | | mg/L | 10 | 20 | 02/27/08 11:48 | cas |
| Sulfate | 300.0 - Ion Chromatography | 54 | | * | mg/L | 1 | 5 | 03/06/08 21:52 | aml/ccp |
| TDS (calculated) | Calculation | 598 | | | mg/L | 10 | 50 | 03/07/08 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | 0.99 | | | | | | 03/07/08 0:00 | calc |

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | Analyte was analyzed for but not detected at the indicated MDL |

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67789**

Project ID: 872002.2

Alkalinity as CaCO3

SM2320B - Titration

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-----|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240781 | | | | | | | | | | | | | |
| WG240781PBW2 | PBW | 02/25/08 15:18 | | | | U | mg/L | | -20 | 20 | | | |
| WG240781LCSW5 | LCSW | 02/25/08 15:30 | WC080131-1 | 820 | | 860.2 | mg/L | 104.9 | 90 | 110 | | | |
| WG240781PBW3 | PBW | 02/25/08 18:42 | | | | U | mg/L | | -20 | 20 | | | |
| WG240781LCSW8 | LCSW | 02/25/08 18:54 | WC080131-1 | 820 | | 870.7 | mg/L | 106.2 | 90 | 110 | | | |
| WG240781PBW4 | PBW | 02/25/08 22:14 | | | | U | mg/L | | -20 | 20 | | | |
| WG240781LCSW11 | LCSW | 02/25/08 22:28 | WC080131-1 | 820 | | 884.8 | mg/L | 107.9 | 90 | 110 | | | |
| L67820-03DUP | DUP | 02/26/08 8:57 | | | 639 | 694.9 | mg/L | | | | 8.4 | 20 | |
| WG240781LCSW14 | LCSW | 02/26/08 9:10 | WC080131-1 | 820 | | 882.2 | mg/L | 107.6 | 90 | 110 | | | |

Calcium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|------|-------|-------|------|-------|------|
| WG240749 | | | | | | | | | | | | | |
| WG240749ICV | ICV | 02/22/08 17:26 | II080115-3 | 100 | | 96.63 | mg/L | 96.6 | 95 | 105 | | | |
| WG240749ICB | ICB | 02/22/08 17:30 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG240749LFB | LFB | 02/22/08 17:45 | II080214-5 | 67.97008 | | 67.7 | mg/L | 99.6 | 85 | 115 | | | |
| L67784-01AS | AS | 02/22/08 17:53 | II080214-5 | 67.97008 | 141 | 201.17 | mg/L | 88.5 | 85 | 115 | | | |
| L67784-01ASD | ASD | 02/22/08 17:56 | II080214-5 | 67.97008 | 141 | 201.28 | mg/L | 88.7 | 85 | 115 | 0.05 | 20 | |

Chloride

M300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG241202 | | | | | | | | | | | | | |
| WG241202ICV | ICV | 03/06/08 14:56 | WI080220-1 | 19.98 | | 20.32 | mg/L | 101.7 | 90 | 110 | | | |
| WG241202ICB | ICB | 03/06/08 15:14 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240853LFB | LFB | 03/06/08 15:32 | WI080128-9 | 30 | | 29.36 | mg/L | 97.9 | 90 | 110 | | | |
| L67781-05AS | AS | 03/06/08 21:16 | WI080306-2 | 30 | U | 30.39 | mg/L | 101.3 | 90 | 110 | | | |
| L67781-05DUP | DUP | 03/06/08 21:34 | | | U | U | mg/L | | | | 0 | 20 | RA |

Fluoride

SM4500F-C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240886 | | | | | | | | | | | | | |
| WG240886ICV | ICV | 02/28/08 11:14 | WC080227-1 | 2 | | 1.97 | mg/L | 98.5 | 90 | 110 | | | |
| WG240886ICB | ICB | 02/28/08 11:19 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG240886LFB1 | LFB | 02/28/08 11:24 | WC080226-1 | 5 | | 5.24 | mg/L | 104.8 | 90 | 110 | | | |
| WG240886LFB2 | LFB | 02/28/08 12:51 | WC080226-1 | 5 | | 4.93 | mg/L | 98.6 | 90 | 110 | | | |
| L67779-08AS | AS | 02/28/08 14:09 | WC080226-1 | 5 | U | 4.81 | mg/L | 96.2 | 90 | 110 | | | |
| L67779-08DUP | DUP | 02/28/08 14:16 | | | U | U | mg/L | | | | 0 | 20 | RA |

Magnesium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|-------|-------|-------|-------|-------|------|-------|------|
| WG240749 | | | | | | | | | | | | | |
| WG240749ICV | ICV | 02/22/08 17:26 | II080115-3 | 100 | | 99.42 | mg/L | 99.4 | 95 | 105 | | | |
| WG240749ICB | ICB | 02/22/08 17:30 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG240749LFB | LFB | 02/22/08 17:45 | II080214-5 | 54.96908 | | 55.35 | mg/L | 100.7 | 85 | 115 | | | |
| L67784-01AS | AS | 02/22/08 17:53 | II080214-5 | 54.96908 | 28.4 | 83.37 | mg/L | 100 | 85 | 115 | | | |
| L67784-01ASD | ASD | 02/22/08 17:56 | II080214-5 | 54.96908 | 28.4 | 83.86 | mg/L | 100.9 | 85 | 115 | 0.59 | 20 | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67789**

Project ID: 872002.2

Nitrate/Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240705 | | | | | | | | | | | | | |
| WG240705ICV | ICV | 02/21/08 19:55 | WI071212-1 | 2.416 | | 2.435 | mg/L | 100.8 | 90 | 110 | | | |
| WG240705ICB | ICB | 02/21/08 19:57 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| WG240705LFB1 | LFB | 02/21/08 20:01 | WI070911-4 | 2 | | 1.968 | mg/L | 98.4 | 90 | 110 | | | |
| WG240705LFB2 | LFB | 02/21/08 20:40 | WI070911-4 | 2 | | 1.902 | mg/L | 95.1 | 90 | 110 | | | |
| L67779-11DUP | DUP | 02/21/08 20:49 | | | 1.06 | 1.046 | mg/L | | | | 1.3 | 20 | |
| L67779-10AS | AS | 02/21/08 21:21 | WI070911-4 | 2 | .16 | 2.119 | mg/L | 98 | 90 | 110 | | | |

Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240705 | | | | | | | | | | | | | |
| WG240705ICV | ICV | 02/21/08 19:55 | WI071212-1 | .609 | | .626 | mg/L | 102.8 | 90 | 110 | | | |
| WG240705ICB | ICB | 02/21/08 19:57 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG240705LFB1 | LFB | 02/21/08 20:01 | WI070911-4 | 1 | | 1.023 | mg/L | 102.3 | 90 | 110 | | | |
| WG240705LFB2 | LFB | 02/21/08 20:40 | WI070911-4 | 1 | | 1.035 | mg/L | 103.5 | 90 | 110 | | | |
| L67779-11DUP | DUP | 02/21/08 20:49 | | | .05 | .051 | mg/L | | | | 2 | 20 | RA |
| L67779-10AS | AS | 02/21/08 21:21 | WI070911-4 | 1 | U | 1.041 | mg/L | 104.1 | 90 | 110 | | | |

Potassium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|-----|-------|------|
| WG240797 | | | | | | | | | | | | | |
| WG240797ICV | ICV | 02/25/08 14:33 | II080115-3 | 20 | | 19.95 | mg/L | 99.8 | 95 | 105 | | | |
| WG240797ICB | ICB | 02/25/08 14:37 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG240797LFB | LFB | 02/25/08 14:49 | II080214-5 | 99.76186 | | 101.04 | mg/L | 101.3 | 85 | 115 | | | |
| L67741-01AS | AS | 02/25/08 14:55 | II080214-5 | 99.76186 | 27.5 | 131.58 | mg/L | 104.3 | 85 | 115 | | | |
| L67741-01ASD | ASD | 02/25/08 14:59 | II080214-5 | 99.76186 | 27.5 | 131.58 | mg/L | 104.3 | 85 | 115 | 0 | 20 | |

Residue, Filterable (TDS) @180C

160.1 / SM2540C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|----------|-----|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240892 | | | | | | | | | | | | | |
| WG240892PBW | PBW | 02/27/08 11:45 | | | | U | mg/L | | -20 | 20 | | | |
| WG240892LCSW | LCSW | 02/27/08 11:46 | PCN28838 | 260 | | 276 | mg/L | 106.2 | 80 | 120 | | | |
| L67798-03DUP | DUP | 02/27/08 12:00 | | | 1570 | 1584 | mg/L | | | | 0.9 | 20 | |

Sodium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|-----|-------|------|
| WG240797 | | | | | | | | | | | | | |
| WG240797ICV | ICV | 02/25/08 14:33 | II080115-3 | 100 | | 97.3 | mg/L | 97.3 | 95 | 105 | | | |
| WG240797ICV | ICV | 02/25/08 14:33 | II080115-3 | 100 | | 99.41 | mg/L | 99.4 | 95 | 105 | | | |
| WG240797ICB | ICB | 02/25/08 14:37 | | | | U | mg/L | | -6 | 6 | | | |
| WG240797ICB | ICB | 02/25/08 14:37 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG240797LFB | LFB | 02/25/08 14:49 | II080214-5 | 98.21624 | | 101.64 | mg/L | 103.5 | 85 | 115 | | | |
| WG240797LFB | LFB | 02/25/08 14:49 | II080214-5 | 98.21624 | | 99.1 | mg/L | 100.9 | 85 | 115 | | | |
| L67741-01AS | AS | 02/25/08 14:55 | II080214-5 | 98.21624 | 134 | 229.68 | mg/L | 104.5 | 85 | 115 | | | |
| L67741-01AS | AS | 02/25/08 14:55 | II080214-5 | 98.21624 | 134 | 223.8 | mg/L | 98.6 | 85 | 115 | | | |
| L67741-01ASD | ASD | 02/25/08 14:59 | II080214-5 | 98.21624 | 134 | 224.7 | mg/L | 99.5 | 85 | 115 | 0.4 | 20 | |
| L67741-01ASD | ASD | 02/25/08 14:59 | II080214-5 | 98.21624 | 134 | 231.17 | mg/L | 106.1 | 85 | 115 | 0.4 | 20 | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67789**

Project ID: 872002.2

Sulfate

300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG241202 | | | | | | | | | | | | | |
| WG241202ICV | ICV | 03/06/08 14:56 | WI080220-1 | 50.1 | | 50.51 | mg/L | 100.8 | 90 | 110 | | | |
| WG241202ICB | ICB | 03/06/08 15:14 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240853LFB | LFB | 03/06/08 15:32 | WI080128-9 | 30 | | 30.26 | mg/L | 100.9 | 90 | 110 | | | |
| L67781-05AS | AS | 03/06/08 21:16 | WI080306-2 | 30 | U | 29.59 | mg/L | 98.6 | 90 | 110 | | | |
| L67781-05DUP | DUP | 03/06/08 21:34 | | | U | U | mg/L | | | | 0 | 20 | RA |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67789**

