THIRD QUARTER 2011
GROUNDWATER MONITORING REPORT

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

Prepared for:

FREEPORT-MCMORAN CORPORATION
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Bisbee, Arizona 85603

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October 7, 2011

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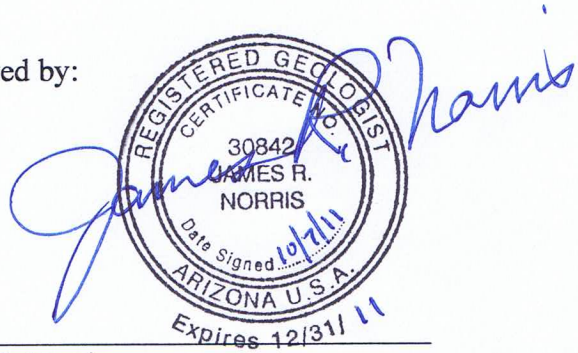

James R. Norris
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October 7, 2011

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1. INTRODUCTION

This report provides the results of groundwater monitoring conducted by Freeport-McMoRan Corporation Copper Queen Branch (CQB) in the third quarter 2011 in the vicinity of the Concentrator Tailing Storage Area (CTSA). Groundwater monitoring is conducted pursuant to Tasks 1.0 (well inventory of drinking water wells) and 2.2 (groundwater monitoring) of the Work Plan (Hydro Geo Chem, Inc. [HGC], 2008) to characterize sulfate in the vicinity of the CTSA. The Work Plan was submitted to Arizona Department of Environmental Quality (ADEQ) on December 17, 2007 pursuant to the Mitigation Order on Consent Docket No. P-121-07 (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. Revision 1 of the Work Plan was submitted to ADEQ on July 3, 2008 and ADEQ approved the Work Plan on August 3, 2008. On January 25, 2010 CQB proposed a revised groundwater monitoring program (CQB, 2010). The revised monitoring program was approved by ADEQ in April 2010 (ADEQ, 2010). Clear Creek Associates (Clear Creek) prepared this groundwater monitoring report on behalf of CQB.

1.1 Scope of Groundwater Monitoring

The objectives of groundwater monitoring are:

- Determination of the sulfate concentration in drinking water supply (DWS) wells outside of and within one mile of the sulfate plume for the purpose of identifying the need for mitigation actions and tracking the plume margin,
- Identification of the plume margin for ongoing delineation of the plume extent and migration,
- Documentation of the sulfate concentration in the plume and at areas distal to the plume to monitor long-term concentration trends, and
- Measurement of water levels in the vicinity of the plume to document potentiometric conditions (CQB, 2010).

The groundwater plume is considered to consist of groundwater with sulfate in excess of 250 milligrams per liter (mg/L) attributable to the CTSA. The sample collection and analysis specifications of the Work Plan have been retained throughout the groundwater monitoring program. Table 1 provides the schedule for the groundwater monitoring program. Dissolved sulfate is the only constituent monitored.

Figure 1 presents a generalized geologic map of the study area and well locations where data reported herein have been collected. Table 2 lists wells identified for monitoring in the third quarter, their availability for sampling, and their sampling status. Groundwater sampling and analysis methods used by Clear Creek and CQB are described in the Quality Assurance Project Plan (QAPP) contained in Appendix F of the Work Plan (HGC, 2008). Results of groundwater monitoring are presented in Section 2.

Four new monitor wells, BMO-2010-1M, BMO-2010-2M, BMO-2010-3B, and BMO-2010-3M, were installed in the third quarter of 2010. The new wells were added to the groundwater monitoring program pursuant to Section 3 of the Work Plan (HCG, 2008).

2. GROUNDWATER MONITORING RESULTS

2.1 Results of Monitoring

Analytical results and groundwater elevation data for the third quarter 2011 are tabulated in Tables 3 and 4, respectively, along with information previously collected under the Mitigation Order. Figure 2 shows the concentrations of dissolved sulfate in the wells sampled in the third quarter 2011. The most recent sample results are shown at wells where multiple samples were collected during the quarter. The highest sulfate concentration measured at co-located wells was used for concentration contouring. Figure 3 shows groundwater elevations in the third quarter 2011. Groundwater elevations were calculated using depth to water measurements made under static (nonpumping) conditions for all wells shown on Figure 3.

2.2 Quality Assurance/Quality Control Review

Pursuant to Section 6.4 of the QAPP, a data verification report was prepared for quality assurance and quality control purposes. The data verification report and analytical laboratory reports for data collected by Clear Creek and CQB during the third quarter 2011 are included in Appendix A and Appendix B, respectively. Copies of groundwater sampling forms for samples collected by Clear Creek and CQB are in Appendix C. As determined by the analytical data verification review, all data for samples collected in the third quarter 2011 by Clear Creek and CQB are of acceptable quality for use in the groundwater monitoring being conducted pursuant to the Mitigation Order.

3. FINDINGS

This report provides the results of groundwater monitoring conducted within the vicinity of the CTSA for the third quarter 2011. Groundwater samples were collected from 78 wells and depth to water measurements were collected at 63 wells. The December 2010 Aquifer Characterization Report (Clear Creek, 2010) provides detailed descriptions of the hydrogeology, water quality, and sulfate plume. Findings based on the third quarter 2011 groundwater monitoring are described below.

- Water quality samples have been collected from wells completed in three principal water bearing units in the area: basin fill, undifferentiated Bisbee Group, and Glance Conglomerate. The undifferentiated Bisbee Group consists, from youngest to oldest, of the Cintura Formation, Upper Mural Limestone, Lower Mural Limestone and Morita Formation. Figures 2 and 3 provide the screened lithology of the wells sampled.