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|-----------|----------|-------------------------|--------------------------------------|------|---|
| L67789-01 | WG241202 | Chloride | M300.0 - 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). |
| | WG240886 | Fluoride | SM4500F-C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG240705 | Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG241202 | 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). |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67789**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
872002.2

ACZ Project ID: L67789
Date Received: 2/21/2008
Received By:
Date Printed: 2/21/2008

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) |
|-----------|-----------|-------------|
| NA5539 | 3.8 | 15 |
| | | |
| | | |
| | | |

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

Notes

Hydro Geo Chem, Inc.
 872002.2

ACZ Project ID: L67789
 Date Received: 2/21/2008
 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 |
|-----------|-----------|-------|-------|--------|-------|--------|-------|-------|--------|-----|-----|--------------------------|
| L67789-01 | DODSON | | Y | | | | | | | | | <input type="checkbox"/> |

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: _____

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

Report to:

| | | | |
|----------|---------------------|------------|---------------------|
| Name: | Dan Simpson | Address: | 51 W. Wetmore Rd |
| Company: | Hydro Geo Chem Inc. | | Tucson, AZ 85705 |
| E-mail: | dans@hgcinc.com | Telephone: | (520) 293-1500 x132 |

Copy of Report to:

| | |
|-------------------|---------------------------------|
| Name: Jim Norrils | E-mail: jimple@hgcinc.com |
| Company: HGC Inc. | Telephone: (520) 293-1500 x 112 |

Invoice to:

| | | | |
|----------|-----------------|------------|-------------------|
| Name: | Jim Norris | Address: | 51 W. Wetmore Rd. |
| Company: | HGC Inc. | | Tucson, AZ 85705 |
| E-mail: | jimn@hgcinc.com | Telephone: | 520/293-6500 x112 |

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

ANALYSES REQUESTED (attach list or use quote number)

[illegible]

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

REMARKS/ SAMPLE DISCLOSURES

| |
|------|
| PAGE |
| of |

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

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|--------------------|---------------|--------------------|---------------|
| <i>[Signature]</i> | 2/20/08: 1615 | <i>[Signature]</i> | 2-21-08 11:30 |
| | | | |
| | | | |

February 29, 2008

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: L67714

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 16, 2008. This project has been assigned to ACZ's project number, L67714. 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 L67714. 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 March 29, 2008. 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.



Scott Habermehl has reviewed
and approved this report.



Hydro Geo Chem, Inc.Project ID: 872002.2
Sample ID: WEISKOPFACZ Sample ID: **L67714-01**

Date Sampled: 02/15/08 08:40

Date Received: 02/16/08

Sample Matrix: Ground Water

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|----------------------|------------|--------|------|----|-------|-----|-----|---------------|---------|
| Calcium, dissolved | M200.7 ICP | 218 | | * | mg/L | 0.2 | 1 | 02/20/08 1:48 | aeH/wfg |
| Magnesium, dissolved | M200.7 ICP | 31.4 | | * | mg/L | 0.2 | 1 | 02/20/08 1:48 | aeH/wfg |
| Potassium, dissolved | M200.7 ICP | 4.3 | | | mg/L | 0.3 | 2 | 02/20/08 1:48 | aeH/wfg |
| Sodium, dissolved | M200.7 ICP | 35.7 | | * | mg/L | 0.3 | 2 | 02/20/08 1:48 | aeH/wfg |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------------------------------|--|--------|------|----|-------|------|------|----------------|---------|
| Alkalinity as CaCO ₃ | SM2320B - Titration | | | | | | | | |
| Bicarbonate as CaCO ₃ | | 177 | | | mg/L | 2 | 20 | 02/28/08 0:00 | cas |
| Carbonate as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/28/08 0:00 | cas |
| Hydroxide as CaCO ₃ | | | U | | mg/L | 2 | 20 | 02/28/08 0:00 | cas |
| Total Alkalinity | | 177 | | * | mg/L | 2 | 20 | 02/28/08 0:00 | cas |
| Cation-Anion Balance | Calculation | | | | | | | | |
| Cation-Anion Balance | | -0.3 | | | % | | | 02/29/08 13:34 | calc |
| Sum of Anions | | 15.3 | | | meq/L | 0.1 | 0.5 | 02/29/08 13:34 | calc |
| Sum of Cations | | 15.2 | | | meq/L | 0.1 | 0.5 | 02/29/08 13:34 | calc |
| Chloride | M300.0 - Ion Chromatography | 33.1 | | * | mg/L | 0.5 | 3 | 02/21/08 1:12 | aml/ccp |
| Fluoride | SM4500F-C | 0.2 | B | * | mg/L | 0.1 | 0.5 | 02/28/08 12:49 | cas |
| Nitrate as N, dissolved | Calculation: NO ₃ NO ₂ minus NO ₂ | 4.74 | | | mg/L | 0.06 | 0.3 | 02/29/08 13:34 | calc |
| Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | 4.74 | | | mg/L | 0.06 | 0.3 | 02/16/08 17:30 | pjb |
| Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | | U | * | mg/L | 0.01 | 0.05 | 02/16/08 17:13 | pjb |
| Residue, Filterable (TDS) @180C | 160.1 / SM2540C | 1010 | | * | mg/L | 10 | 20 | 02/21/08 10:40 | ear |
| Sulfate | 300.0 - Ion Chromatography | 500 | | * | mg/L | 5 | 30 | 02/21/08 14:20 | aml/ccp |
| TDS (calculated) | Calculation | 950 | | | mg/L | 10 | 50 | 02/29/08 13:34 | calc |
| TDS (ratio - measured/calculated) | Calculation | 1.06 | | | | | | 02/29/08 13:34 | calc |

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | Analyte was analyzed for but not detected at the indicated MDL |

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67714**

Project ID: 872002.2

Alkalinity as CaCO3

SM2320B - Titration

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-----|--------|--------|-------|-------|-------|-------|-----|-------|------|
| WG240956 | | | | | | | | | | | | | |
| WG240956PBW1 | PBW | 02/28/08 16:33 | | | | 25.6 | mg/L | | -20 | 20 | | | B4 |
| WG240956LCSW2 | LCSW | 02/28/08 16:45 | WC080131-1 | 820 | | 822 | mg/L | 100.2 | 90 | 110 | | | |
| L67721-05DUP | DUP | 02/28/08 18:40 | | | 1260 | 1253.1 | mg/L | | | | 0.5 | 20 | |
| WG240956PBW2 | PBW | 02/28/08 20:11 | | | | U | mg/L | | -20 | 20 | | | |
| WG240956LCSW5 | LCSW | 02/28/08 20:24 | WC080131-1 | 820 | | 824.2 | mg/L | 100.5 | 90 | 110 | | | |
| WG240956PBW3 | PBW | 02/28/08 23:13 | | | | U | mg/L | | -20 | 20 | | | |
| WG240956LCSW8 | LCSW | 02/28/08 23:25 | WC080131-1 | 820 | | 826.4 | mg/L | 100.8 | 90 | 110 | | | |
| WG240956LCSW11 | LCSW | 02/29/08 1:11 | WC080131-1 | 820 | | 832 | mg/L | 101.5 | 90 | 110 | | | |

Calcium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|------|-------|-------|------|-------|------|
| WG240529 | | | | | | | | | | | | | |
| WG240529ICV | ICV | 02/19/08 23:43 | II080115-3 | 100 | | 96.83 | mg/L | 96.8 | 95 | 105 | | | |
| WG240529ICB | ICB | 02/19/08 23:46 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG240529LFB | LFB | 02/20/08 0:02 | II080214-5 | 67.97008 | | 68.62 | mg/L | 101 | 85 | 115 | | | |
| L67710-08AS | AS | 02/20/08 1:02 | II080214-5 | 67.97008 | 519 | 520.24 | mg/L | 1.8 | 85 | 115 | | | M3 |
| L67710-08ASD | ASD | 02/20/08 1:06 | II080214-5 | 67.97008 | 519 | 537.39 | mg/L | 27.1 | 85 | 115 | 3.24 | 20 | M3 |

Chloride

M300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240628 | | | | | | | | | | | | | |
| WG240628ICV | ICV | 02/20/08 16:08 | WI080220-1 | 19.98 | | 20.1 | mg/L | 100.6 | 90 | 110 | | | |
| WG240628ICB | ICB | 02/20/08 16:26 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240628LFB | LFB | 02/20/08 16:44 | WI080128-9 | 30 | | 29.95 | mg/L | 99.8 | 90 | 110 | | | |
| L67668-03AS | AS | 02/20/08 21:34 | WI080213-1 | 50 | 32.1 | 58.57 | mg/L | 52.9 | 90 | 110 | | | M2 |
| L67668-03DUP | DUP | 02/20/08 21:52 | | | 32.1 | 32.13 | mg/L | | | | 0.1 | 20 | |

Fluoride

SM4500F-C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----|--------|-------|-------|-------|-------|-------|------|-------|------|
| WG240886 | | | | | | | | | | | | | |
| WG240886ICV | ICV | 02/28/08 11:14 | WC080227-1 | 2 | | 1.97 | mg/L | 98.5 | 90 | 110 | | | |
| WG240886ICB | ICB | 02/28/08 11:19 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG240886LFB1 | LFB | 02/28/08 11:24 | WC080226-1 | 5 | | 5.24 | mg/L | 104.8 | 90 | 110 | | | |
| L67649-03AS | AS | 02/28/08 12:10 | WC080226-1 | 5 | .1 | 5.29 | mg/L | 103.8 | 90 | 110 | | | |
| L67649-03DUP | DUP | 02/28/08 12:13 | | | .1 | .13 | mg/L | | | | 26.1 | 20 | RA |
| WG240886LFB2 | LFB | 02/28/08 12:51 | WC080226-1 | 5 | | 4.93 | mg/L | 98.6 | 90 | 110 | | | |

Magnesium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG240529 | | | | | | | | | | | | | |
| WG240529ICV | ICV | 02/19/08 23:43 | II080115-3 | 100 | | 99.29 | mg/L | 99.3 | 95 | 105 | | | |
| WG240529ICB | ICB | 02/19/08 23:46 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG240529LFB | LFB | 02/20/08 0:02 | II080214-5 | 54.96908 | | 56.2 | mg/L | 102.2 | 85 | 115 | | | |
| L67710-08AS | AS | 02/20/08 1:02 | II080214-5 | 54.96908 | 328 | 346.22 | mg/L | 33.1 | 85 | 115 | | | M3 |
| L67710-08ASD | ASD | 02/20/08 1:06 | II080214-5 | 54.96908 | 328 | 361.7 | mg/L | 61.3 | 85 | 115 | 4.37 | 20 | M3 |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67714**

Project ID: 872002.2

Nitrate/Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-------|--------|-------|-------|------|-------|-------|-----|-------|------|
| WG240509 | | | | | | | | | | | | | |
| WG240509ICV | ICV | 02/16/08 16:54 | WI071212-1 | 2.416 | | 2.404 | mg/L | 99.5 | 90 | 110 | | | |
| WG240509ICB | ICB | 02/16/08 16:55 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| WG240509LFB | LFB | 02/16/08 16:59 | WI070911-4 | 2 | | 1.938 | mg/L | 96.9 | 90 | 110 | | | |
| L67710-07AS | AS | 02/16/08 17:01 | WI070911-4 | 2 | .77 | 2.761 | mg/L | 99.6 | 90 | 110 | | | |
| L67710-08DUP | DUP | 02/16/08 17:04 | | | 2.32 | 2.336 | mg/L | | | | 0.7 | 20 | |

Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240509 | | | | | | | | | | | | | |
| WG240509ICV | ICV | 02/16/08 16:54 | WI071212-1 | .609 | | .622 | mg/L | 102.1 | 90 | 110 | | | |
| WG240509ICB | ICB | 02/16/08 16:55 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG240509LFB | LFB | 02/16/08 16:59 | WI070911-4 | 1 | | .997 | mg/L | 99.7 | 90 | 110 | | | |
| L67710-07AS | AS | 02/16/08 17:01 | WI070911-4 | 1 | U | 1.002 | mg/L | 100.2 | 90 | 110 | | | |
| L67710-08DUP | DUP | 02/16/08 17:04 | | | U | U | mg/L | | | | 0 | 20 | RA |

Potassium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG240529 | | | | | | | | | | | | | |
| WG240529ICV | ICV | 02/19/08 23:43 | II080115-3 | 20 | | 20.61 | mg/L | 103.1 | 95 | 105 | | | |
| WG240529ICB | ICB | 02/19/08 23:46 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG240529LFB | LFB | 02/20/08 0:02 | II080214-5 | 99.76186 | | 105.63 | mg/L | 105.9 | 85 | 115 | | | |
| L67710-08AS | AS | 02/20/08 1:02 | II080214-5 | 99.76186 | 7.4 | 115.1 | mg/L | 108 | 85 | 115 | | | |
| L67710-08ASD | ASD | 02/20/08 1:06 | II080214-5 | 99.76186 | 7.4 | 121.2 | mg/L | 114.1 | 85 | 115 | 5.16 | 20 | |

Residue, Filterable (TDS) @180C

160.1 / SM2540C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|----------|-----|--------|-------|-------|-----|-------|-------|------|-------|------|
| WG240653 | | | | | | | | | | | | | |
| WG240653PBW | PBW | 02/21/08 10:25 | | | | U | mg/L | | -20 | 20 | | | |
| WG240653LCSW | LCSW | 02/21/08 10:26 | PCN28840 | 260 | | 286 | mg/L | 110 | 80 | 120 | | | |
| L67723-03DUP | DUP | 02/21/08 10:48 | | | 40 | 48 | mg/L | | | | 18.2 | 20 | RA |

Sodium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG240529 | | | | | | | | | | | | | |
| WG240529ICV | ICV | 02/19/08 23:43 | II080115-3 | 100 | | 99.8 | mg/L | 99.8 | 95 | 105 | | | |
| WG240529ICV | ICV | 02/19/08 23:43 | II080115-3 | 100 | | 102.57 | mg/L | 102.6 | 95 | 105 | | | |
| WG240529ICB | ICB | 02/19/08 23:46 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG240529LFB | LFB | 02/20/08 0:02 | II080214-5 | 98.21624 | | 103.79 | mg/L | 105.7 | 85 | 115 | | | |
| WG240529LFB | LFB | 02/20/08 0:02 | II080214-5 | 98.21624 | | 102.3 | mg/L | 104.2 | 85 | 115 | | | |
| L67710-08AS | AS | 02/20/08 1:02 | II080214-5 | 98.21624 | 251 | 325.39 | mg/L | 75.7 | 85 | 115 | | | MA |
| L67710-08ASD | ASD | 02/20/08 1:06 | II080214-5 | 98.21624 | 251 | 343.21 | mg/L | 93.9 | 85 | 115 | 5.33 | 20 | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67714**

Project ID: 872002.2

Sulfate

300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240083 | | | | | | | | | | | | | |
| WG240083ICV | ICV | 02/07/08 16:57 | WI080128-8 | 50.1 | | 50.44 | mg/L | 100.7 | 90 | 110 | | | |
| WG240083ICB | ICB | 02/07/08 17:15 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240083ICV1 | ICV | 02/09/08 11:47 | WI080128-8 | 50.1 | | 51.13 | mg/L | 102.1 | 90 | 110 | | | |
| WG240083ICB1 | ICB | 02/09/08 12:05 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240628 | | | | | | | | | | | | | |
| WG240628ICV | ICV | 02/20/08 16:08 | WI080220-1 | 50.1 | | 50.64 | mg/L | 101.1 | 90 | 110 | | | |
| WG240628ICB | ICB | 02/20/08 16:26 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240628LFB | LFB | 02/20/08 16:44 | WI080128-9 | 30 | | 30.49 | mg/L | 101.6 | 90 | 110 | | | |
| L67668-03AS | AS | 02/20/08 21:34 | WI080213-1 | 50 | 12.6 | 39.09 | mg/L | 53 | 90 | 110 | | | M2 |
| L67668-03DUP | DUP | 02/20/08 21:52 | | | 12.6 | 12.58 | mg/L | | | | 0.2 | 20 | |
| WG240628ICV1 | ICV | 02/21/08 11:56 | WI080220-1 | 50.1 | | 50.19 | mg/L | 100.2 | 90 | 110 | | | |
| WG240628ICB1 | ICB | 02/21/08 12:14 | | | | U | mg/L | | -1.5 | 1.5 | | | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67714**

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|-----------|----------|---------------------------------|--------------------------------------|------|---|
| L67714-01 | WG240529 | Calcium, dissolved | M200.7 ICP | M3 | The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable. |
| | | Magnesium, dissolved | M200.7 ICP | M3 | The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable. |
| | | Sodium, dissolved | M200.7 ICP | MA | Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits. |
| | WG240628 | Chloride | M300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| | WG240886 | Fluoride | SM4500F-C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG240509 | Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG240653 | Residue, Filterable (TDS) @180C | 160.1 / SM2540C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG240628 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| | WG240956 | Total Alkalinity | SM2320B - Titration | B4 | Target analyte detected in blank at or above the acceptance criteria. |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67714**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
872002.2

ACZ Project ID: L67714
Date Received: 2/16/2008
Received By:
Date Printed: 2/16/2008

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) |
|-----------|-----------|-------------|
| NA5500 | 4.3 | 15 |
| | | |
| | | |
| | | |

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

Notes

Hydro Geo Chem, Inc.
 872002.2

ACZ Project ID: L67714
 Date Received: 2/16/2008
 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 |
|-----------|-----------|-------|-------|--------|-------|--------|-------|-------|--------|-----|-----|--------------------------|
| L67714-01 | WEISKOPF | | Y | | | | | | | | | <input type="checkbox"/> |

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: _____

Report to:

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

Copy of Report to:

E-mail: jinn@hgcinc.com
Telephone: (520) 293-1500 x 112

Invoice to:

Address: above

Telephone: above

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

ANALYSES REQUESTED (attach list or use quote number)

Quote #: FM CQB - GW
Project/PO #: 872002.2
Reporting state for compliance testing: AZ
Sampler's Name: AP + Kw
Are any samples NRC licensable material?

of Containers

Na, Ca, Mg, K

TDS SO_4^{2-}

 $\text{Na}^+ \text{Na}^+ \text{F}^- \text{Cl}^-$

LIK

| SAMPLE IDENTIFICATION | DATE:TIME | Matrix |
|-----------------------|-----------|--------|
|-----------------------|-----------|--------|

| | | |
|----------|--------------|----|
| WEISKOPF | 2/15/08 8:40 | GW |
|----------|--------------|----|

3

1

4

✓

Matrix

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

REMARKS

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

RELINQUISHED BY:

DATE:TIME

RECEIVED BY:

DATE:TIME

King Willem

2/15/08 13:45

118

2.11.08
11:36

February 27, 2008

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: 872001.0

ACZ Project ID: L67713

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 16, 2008. This project has been assigned to ACZ's project number, L67713. 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 L67713. 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 March 27, 2008. 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.



Scott Habermehl has reviewed
and approved this report.



Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: RAY

ACZ Sample ID: **L67713-01**

Date Sampled: 02/15/08 10:30

Date Received: 02/16/08

Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------|----------------------------|--------|------|----|-------|-----|-----|----------------|---------|
| Sulfate | 300.0 - Ion Chromatography | 159 | | * | mg/L | 3 | 10 | 02/21/08 14:02 | aml/ccp |

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | Analyte was analyzed for but not detected at the indicated MDL |

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67713**

Project ID: 872001.0

Sulfate

300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG240083 | | | | | | | | | | | | | |
| WG240083ICV | ICV | 02/07/08 16:57 | WI080128-8 | 50.1 | | 50.44 | mg/L | 100.7 | 90 | 110 | | | |
| WG240083ICB | ICB | 02/07/08 17:15 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240083ICV1 | ICV | 02/09/08 11:47 | WI080128-8 | 50.1 | | 51.13 | mg/L | 102.1 | 90 | 110 | | | |
| WG240083ICB1 | ICB | 02/09/08 12:05 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240628 | | | | | | | | | | | | | |
| WG240628ICV | ICV | 02/20/08 16:08 | WI080220-1 | 50.1 | | 50.64 | mg/L | 101.1 | 90 | 110 | | | |
| WG240628ICB | ICB | 02/20/08 16:26 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240628LFB | LFB | 02/20/08 16:44 | WI080128-9 | 30 | | 30.49 | mg/L | 101.6 | 90 | 110 | | | |
| L67668-03AS | AS | 02/20/08 21:34 | WI080213-1 | 50 | 12.6 | 39.09 | mg/L | 53 | 90 | 110 | | | M2 |
| L67668-03DUP | DUP | 02/20/08 21:52 | | | 12.6 | 12.58 | mg/L | | | | 0.2 | 20 | |
| WG240628ICV1 | ICV | 02/21/08 11:56 | WI080220-1 | 50.1 | | 50.19 | mg/L | 100.2 | 90 | 110 | | | |
| WG240628ICB1 | ICB | 02/21/08 12:14 | | | | U | mg/L | | -1.5 | 1.5 | | | |

Hydro Geo Chem, Inc.ACZ Project ID: **L67713**

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|-----------|----------|-----------|----------------------------|------|---|
| L67713-01 | WG240628 | Sulfate | 300.0 - Ion Chromatography | M2 | Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable. |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67713**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
872001.0

ACZ Project ID: L67713
Date Received: 2/16/2008
Received By:
Date Printed: 2/16/2008

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) |
|-----------|-----------|-------------|
| NA5500 | 4.3 | 15 |
| | | |
| | | |
| | | |

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

Notes

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67713
 Date Received: 2/16/2008
 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 |
|-----------|-----------|-------|-------|--------|-------|--------|-------|-------|--------|-----|-----|--------------------------|
| L67713-01 | RAY | | | | | | | | | X | | <input type="checkbox"/> |

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.

CHAIN of CUSTODY

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

Report to:

Name: Dan Simpson
Company: Hydro Geo Chem (HGC)
E-mail: dans@hginc.com

Address: 51 W. Wetmore Rd
Tucson AZ 85705
Telephone: (520) 293-1500 x133

Copy of Report to:

Name: Jim Norris
Company: HGC

E-mail: jimn@hginc.com
Telephone: (520) 293-1500 x112

Invoice to:

Name: Jim Norris
Company: HGC
E-mail: jimn@hginc.com

Address: above
Telephone: (520) 293-1500 x 112

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?

YES ☒
NO ☐

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO"

is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)

Quote #: FM CQB - GW
Project/PO #: 872001.0
Reporting state for compliance testing: AZ
Sampler's Name: KW + AP
Are any samples NRC licensable material? No

of Containers

504

SAMPLE IDENTIFICATION

DATE: TIME

Matrix

| | | | | | | | | | | | | | | | | | | | |
|-----|---------|-------|----|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| RAY | 2/15/08 | 10:30 | GW | 1 | ✓ | | | | | | | | | | | | | | |
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Matrix SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

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

RELINQUISHED BY:

DATE: TIME

RECEIVED BY:

DATE: TIME

Kim Wilson

2/15/08 13:45

1185

2.16.08
11:36

March 10, 2008

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: 872001.0

ACZ Project ID: L67790

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 21, 2008. This project has been assigned to ACZ's project number, L67790. 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 L67790. 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 April 10, 2008. 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.



Tony Antalek has reviewed and
approved this report.



Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: MOORE

ACZ Sample ID: **L67790-01**

Date Sampled: 02/20/08 10:45

Date Received: 02/21/08

Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------|----------------------------|--------|------|----|-------|-----|-----|----------------|---------|
| Sulfate | 300.0 - Ion Chromatography | 7.1 | | * | mg/L | 0.5 | 3 | 03/06/08 22:46 | aml/ccp |

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: MCCONNELL265

ACZ Sample ID: **L67790-02**

Date Sampled: 02/20/08 13:50

Date Received: 02/21/08

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 | 30 | 100 | 03/06/08 23:04 | aml/ccp |

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872001.0

Sample ID: POOL

ACZ Sample ID: **L67790-03**

Date Sampled: 02/20/08 14:50

Date Received: 02/21/08

Sample Matrix: Ground Water

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------|----------------------------|--------|------|----|-------|-----|-----|----------------|---------|
| Sulfate | 300.0 - Ion Chromatography | 134 | | * | mg/L | 1 | 5 | 03/06/08 23:23 | aml/ccp |

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | Analyte was analyzed for but not detected at the indicated MDL |

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67790**

Project ID: 872001.0

Sulfate

300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG241202 | | | | | | | | | | | | | |
| WG241202ICV | ICV | 03/06/08 14:56 | WI080220-1 | 50.1 | | 50.51 | mg/L | 100.8 | 90 | 110 | | | |
| WG241202ICB | ICB | 03/06/08 15:14 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG240853LFB | LFB | 03/06/08 15:32 | WI080128-9 | 30 | | 30.26 | mg/L | 100.9 | 90 | 110 | | | |
| L67781-05AS | AS | 03/06/08 21:16 | WI080306-2 | 30 | U | 29.59 | mg/L | 98.6 | 90 | 110 | | | |
| L67781-05DUP | DUP | 03/06/08 21:34 | | | U | U | mg/L | | | | 0 | 20 | RA |

Hydro Geo Chem, Inc.ACZ Project ID: **L67790**

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|-----------|----------|-----------|----------------------------|------|---|
| L67790-01 | WG241202 | 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). |
| L67790-02 | WG241202 | 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). |
| L67790-03 | WG241202 | 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). |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67790**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
872001.0

ACZ Project ID: L67790
Date Received: 2/21/2008
Received By:
Date Printed: 2/21/2008

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) |
|-----------|-----------|-------------|
| NA5539 | 3.8 | 15 |
| | | |
| | | |
| | | |

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

Notes

Hydro Geo Chem, Inc.
 872001.0

ACZ Project ID: L67790
 Date Received: 2/21/2008
 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 |
|-----------|--------------|-------|-------|--------|-------|--------|-------|-------|--------|-----|-----|--------------------------|
| L67790-01 | MOORE | | | | | | | | | X | | <input type="checkbox"/> |
| L67790-02 | MCCONNELL265 | | | | | | | | | X | | <input type="checkbox"/> |
| L67790-03 | POOL | | | | | | | | | X | | <input type="checkbox"/> |

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: _____

CHAIN of CUSTODY

Report to:

Address: 51 W. Wetmore Rd
Tucson AZ 85705
Telephone: (520) 293-1500 x133

Copy of Report to:

E-mail: jimna@hgcinc.com
Telephone: 520 293-1500 x112

Invoice to:

Address: 51 W. Wetmore Rd.
Tucson AZ 85705
Telephone: 520 293-1500 x112

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 | <input checked="" type="checkbox"/> |
| NO | <input type="checkbox"/> |

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

ANALYSES REQUESTED (attach list or use quote number)

Quote #: 504-IC
Project/PO #: 872001.0
Reporting state for compliance testing: AZ
Sampler's Name: Mark Arneson
Are any samples NRC licensable material? No

of Containers

504

SAMPLE IDENTIFICATION

DATE:TIME

Matrix

| | | | |
|---------------|----------|------|----|
| MOORE | 2/20/08! | 1045 | GW |
| MCCONNELL 265 | 2/20/08! | 1350 | GW |
| POOL | 2/20/08! | 1450 | GW |

1
1
1

| |
|---|
| X |
| X |
| X |

Matrix

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

REMARKS

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

RELINQUISHED BY:

DATE:TIME

RECEIVED BY:

DATE:TIME

| | | | |
|----------|----------------|-----|---------------|
| 01/08/08 | 2/20/08: 161.5 | h/L | 2-21-08/11:38 |
| | | | |
| | | | |

March 18, 2008

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: L67953

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on March 04, 2008. This project has been assigned to ACZ's project number, L67953. 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 L67953. 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 April 18, 2008. 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.



Scott Habermehl has reviewed
and approved this report.



Hydro Geo Chem, Inc.

Project ID: 872002.2

Sample ID: TM-43

ACZ Sample ID: **L67953-01**

Date Sampled: 03/03/08 12:35

Date Received: 03/04/08

Sample Matrix: Ground Water

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|----------------------|------------|--------|------|----|-------|-----|-----|----------------|---------|
| Calcium, dissolved | M200.7 ICP | 570 | | | mg/L | 0.2 | 1 | 03/05/08 15:14 | erf |
| Magnesium, dissolved | M200.7 ICP | 181 | | | mg/L | 0.2 | 1 | 03/05/08 15:14 | erf |
| Potassium, dissolved | M200.7 ICP | 4.5 | | | mg/L | 0.3 | 2 | 03/07/08 12:37 | aeh/erf |
| Sodium, dissolved | M200.7 ICP | 42.1 | | | mg/L | 0.3 | 2 | 03/05/08 15:14 | erf |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------------------------------|--|--------|------|----|-------|------|------|----------------|---------|
| Alkalinity as CaCO ₃ | SM2320B - Titration | | | | | | | | |
| Bicarbonate as CaCO ₃ | | 713 | | | mg/L | 2 | 20 | 03/04/08 0:00 | jlfr |
| Carbonate as CaCO ₃ | | | U | | mg/L | 2 | 20 | 03/04/08 0:00 | jlfr |
| Hydroxide as CaCO ₃ | | | U | | mg/L | 2 | 20 | 03/04/08 0:00 | jlfr |
| Total Alkalinity | | 713 | | | mg/L | 2 | 20 | 03/04/08 0:00 | jlfr |
| Cation-Anion Balance | Calculation | | | | | | | | |
| Cation-Anion Balance | | 0.3 | | | % | | | 03/18/08 0:00 | calc |
| Sum of Anions | | 45.0 | | | meq/L | 0.1 | 0.5 | 03/18/08 0:00 | calc |
| Sum of Cations | | 45.3 | | | meq/L | 0.1 | 0.5 | 03/18/08 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 31 | | * | mg/L | 1 | 5 | 03/11/08 23:54 | aml/ccp |
| Fluoride | M300.0 - Ion Chromatography | | U | * | mg/L | 0.2 | 1 | 03/11/08 23:54 | aml/ccp |
| Nitrate as N, dissolved | Calculation: NO ₃ NO ₂ minus NO ₂ | 0.99 | | | mg/L | 0.02 | 0.1 | 03/18/08 0:00 | calc |
| Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | 0.99 | | * | mg/L | 0.02 | 0.1 | 03/04/08 19:18 | pjb |
| Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | | U | * | mg/L | 0.01 | 0.05 | 03/04/08 19:18 | pjb |
| Residue, Filterable (TDS) @180C | 160.1 / SM2540C | 3000 | | * | mg/L | 10 | 20 | 03/05/08 11:22 | cas |
| Sulfate | 300.0 - Ion Chromatography | 1420 | | | mg/L | 30 | 100 | 03/10/08 19:37 | aml |
| TDS (calculated) | Calculation | 2680 | | | mg/L | 10 | 50 | 03/18/08 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | 1.12 | | | | | | 03/18/08 0:00 | calc |

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872002.2

Sample ID: TM-43A

ACZ Sample ID: **L67953-02**

Date Sampled: 03/03/08 13:05

Date Received: 03/04/08

Sample Matrix: Ground Water

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|----------------------|------------|--------|------|----|-------|-----|-----|----------------|---------|
| Calcium, dissolved | M200.7 ICP | 10.1 | | | mg/L | 0.2 | 1 | 03/05/08 15:17 | erf |
| Magnesium, dissolved | M200.7 ICP | 5.7 | | | mg/L | 0.2 | 1 | 03/05/08 15:17 | erf |
| Potassium, dissolved | M200.7 ICP | 2.2 | | | mg/L | 0.3 | 2 | 03/07/08 12:41 | aeh/erf |
| Sodium, dissolved | M200.7 ICP | 79.4 | | | mg/L | 0.3 | 2 | 03/05/08 15:17 | erf |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------------------------------|--|--------|------|----|-------|------|------|----------------|---------|
| Alkalinity as CaCO ₃ | SM2320B - Titration | | | | | | | | |
| Bicarbonate as CaCO ₃ | | 197 | | | mg/L | 2 | 20 | 03/05/08 0:00 | jlfr |
| Carbonate as CaCO ₃ | | 20 | | | mg/L | 2 | 20 | 03/05/08 0:00 | jlfr |
| Hydroxide as CaCO ₃ | | | U | | mg/L | 2 | 20 | 03/05/08 0:00 | jlfr |
| Total Alkalinity | | 217 | | | mg/L | 2 | 20 | 03/05/08 0:00 | jlfr |
| Cation-Anion Balance | Calculation | | | | | | | | |
| Cation-Anion Balance | | -1.1 | | | % | | | 03/18/08 0:00 | calc |
| Sum of Anions | | 4.6 | | | meq/L | 0.1 | 0.5 | 03/18/08 0:00 | calc |
| Sum of Cations | | 4.5 | | | meq/L | 0.1 | 0.5 | 03/18/08 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 7.7 | | | mg/L | 0.5 | 3 | 03/10/08 19:55 | aml |
| Fluoride | M300.0 - Ion Chromatography | 0.3 | B | * | mg/L | 0.1 | 0.5 | 03/10/08 19:55 | aml |
| Nitrate as N, dissolved | Calculation: NO ₃ NO ₂ minus NO ₂ | 0.04 | B | * | mg/L | 0.02 | 0.1 | 03/18/08 0:00 | calc |
| Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | 0.04 | B | * | mg/L | 0.02 | 0.1 | 03/04/08 19:19 | pjb |
| Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | | U | * | mg/L | 0.01 | 0.05 | 03/04/08 19:19 | pjb |
| Residue, Filterable (TDS) @180C | 160.1 / SM2540C | 250 | | | mg/L | 10 | 20 | 03/06/08 13:51 | ear |
| Sulfate | 300.0 - Ion Chromatography | 2.1 | B | | mg/L | 0.5 | 3 | 03/10/08 19:55 | aml |
| TDS (calculated) | Calculation | 246 | | | mg/L | 10 | 50 | 03/18/08 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | 1.02 | | | | | | 03/18/08 0:00 | calc |

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872002.2

Sample ID: TM-43B

ACZ Sample ID: **L67953-03**

Date Sampled: 03/03/08 15:49

Date Received: 03/04/08

Sample Matrix: Ground Water

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|----------------------|------------|--------|------|----|-------|-----|-----|----------------|---------|
| Calcium, dissolved | M200.7 ICP | 54.6 | | | mg/L | 0.2 | 1 | 03/05/08 15:20 | erf |
| Magnesium, dissolved | M200.7 ICP | 23.8 | | | mg/L | 0.2 | 1 | 03/05/08 15:20 | erf |
| Potassium, dissolved | M200.7 ICP | 2.9 | | | mg/L | 0.3 | 2 | 03/07/08 12:51 | aeh/erf |
| Sodium, dissolved | M200.7 ICP | 47.9 | | | mg/L | 0.3 | 2 | 03/05/08 15:20 | erf |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------------------------------|--|--------|------|----|-------|------|------|----------------|---------|
| Alkalinity as CaCO ₃ | SM2320B - Titration | | | | | | | | |
| Bicarbonate as CaCO ₃ | | 338 | | | mg/L | 2 | 20 | 03/05/08 0:00 | jlfr |
| Carbonate as CaCO ₃ | | | U | | mg/L | 2 | 20 | 03/05/08 0:00 | jlfr |
| Hydroxide as CaCO ₃ | | | U | | mg/L | 2 | 20 | 03/05/08 0:00 | jlfr |
| Total Alkalinity | | 338 | | | mg/L | 2 | 20 | 03/05/08 0:00 | jlfr |
| Cation-Anion Balance | Calculation | | | | | | | | |
| Cation-Anion Balance | | -0.7 | | | % | | | 03/18/08 0:00 | calc |
| Sum of Anions | | 6.9 | | | meq/L | 0.1 | 0.5 | 03/18/08 0:00 | calc |
| Sum of Cations | | 6.8 | | | meq/L | 0.1 | 0.5 | 03/18/08 0:00 | calc |
| Chloride | M300.0 - Ion Chromatography | 5.0 | | | mg/L | 0.5 | 3 | 03/10/08 20:13 | aml |
| Fluoride | M300.0 - Ion Chromatography | | U | * | mg/L | 0.1 | 0.5 | 03/10/08 20:13 | aml |
| Nitrate as N, dissolved | Calculation: NO ₃ NO ₂ minus NO ₂ | 0.05 | B | | mg/L | 0.02 | 0.1 | 03/18/08 0:00 | calc |
| Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | 0.06 | B | * | mg/L | 0.02 | 0.1 | 03/04/08 19:20 | pjb |
| Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | 0.01 | B | * | mg/L | 0.01 | 0.05 | 03/04/08 19:20 | pjb |
| Residue, Filterable (TDS) @180C | 160.1 / SM2540C | 350 | | | mg/L | 10 | 20 | 03/06/08 13:53 | ear |
| Sulfate | 300.0 - Ion Chromatography | 0.7 | B | | mg/L | 0.5 | 3 | 03/10/08 20:13 | aml |
| TDS (calculated) | Calculation | 338 | | | mg/L | 10 | 50 | 03/18/08 0:00 | calc |
| TDS (ratio - measured/calculated) | Calculation | 1.04 | | | | | | 03/18/08 0:00 | calc |

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | Analyte was analyzed for but not detected at the indicated MDL |

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67953**

Project ID: 872002.2

Alkalinity as CaCO3

SM2320B - Titration

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-----|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG241115 | | | | | | | | | | | | | |
| WG241115PBW1 | PBW | 03/04/08 17:29 | | | | U | mg/L | | -20 | 20 | | | |
| WG241115LCSW2 | LCSW | 03/04/08 17:42 | WC080131-1 | 820 | | 866.9 | mg/L | 105.7 | 90 | 110 | | | |
| WG241115PBW2 | PBW | 03/04/08 20:01 | | | | U | mg/L | | -20 | 20 | | | |
| WG241115LCSW5 | LCSW | 03/04/08 20:13 | WC080131-1 | 820 | | 866.3 | mg/L | 105.6 | 90 | 110 | | | |
| WG241115PBW3 | PBW | 03/04/08 23:02 | | | | U | mg/L | | -20 | 20 | | | |
| WG241115LCSW8 | LCSW | 03/04/08 23:14 | WC080131-1 | 820 | | 847.8 | mg/L | 103.4 | 90 | 110 | | | |
| L67954-03DUP | DUP | 03/05/08 0:49 | | | 532 | 537.3 | mg/L | | | | 1 | 20 | |
| WG241115LCSW11 | LCSW | 03/05/08 1:55 | WC080131-1 | 820 | | 872.8 | mg/L | 106.4 | 90 | 110 | | | |

Calcium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG241145 | | | | | | | | | | | | | |
| WG241145ICV | ICV | 03/05/08 14:08 | II080115-3 | 100 | | 103.2 | mg/L | 103.2 | 95 | 105 | | | |
| WG241145ICB | ICB | 03/05/08 14:12 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG241145LFB | LFB | 03/05/08 14:25 | II080214-5 | 67.97008 | | 71.56 | mg/L | 105.3 | 85 | 115 | | | |
| L67953-03AS | AS | 03/05/08 15:24 | II080214-5 | 67.97008 | 54.6 | 126.17 | mg/L | 105.3 | 85 | 115 | | | |
| L67953-03ASD | ASD | 03/05/08 15:27 | II080214-5 | 67.97008 | 54.6 | 126.62 | mg/L | 106 | 85 | 115 | 0.36 | 20 | |

Chloride

M300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG241202 | | | | | | | | | | | | | |
| WG241202ICV | ICV | 03/06/08 14:56 | WI080220-1 | 19.98 | | 20.32 | mg/L | 101.7 | 90 | 110 | | | |
| WG241202ICB | ICB | 03/06/08 15:14 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG241250 | | | | | | | | | | | | | |
| WG241250ICV | ICV | 03/07/08 13:17 | WI080220-1 | 19.98 | | 20.24 | mg/L | 101.3 | 90 | 110 | | | |
| WG241250ICB | ICB | 03/07/08 13:35 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG241250LFB | LFB | 03/07/08 13:53 | WI080306-2 | 30 | | 29.36 | mg/L | 97.9 | 90 | 110 | | | |
| WG241250ICV1 | ICV | 03/10/08 15:05 | WI080220-1 | 19.98 | | 20.03 | mg/L | 100.3 | 90 | 110 | | | |
| WG241250ICB1 | ICB | 03/10/08 15:23 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| L67881-01AS | AS | 03/10/08 17:12 | WI080306-2 | 30 | 7.1 | 37.78 | mg/L | 102.3 | 90 | 110 | | | |
| L67881-01DUP | DUP | 03/10/08 17:30 | | | 7.1 | 7.04 | mg/L | | | | 0.8 | 20 | |
| WG241373 | | | | | | | | | | | | | |
| WG241373ICV | ICV | 03/11/08 23:00 | WI080220-1 | 19.98 | | 20.35 | mg/L | 101.9 | 90 | 110 | | | |
| WG241373ICB | ICB | 03/11/08 23:18 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG241373LFB | LFB | 03/11/08 23:36 | WI080306-2 | 30 | | 28.34 | mg/L | 94.5 | 90 | 110 | | | |
| L67956-01AS | AS | 03/12/08 0:30 | WI080306-2 | 30 | 26.9 | 54.66 | mg/L | 92.5 | 90 | 110 | | | |
| L67956-01DUP | DUP | 03/12/08 0:48 | | | 26.9 | 26.83 | mg/L | | | | 0.3 | 20 | |
| WG241373ICV1 | ICV | 03/12/08 15:51 | WI080220-1 | 19.98 | | 20.29 | mg/L | 101.6 | 90 | 110 | | | |
| WG241373ICB1 | ICB | 03/12/08 16:09 | | | | U | mg/L | | -1.5 | 1.5 | | | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67953**

Project ID: 872002.2

Fluoride

M300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-----|--------|-------|-------|-------|-------|-------|------|-------|------|
| WG241250 | | | | | | | | | | | | | |
| WG241250ICV | ICV | 03/07/08 13:17 | WI080220-1 | 4 | | 4.07 | mg/L | 101.8 | 90 | 110 | | | |
| WG241250ICB | ICB | 03/07/08 13:35 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG241250LFB | LFB | 03/07/08 13:53 | WI080306-2 | 1.5 | | 1.56 | mg/L | 104 | 90 | 110 | | | |
| L67881-01AS | AS | 03/07/08 18:43 | WI080306-2 | 1.5 | .3 | 2.31 | mg/L | 134 | 90 | 110 | | | M1 |
| L67881-01DUP | DUP | 03/07/08 19:01 | | | .3 | .79 | mg/L | | | | 89.9 | 20 | RA |
| WG241250ICV1 | ICV | 03/10/08 15:05 | WI080220-1 | 4 | | 3.91 | mg/L | 97.8 | 90 | 110 | | | |
| WG241250ICB1 | ICB | 03/10/08 15:23 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG241373 | | | | | | | | | | | | | |
| WG241373ICV | ICV | 03/11/08 23:00 | WI080220-1 | 4 | | 4.03 | mg/L | 100.8 | 90 | 110 | | | |
| WG241373ICB | ICB | 03/11/08 23:18 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG241373LFB | LFB | 03/11/08 23:36 | WI080306-2 | 1.5 | | 1.39 | mg/L | 92.7 | 90 | 110 | | | |
| L67956-01AS | AS | 03/12/08 0:30 | WI080306-2 | 1.5 | .2 | 1.55 | mg/L | 90 | 90 | 110 | | | |
| L67956-01DUP | DUP | 03/12/08 0:48 | | | .2 | .23 | mg/L | | | | 14 | 20 | RA |
| WG241373ICV1 | ICV | 03/12/08 15:51 | WI080220-1 | 4 | | 3.94 | mg/L | 98.5 | 90 | 110 | | | |
| WG241373ICB1 | ICB | 03/12/08 16:09 | | | | U | mg/L | | -0.3 | 0.3 | | | |

Magnesium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG241145 | | | | | | | | | | | | | |
| WG241145ICV | ICV | 03/05/08 14:08 | II080115-3 | 100 | | 104.95 | mg/L | 105 | 95 | 105 | | | |
| WG241145ICB | ICB | 03/05/08 14:12 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG241145LFB | LFB | 03/05/08 14:25 | II080214-5 | 54.96908 | | 58.26 | mg/L | 106 | 85 | 115 | | | |
| L67953-03AS | AS | 03/05/08 15:24 | II080214-5 | 54.96908 | 23.8 | 82.67 | mg/L | 107.1 | 85 | 115 | | | |
| L67953-03ASD | ASD | 03/05/08 15:27 | II080214-5 | 54.96908 | 23.8 | 83.03 | mg/L | 107.8 | 85 | 115 | 0.43 | 20 | |

Nitrate/Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-------|--------|-------|-------|-------|-------|-------|------|-------|------|
| WG241124 | | | | | | | | | | | | | |
| WG241124ICV | ICV | 03/04/08 18:57 | WI071212-1 | 2.416 | | 2.319 | mg/L | 96 | 90 | 110 | | | |
| WG241124ICB | ICB | 03/04/08 18:59 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| WG241124LFB | LFB | 03/04/08 19:02 | WI070911-4 | 2 | | 1.985 | mg/L | 99.3 | 90 | 110 | | | |
| L67925-02DUP | DUP | 03/04/08 19:07 | | | .07 | .088 | mg/L | | | | 22.8 | 20 | RA |
| WG241124ICV1 | ICV | 03/04/08 19:39 | WI071212-1 | 2.416 | | 2.272 | mg/L | 94 | 90 | 110 | | | |
| WG241124ICB1 | ICB | 03/04/08 19:41 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| L67925-01AS | AS | 03/04/08 19:43 | WI070911-4 | 10 | 6 | 16.43 | mg/L | 104.3 | 90 | 110 | | | |

Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG241124 | | | | | | | | | | | | | |
| WG241124ICV | ICV | 03/04/08 18:57 | WI071212-1 | .609 | | .565 | mg/L | 92.8 | 90 | 110 | | | |
| WG241124ICB | ICB | 03/04/08 18:59 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG241124LFB | LFB | 03/04/08 19:02 | WI070911-4 | 1 | | .996 | mg/L | 99.6 | 90 | 110 | | | |
| L67925-01AS | AS | 03/04/08 19:05 | WI070911-4 | 1 | .05 | 1.053 | mg/L | 100.3 | 90 | 110 | | | |
| L67925-02DUP | DUP | 03/04/08 19:07 | | | .01 | .015 | mg/L | | | | 40 | 20 | RA |
| WG241124ICV1 | ICV | 03/04/08 19:39 | WI071212-1 | .609 | | .57 | mg/L | 93.6 | 90 | 110 | | | |
| WG241124ICB1 | ICB | 03/04/08 19:41 | | | | U | mg/L | | -0.03 | 0.03 | | | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67953**

Project ID: 872002.2

Potassium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG241247 | | | | | | | | | | | | | |
| WG241247LFB | LFB | 03/07/08 11:51 | II080214-5 | 99.76186 | | 106.78 | mg/L | 107 | 85 | 115 | | | |
| L67916-03AS | AS | 03/07/08 12:04 | II080214-5 | 99.76186 | 3.1 | 114.67 | mg/L | 111.8 | 85 | 115 | | | |
| L67916-03ASD | ASD | 03/07/08 12:08 | II080214-5 | 99.76186 | 3.1 | 113.86 | mg/L | 111 | 85 | 115 | 0.71 | 20 | |
| L67953-02AS | AS | 03/07/08 12:44 | II080214-5 | 99.76186 | 2.2 | 113.84 | mg/L | 111.9 | 85 | 115 | | | |
| L67953-02ASD | ASD | 03/07/08 12:47 | II080214-5 | 99.76186 | 2.2 | 113.7 | mg/L | 111.8 | 85 | 115 | 0.12 | 20 | |

Residue, Filterable (TDS) @180C

160.1 / SM2540C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|----------|-----|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG241141 | | | | | | | | | | | | | |
| WG241141PBW | PBW | 03/05/08 11:00 | | | | U | mg/L | | -20 | 20 | | | |
| WG241141LCSW | LCSW | 03/05/08 11:01 | PCN28838 | 260 | | 286 | mg/L | 110 | 80 | 120 | | | |
| L67957-03DUP | DUP | 03/05/08 11:29 | | | U | U | mg/L | | | | 0 | 20 | RA |
| WG241216 | | | | | | | | | | | | | |
| WG241216PBW | PBW | 03/06/08 13:48 | | | | U | mg/L | | -20 | 20 | | | |
| WG241216LCSW | LCSW | 03/06/08 13:49 | PCN28838 | 260 | | 284 | mg/L | 109.2 | 80 | 120 | | | |
| L67978-02DUP | DUP | 03/06/08 14:10 | | | 180 | 170 | mg/L | | | | 5.7 | 20 | |

Sodium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG241145 | | | | | | | | | | | | | |
| WG241145ICV | ICV | 03/05/08 14:08 | II080115-3 | 100 | | 103.35 | mg/L | 103.4 | 95 | 105 | | | |
| WG241145ICB | ICB | 03/05/08 14:12 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG241145LFB | LFB | 03/05/08 14:25 | II080214-5 | 98.21624 | | 101.7 | mg/L | 103.5 | 85 | 115 | | | |
| L67953-03AS | AS | 03/05/08 15:24 | II080214-5 | 98.21624 | 47.9 | 147.32 | mg/L | 101.2 | 85 | 115 | | | |
| L67953-03ASD | ASD | 03/05/08 15:27 | II080214-5 | 98.21624 | 47.9 | 147.49 | mg/L | 101.4 | 85 | 115 | 0.12 | 20 | |

Sulfate

300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG241202 | | | | | | | | | | | | | |
| WG241202ICV | ICV | 03/06/08 14:56 | WI080220-1 | 50.1 | | 50.51 | mg/L | 100.8 | 90 | 110 | | | |
| WG241202ICB | ICB | 03/06/08 15:14 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG241250 | | | | | | | | | | | | | |
| WG241250ICV | ICV | 03/07/08 13:17 | WI080220-1 | 50.1 | | 51.6 | mg/L | 103 | 90 | 110 | | | |
| WG241250ICB | ICB | 03/07/08 13:35 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG241250LFB | LFB | 03/07/08 13:53 | WI080306-2 | 30 | | 30.95 | mg/L | 103.2 | 90 | 110 | | | |
| WG241250ICV1 | ICV | 03/10/08 15:05 | WI080220-1 | 50.1 | | 50.62 | mg/L | 101 | 90 | 110 | | | |
| WG241250ICB1 | ICB | 03/10/08 15:23 | | | | .77 | mg/L | | -1.5 | 1.5 | | | |
| L67881-01AS | AS | 03/10/08 17:12 | WI080306-2 | 30 | 13.9 | 43.35 | mg/L | 98.2 | 90 | 110 | | | |
| L67881-01DUP | DUP | 03/10/08 17:30 | | | 13.9 | 13.79 | mg/L | | | | 0.8 | 20 | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67953**

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|------------------|----------|---------------------------------|--------------------------------------|------|---|
| L67953-01 | WG241373 | Chloride | M300.0 - Ion Chromatography | DH | Sample required dilution due to high TDS and/or EC value. |
| | | Fluoride | M300.0 - Ion Chromatography | DH | Sample required dilution due to high TDS and/or EC value. |
| | | | M300.0 - 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). |
| | WG241124 | Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG241141 | Residue, Filterable (TDS) @180C | 160.1 / SM2540C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| L67953-02 | WG241250 | Fluoride | M300.0 - Ion Chromatography | M1 | Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| | | | M300.0 - 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). |
| | WG241124 | Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | | | |
| | | | | | |
| L67953-03 | WG241250 | Fluoride | M300.0 - Ion Chromatography | M1 | Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| | | | M300.0 - 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). |
| | WG241124 | Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | | | |
| | | | | | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67953**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
 872002.2

ACZ Project ID: L67953
 Date Received: 3/4/2008
 Received By:
 Date Printed: 3/4/2008

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) |
|-----------|-----------|-------------|
| NA5588 | 3.1 | 15 |
| | | |
| | | |
| | | |

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

Notes

Hydro Geo Chem, Inc.
 872002.2

ACZ Project ID: L67953
 Date Received: 3/4/2008
 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 |
|-----------|-----------|-------|-------|--------|-------|--------|-------|-------|--------|-----|-----|--------------------------|
| L67953-01 | TM-43 | | Y | | | | | | | | | <input type="checkbox"/> |
| L67953-02 | TM-43A | | Y | | | | | | | | | <input type="checkbox"/> |
| L67953-03 | TM-43B | | Y | | | | | | | | | <input type="checkbox"/> |

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.

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

CHAIN of CUSTODY

Report to:

Name: Dan Simpson
Company: Hydro Gco Chem Inc.
E-mail: dani@hgcinc.com

Address: 51 W. Wetmore Rd
Lucas AZ 85705

Telephone: (520) 293-1500 X133

Copy of Report to:

Name: Jim Norris
Company: HGC Inc.

E-mail: *Jimn@hgcinc.com*
Telephone: *520) 293-1500 x117*

Invoice to:

Name: Jim Norris
Company: HGC Inc.
E-mail: Jimn@hgcin.com

Address: 51 West Wetmore Rd.
Tulsa AZ 85705
Telephone: (520) 293-1500 x113

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 | <input checked="" type="checkbox"/> |
| NO | <input type="checkbox"/> |

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

ANALYSES REQUESTED (attach list or use quote number)

Quote #: FMCQB-GW
Project/PO #: 872002.2
Reporting state for compliance testing: AZ
Sampler's Name: M. Arneson
Are any samples NRC licensable material? 1/2

| | |
|---|---|
| 1 | Ca Na K |
| 2 | DS SO ₄ ⁻ |
| 3 | NO ₂ ⁻ Cl ⁻ F ⁻ |
| 4 | 1/K |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |

[illegible]

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

REMARKS

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

RELINQUISHED BY:

DATE:TIME

RECEIVED BY:

DATE·TIME

| | | | |
|--------------|--------------|-----|--------------|
| 1/1/08 10:50 | 3/3/08 16:35 | WPR | 3-4-08 10:50 |
| | | | |
| | | | |

March 13, 2008

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: L67911

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 29, 2008. This project has been assigned to ACZ's project number, L67911. 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 L67911. 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 April 13, 2008. 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: 872002.2
Sample ID: MW-3-COBACZ Sample ID: **L67911-01**
Date Sampled: 02/28/08 11:10
Date Received: 02/29/08
Sample Matrix: Ground Water

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|----------------------|------------|--------|------|----|-------|-----|-----|----------------|---------|
| Calcium, dissolved | M200.7 ICP | 62.2 | | | mg/L | 0.2 | 1 | 03/03/08 20:09 | aeH/erf |
| Magnesium, dissolved | M200.7 ICP | 8.9 | | | mg/L | 0.2 | 1 | 03/03/08 20:09 | aeH/erf |
| Potassium, dissolved | M200.7 ICP | 2.2 | | | mg/L | 0.3 | 2 | 03/03/08 20:09 | aeH/erf |
| Sodium, dissolved | M200.7 ICP | 25.5 | | * | mg/L | 0.3 | 2 | 03/03/08 20:09 | aeH/erf |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------------------------------|--|--------|------|----|-------|------|------|----------------|---------|
| Alkalinity as CaCO ₃ | SM2320B - Titration | | | | | | | | |
| Bicarbonate as CaCO ₃ | | 159 | | | mg/L | 2 | 20 | 03/04/08 0:00 | jlfr |
| Carbonate as CaCO ₃ | | | U | | mg/L | 2 | 20 | 03/04/08 0:00 | jlfr |
| Hydroxide as CaCO ₃ | | | U | | mg/L | 2 | 20 | 03/04/08 0:00 | jlfr |
| Total Alkalinity | | 159 | | | mg/L | 2 | 20 | 03/04/08 0:00 | jlfr |
| Cation-Anion Balance | Calculation | | | | | | | | |
| Cation-Anion Balance | | 0.0 | | | % | | | 03/13/08 12:40 | calc |
| Sum of Anions | | 5.0 | | | meq/L | 0.1 | 0.5 | 03/13/08 12:40 | calc |
| Sum of Cations | | 5.0 | | | meq/L | 0.1 | 0.5 | 03/13/08 12:40 | calc |
| Chloride | M300.0 - Ion Chromatography | 16.2 | | | mg/L | 0.5 | 3 | 03/10/08 19:19 | aml |
| Fluoride | M300.0 - Ion Chromatography | 0.2 | B | * | mg/L | 0.1 | 0.5 | 03/10/08 19:19 | aml |
| Nitrate as N, dissolved | Calculation: NO ₃ NO ₂ minus NO ₂ | 1.98 | | | mg/L | 0.02 | 0.1 | 03/13/08 12:40 | calc |
| Nitrate/Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | 1.98 | | | mg/L | 0.02 | 0.1 | 02/29/08 18:15 | pjb |
| Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | | U | * | mg/L | 0.01 | 0.05 | 02/29/08 18:15 | pjb |
| Residue, Filterable (TDS) @180C | 160.1 / SM2540C | 300 | | | mg/L | 10 | 20 | 03/04/08 10:51 | cas |
| Sulfate | 300.0 - Ion Chromatography | 57.8 | | | mg/L | 0.5 | 3 | 03/10/08 19:19 | aml |
| TDS (calculated) | Calculation | 277 | | | mg/L | 10 | 50 | 03/13/08 12:40 | calc |
| TDS (ratio - measured/calculated) | Calculation | 1.08 | | | | | | 03/13/08 12:40 | calc |

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | Analyte was analyzed for but not detected at the indicated MDL |

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67911**

Project ID: 872002.2

Alkalinity as CaCO3

SM2320B - Titration

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-----|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG241115 | | | | | | | | | | | | | |
| WG241115PBW1 | PBW | 03/04/08 17:29 | | | | U | mg/L | | -20 | 20 | | | |
| WG241115LCSW2 | LCSW | 03/04/08 17:42 | WC080131-1 | 820 | | 866.9 | mg/L | 105.7 | 90 | 110 | | | |
| WG241115PBW2 | PBW | 03/04/08 20:01 | | | | U | mg/L | | -20 | 20 | | | |
| WG241115LCSW5 | LCSW | 03/04/08 20:13 | WC080131-1 | 820 | | 866.3 | mg/L | 105.6 | 90 | 110 | | | |
| L67931-01DUP | DUP | 03/04/08 21:40 | | | 150 | 149.6 | mg/L | | | | 0.3 | 20 | |
| WG241115PBW3 | PBW | 03/04/08 23:02 | | | | U | mg/L | | -20 | 20 | | | |
| WG241115LCSW8 | LCSW | 03/04/08 23:14 | WC080131-1 | 820 | | 847.8 | mg/L | 103.4 | 90 | 110 | | | |
| WG241115LCSW11 | LCSW | 03/05/08 1:55 | WC080131-1 | 820 | | 872.8 | mg/L | 106.4 | 90 | 110 | | | |

Calcium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG241047 | | | | | | | | | | | | | |
| WG241047ICV | ICV | 03/03/08 19:30 | II080115-3 | 100 | | 99.06 | mg/L | 99.1 | 95 | 105 | | | |
| WG241047ICB | ICB | 03/03/08 19:34 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG241047LFB | LFB | 03/03/08 19:46 | II080214-5 | 67.97008 | | 71.16 | mg/L | 104.7 | 85 | 115 | | | |
| L67904-01AS | AS | 03/03/08 19:53 | II080214-5 | 67.97008 | 135 | 201.37 | mg/L | 97.6 | 85 | 115 | | | |
| L67904-01ASD | ASD | 03/03/08 19:56 | II080214-5 | 67.97008 | 135 | 204.34 | mg/L | 102 | 85 | 115 | 1.46 | 20 | |

Chloride

M300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG241202 | | | | | | | | | | | | | |
| WG241202ICV | ICV | 03/06/08 14:56 | WI080220-1 | 19.98 | | 20.32 | mg/L | 101.7 | 90 | 110 | | | |
| WG241202ICB | ICB | 03/06/08 15:14 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG241250 | | | | | | | | | | | | | |
| WG241250ICV | ICV | 03/07/08 13:17 | WI080220-1 | 19.98 | | 20.24 | mg/L | 101.3 | 90 | 110 | | | |
| WG241250ICB | ICB | 03/07/08 13:35 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG241250LFB | LFB | 03/07/08 13:53 | WI080306-2 | 30 | | 29.36 | mg/L | 97.9 | 90 | 110 | | | |
| WG241250ICV1 | ICV | 03/10/08 15:05 | WI080220-1 | 19.98 | | 20.03 | mg/L | 100.3 | 90 | 110 | | | |
| WG241250ICB1 | ICB | 03/10/08 15:23 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| L67881-01AS | AS | 03/10/08 17:12 | WI080306-2 | 30 | 7.1 | 37.78 | mg/L | 102.3 | 90 | 110 | | | |
| L67881-01DUP | DUP | 03/10/08 17:30 | | | 7.1 | 7.04 | mg/L | | | | 0.8 | 20 | |

Fluoride

M300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-----|--------|-------|-------|-------|-------|-------|------|-------|------|
| WG241250 | | | | | | | | | | | | | |
| WG241250ICV | ICV | 03/07/08 13:17 | WI080220-1 | 4 | | 4.07 | mg/L | 101.8 | 90 | 110 | | | |
| WG241250ICB | ICB | 03/07/08 13:35 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG241250LFB | LFB | 03/07/08 13:53 | WI080306-2 | 1.5 | | 1.56 | mg/L | 104 | 90 | 110 | | | |
| L67881-01AS | AS | 03/07/08 18:43 | WI080306-2 | 1.5 | .3 | 2.31 | mg/L | 134 | 90 | 110 | | | M1 |
| L67881-01DUP | DUP | 03/07/08 19:01 | | | .3 | .79 | mg/L | | | | 89.9 | 20 | RA |
| WG241250ICV1 | ICV | 03/10/08 15:05 | WI080220-1 | 4 | | 3.91 | mg/L | 97.8 | 90 | 110 | | | |
| WG241250ICB1 | ICB | 03/10/08 15:23 | | | | U | mg/L | | -0.3 | 0.3 | | | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67911**

Project ID: 872002.2

Magnesium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG241047 | | | | | | | | | | | | | |
| WG241047ICV | ICV | 03/03/08 19:30 | II080115-3 | 100 | | 100.36 | mg/L | 100.4 | 95 | 105 | | | |
| WG241047ICB | ICB | 03/03/08 19:34 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| WG241047LFB | LFB | 03/03/08 19:46 | II080214-5 | 54.96908 | | 58.49 | mg/L | 106.4 | 85 | 115 | | | |
| L67904-01AS | AS | 03/03/08 19:53 | II080214-5 | 54.96908 | 58 | 116.91 | mg/L | 107.2 | 85 | 115 | | | |
| L67904-01ASD | ASD | 03/03/08 19:56 | II080214-5 | 54.96908 | 58 | 118.7 | mg/L | 110.4 | 85 | 115 | 1.52 | 20 | |

Nitrate/Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|-------|--------|-------|-------|------|-------|-------|-----|-------|------|
| WG241004 | | | | | | | | | | | | | |
| WG241004ICV | ICV | 02/29/08 18:02 | WI071212-1 | 2.416 | | 2.262 | mg/L | 93.6 | 90 | 110 | | | |
| WG241004ICB | ICB | 02/29/08 18:04 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| WG241004LFB | LFB | 02/29/08 18:07 | WI070911-4 | 2 | | 1.903 | mg/L | 95.2 | 90 | 110 | | | |
| L67684-01AS | AS | 02/29/08 18:10 | WI070911-4 | 4 | 1.72 | 5.535 | mg/L | 95.4 | 90 | 110 | | | |
| L67904-01DUP | DUP | 02/29/08 18:12 | | | 2.95 | 2.946 | mg/L | | | | 0.1 | 20 | |

Nitrite as N, dissolved

M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|------|-------|-------|-----|-------|------|
| WG241004 | | | | | | | | | | | | | |
| WG241004ICV | ICV | 02/29/08 18:02 | WI071212-1 | .609 | | .593 | mg/L | 97.4 | 90 | 110 | | | |
| WG241004ICB | ICB | 02/29/08 18:04 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG241004LFB | LFB | 02/29/08 18:07 | WI070911-4 | 1 | | .987 | mg/L | 98.7 | 90 | 110 | | | |
| L67684-01AS | AS | 02/29/08 18:10 | WI070911-4 | 2 | U | 1.913 | mg/L | 95.7 | 90 | 110 | | | |
| L67904-01DUP | DUP | 02/29/08 18:12 | | | .04 | .043 | mg/L | | | | 7.2 | 20 | RA |

Potassium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG241047 | | | | | | | | | | | | | |
| WG241047ICV | ICV | 03/03/08 19:30 | II080115-3 | 20 | | 20.06 | mg/L | 100.3 | 95 | 105 | | | |
| WG241047ICB | ICB | 03/03/08 19:34 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG241047LFB | LFB | 03/03/08 19:46 | II080214-5 | 99.76186 | | 104.01 | mg/L | 104.3 | 85 | 115 | | | |
| L67904-01AS | AS | 03/03/08 19:53 | II080214-5 | 99.76186 | 4.4 | 113.26 | mg/L | 109.1 | 85 | 115 | | | |
| L67904-01ASD | ASD | 03/03/08 19:56 | II080214-5 | 99.76186 | 4.4 | 115.05 | mg/L | 110.9 | 85 | 115 | 1.57 | 20 | |

Residue, Filterable (TDS) @180C

160.1 / SM2540C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|----------|-----|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG241086 | | | | | | | | | | | | | |
| WG241086PBW | PBW | 03/04/08 10:45 | | | | U | mg/L | | -20 | 20 | | | |
| WG241086LCSW | LCSW | 03/04/08 10:46 | PCN28838 | 260 | | 284 | mg/L | 109.2 | 80 | 120 | | | |
| L67914-06DUP | DUP | 03/04/08 11:00 | | | 170 | 172 | mg/L | | | | 1.2 | 20 | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67911**

Project ID: 872002.2

Sodium, dissolved

M200.7 ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|----------|--------|--------|-------|-------|-------|-------|------|-------|------|
| WG241047 | | | | | | | | | | | | | |
| WG241047ICV | ICV | 03/03/08 19:30 | II080115-3 | 100 | | 99.53 | mg/L | 99.5 | 95 | 105 | | | |
| WG241047ICV | ICV | 03/03/08 19:30 | II080115-3 | 100 | | 98.8 | mg/L | 98.8 | 95 | 105 | | | |
| WG241047ICB | ICB | 03/03/08 19:34 | | | | U | mg/L | | -6 | 6 | | | |
| WG241047ICB | ICB | 03/03/08 19:34 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG241047LFB | LFB | 03/03/08 19:46 | II080214-5 | 98.21624 | | 100 | mg/L | 101.8 | 85 | 115 | | | |
| WG241047LFB | LFB | 03/03/08 19:46 | II080214-5 | 98.21624 | | 102.09 | mg/L | 103.9 | 85 | 115 | | | |
| L67904-01AS | AS | 03/03/08 19:53 | II080214-5 | 98.21624 | 663 | 750.4 | mg/L | 89 | 85 | 115 | | | |
| L67904-01AS | AS | 03/03/08 19:53 | II080214-5 | 98.21624 | 663 | 500 | mg/L | -166 | 85 | 115 | | | M3 |
| L67904-01ASD | ASD | 03/03/08 19:56 | II080214-5 | 98.21624 | 663 | 500 | mg/L | -166 | 85 | 115 | 1.35 | 20 | M3 |
| L67904-01ASD | ASD | 03/03/08 19:56 | II080214-5 | 98.21624 | 663 | 760.6 | mg/L | 99.4 | 85 | 115 | 1.35 | 20 | |

Sulfate

300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG241202 | | | | | | | | | | | | | |
| WG241202ICV | ICV | 03/06/08 14:56 | WI080220-1 | 50.1 | | 50.51 | mg/L | 100.8 | 90 | 110 | | | |
| WG241202ICB | ICB | 03/06/08 15:14 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG241250 | | | | | | | | | | | | | |
| WG241250ICV | ICV | 03/07/08 13:17 | WI080220-1 | 50.1 | | 51.6 | mg/L | 103 | 90 | 110 | | | |
| WG241250ICB | ICB | 03/07/08 13:35 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG241250LFB | LFB | 03/07/08 13:53 | WI080306-2 | 30 | | 30.95 | mg/L | 103.2 | 90 | 110 | | | |
| WG241250ICV1 | ICV | 03/10/08 15:05 | WI080220-1 | 50.1 | | 50.62 | mg/L | 101 | 90 | 110 | | | |
| WG241250ICB1 | ICB | 03/10/08 15:23 | | | | .77 | mg/L | | -1.5 | 1.5 | | | |
| L67881-01AS | AS | 03/10/08 17:12 | WI080306-2 | 30 | 13.9 | 43.35 | mg/L | 98.2 | 90 | 110 | | | |
| L67881-01DUP | DUP | 03/10/08 17:30 | | | 13.9 | 13.79 | mg/L | | | | 0.8 | 20 | |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67911**

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|-----------|----------|-------------------------|--------------------------------------|------|---|
| L67911-01 | WG241047 | Sodium, dissolved | M200.7 ICP | M3 | The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable. |
| | WG241250 | Fluoride | M300.0 - Ion Chromatography | M1 | Matrix spike recovery was high, the recovery of the associated control sample (LCS or LFB) was acceptable. |
| | | | M300.0 - 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). |
| | WG241004 | Nitrite as N, dissolved | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |

Hydro Geo Chem, Inc.

ACZ Project ID: **L67911**

No certification qualifiers associated with this analysis

Hydro Geo Chem, Inc.
 872002.2

ACZ Project ID: L67911
 Date Received: 2/29/2008
 Received By:
 Date Printed: 2/29/2008

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) |
|-----------|-----------|-------------|
| NA5578 | 2.1 | 16 |
| | | |
| | | |
| | | |

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

Notes

Hydro Geo Chem, Inc.
 872002.2

ACZ Project ID: L67911
 Date Received: 2/29/2008
 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 |
|-----------|-----------|-------|-------|--------|-------|--------|-------|-------|--------|-----|-----|--------------------------|
| L67911-01 | MW-3-COB | | Y | | | | | | | | | <input type="checkbox"/> |

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: _____

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

Report to:

| | |
|------------------------------|--------------------------------|
| Name: Dan Simpson | Address: 51 W. Wetmore Rd. |
| Company: Hydro Geo Chem Inc. | Tucson, AZ 85705 |
| E-mail: dan.s@hgcinc.com | Telephone: (520) 293-1500 x133 |

Copy of Report to:

| | |
|-------------------|------------------------------|
| Name: Jim Norris | E-mail: jimn@hgcinc.com |
| Company: HGC Inc. | Telephone: 570 293-1500 x117 |

Invoice to:

| | | | |
|----------|-----------------|------------|---------------------|
| Name: | Jim Norris | Address: | 51 W. Wetmore Rd |
| Company: | HGC Inc | | Lucas AZ 85205 |
| E-mail: | jimm@hgcinc.com | Telephone: | (520) 293-1500 x112 |

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?

YES
NO

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO"

is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

ANALYSES REQUESTED (attach list or use quote number)


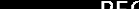
[illegible]

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

REMARKS/ SAMPLE DISCLOSURES

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

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

| RELINQUISHED BY: | DATE:TIME | RECEIVED BY: | DATE:TIME |
|---|---------------|--|-------------|
|  | 2/28/08: 1530 |  | 2-29-08 10: |
| | | | |
| | | | |

March 13, 2008

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: 872001.1

ACZ Project ID: L67882

Dan Simpson:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on February 28, 2008. This project has been assigned to ACZ's project number, L67882. 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 L67882. 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 April 13, 2008. 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: 872001.1

Sample ID: FULTZ

ACZ Sample ID: **L67882-01**

Date Sampled: 02/27/08 15:45

Date Received: 02/28/08

Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------|----------------------------|--------|------|----|-------|-----|-----|----------------|---------|
| Sulfate | 300.0 - Ion Chromatography | 152 | | | mg/L | 5 | 30 | 03/10/08 17:48 | aml |

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872001.1

Sample ID: BANKS 986

ACZ Sample ID: **L67882-02**

Date Sampled: 02/27/08 14:30

Date Received: 02/28/08

Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------|----------------------------|--------|------|----|-------|-----|-----|----------------|---------|
| Sulfate | 300.0 - Ion Chromatography | 44 | | | mg/L | 3 | 10 | 03/10/08 18:06 | aml |

Arizona license number: AZ0102

Hydro Geo Chem, Inc.

Project ID: 872001.1

Sample ID: HOBAN

ACZ Sample ID: **L67882-03**

Date Sampled: 02/27/08 12:15

Date Received: 02/28/08

Sample Matrix: *Ground Water*

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|-----------|----------------------------|--------|------|----|-------|-----|-----|----------------|---------|
| Sulfate | 300.0 - Ion Chromatography | 510 | | | mg/L | 10 | 50 | 03/10/08 18:24 | aml |

Arizona license number: AZ0102

Report Header Explanations

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

QC Sample Types

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

QC Sample Type Explanations

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

ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| U | Analyte was analyzed for but not detected at the indicated MDL |

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.

Hydro Geo Chem, Inc.

ACZ Project ID: **L67882**

Project ID: 872001.1

Sulfate

300.0 - Ion Chromatography

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|-----------------|------|----------------|------------|------|--------|-------|-------|-------|-------|-------|-----|-------|------|
| WG241202 | | | | | | | | | | | | | |
| WG241202ICV | ICV | 03/06/08 14:56 | WI080220-1 | 50.1 | | 50.51 | mg/L | 100.8 | 90 | 110 | | | |
| WG241202ICB | ICB | 03/06/08 15:14 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG241250 | | | | | | | | | | | | | |
| WG241250ICV | ICV | 03/07/08 13:17 | WI080220-1 | 50.1 | | 51.6 | mg/L | 103 | 90 | 110 | | | |
| WG241250ICB | ICB | 03/07/08 13:35 | | | | U | mg/L | | -1.5 | 1.5 | | | |
| WG241250LFB | LFB | 03/07/08 13:53 | WI080306-2 | 30 | | 30.95 | mg/L | 103.2 | 90 | 110 | | | |
| WG241250ICV1 | ICV | 03/10/08 15:05 | WI080220-1 | 50.1 | | 50.62 | mg/L | 101 | 90 | 110 | | | |
| WG241250ICB1 | ICB | 03/10/08 15:23 | | | | .77 | mg/L | | -1.5 | 1.5 | | | |
| L67881-01AS | AS | 03/10/08 17:12 | WI080306-2 | 30 | 13.9 | 43.35 | mg/L | 98.2 | 90 | 110 | | | |
| L67881-01DUP | DUP | 03/10/08 17:30 | | | 13.9 | 13.79 | mg/L | | | | 0.8 | 20 | |

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

No extended qualifiers associated with this analysis

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No certification qualifiers associated with this analysis

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ACZ Project ID: L67882
 Date Received: 2/28/2008
 Received By:
 Date Printed: 2/28/2008

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) |
|-----------|-----------|-------------|
| 2100 | 2.3 | 16 |
| | | |
| | | |
| | | |

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

Notes

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 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 |
|-----------|-----------|-------|-------|--------|-------|--------|-------|-------|--------|-----|-----|--------------------------|
| L67882-01 | FULTZ | | | | | | | | | X | | <input type="checkbox"/> |
| L67882-02 | BANKS | | | | | | | | | X | | <input type="checkbox"/> |
| L67882-03 | HOBAN | | | | | | | | | X | | <input type="checkbox"/> |

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: _____