- Sulfate concentration data indicate that the plume extends to the southwest from the vicinity of the former evaporation pond to the vicinity of Naco and to the south to the vicinity of Bisbee Junction (Figure 2). The groundwater monitoring data indicate that the sulfate plume extends over an area of approximately 2.5 miles by 3.9 miles and is contained primarily in the basin fill and undifferentiated Bisbee Group except near the former evaporation pond where wells in the Glance Conglomerate have sulfate concentrations greater than 250 mg/L.

- The sulfate concentration in bedrock monitoring well BMO-2008-10GL was 1,020 mg/L in July 2010 and 644 mg/L in July 2011. The July 2011 sample concentration was the lowest to date. The well is currently scheduled for sampling annually because it is a monitor well within the sulfate plume but will be sampled in fourth quarter 2011 to confirm the lower concentration.

- The sulfate concentration at private drinking water supply well PANAGAKOS was below 250 mg/L for the first time since monitoring began. The lowest concentration prior to this quarter was 318 mg/L in January 2010. The sulfate concentration for the sample collected July 14, 2011 was 223 mg/L. The sample was reanalyzed and the concentration was 220 mg/L. The well was resampled on August 25, 2011. The sulfate concentration in that sample was 222 mg/L. The well owner indicated that no changes were made to the well or piping system. The well will continue to be monitored quarterly to determine long term trends and to confirm the lower concentration.

- Comparison of the third quarter 2011 sulfate concentrations with previous quarters indicates no large scale change in the plume geometry since the Mitigation Order sampling began in the fourth quarter 2008, although concentration contours within the plume have been modified to reflect current concentrations.

- Figure 4 shows sulfate concentrations through time at public drinking water supply wells that are not receiving mitigation actions. Sulfate concentrations have remained relatively stable over time, although NWC-04 displays the greatest variability in concentration

- Groundwater elevations decrease from northeast to southwest in the area east of the Black Gap Fault and between the Bisbee Municipal Airport and Bisbee Junction, and from east to west across the central portion of the study area west of the Black Gap Fault (Figure 3).

- Figures 5 and 6 show groundwater elevations over time for BMO monitor wells with screened intervals in basin fill and bedrock, respectively. Groundwater elevations in BMO monitor wells screened in basin fill have decreased over time. The maximum decrease has been 4.16 feet since July 2008. Groundwater elevations in BMO monitor wells screened in bedrock are relatively steady over time, although BMO-2008-10GL and BMO-2008-11G display increasing trends whereas BMO-2008-1G displays a decreasing trend.

4. REFERENCES

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ADEQ. 2010. Correspondence from Cynthia Campbell, ADEQ, to Rebecca Sawyer, CQB, Re: Request to Modify Groundwater Monitoring Program, Mitigation Order on Consent No. P-127-07, Your Letter dated January 25, 2010. April 22, 2010.

Clear Creek Associates (Clear Creek). 2010. Revision I Aquifer Characterization Report, Task 4.0 of Aquifer Characterization Plan, Mitigation Order on Consent Docket No. P-121-07, Cochise County, Arizona, Volumes I and II. December 15, 2010.

Freeport McMoRan Copper Queen Branch (CQB). 2010. Correspondence from Rebecca Sawyer, CQB, to Cynthia Campbell, ADEQ, Re: Request to Modify Groundwater Monitoring Program Mitigation Order on Consent No. P-121-07. January 25, 2010

Hydro Geo Chem, Inc. (HGC). 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.

TABLES

Table 1
Schedule for Water Quality Sampling and Water Level Monitoring

Well Name	ADWR 55 Registry No.	Semiannual Sampling First Quarter	Quarterly Sampling Second Quarter	Annual Sampling Third Quarter	Quarterly Sampling Fourth Quarter
ANDERSON	613396	✓	✓	✓	✓
AWC-02	616586	✓	✓	✓	✓
AWC-03	616585	✓	✓	✓	✓
AWC-04	616584	✓	✓	✓	✓
AWC-05	590620	✓	✓	✓	✓
BANKS 986	647986	✓	✓	✓	✓
BANKS 987	647987	WLO		WLO	
BARTON 919	644919	WLO		WLO	
BF-01	539783			✓	
BIMA	577927	✓	✓	✓	✓
BMO-2008-1G	909474	✓		✓	
BMO-2008-3B	909147	✓		✓	
BMO-2008-4B	910096	✓		✓	
BMO-2008-5B	909653	✓	✓	✓	✓
BMO-2008-5M	909552	✓	✓	✓	✓
BMO-2008-6B	909146	✓	✓	✓	✓
BMO-2008-6M	909019	✓	✓	✓	✓
BMO-2008-7M	908794	✓		✓	
BMO-2008-8B	910097			✓	
BMO-2008-8M	909711	✓		✓	
BMO-2008-9M	909255	✓		✓	
BMO-2008-10GL	909435			✓	
BMO-2008-10GU	909272			✓	
BMO-2008-11G	909434	✓		✓	
BMO-2008-13B	909551			✓	
BMO-2008-13M	909760			✓	
BMO-2010-1M[1]	219957	✓	✓	✓	✓
BMO-2010-2M[1]	219958	✓	✓	✓	✓
BMO-2010-3B[1]	219970	✓	✓	✓	✓
BMO-2010-3M[1]	219969	✓	✓	✓	✓
CHAMBERS	629807	✓	✓	✓	✓
COB MW-1	903992			✓	
COB MW-2	903984	✓		✓	
COB MW-3	906823			✓	
COB WL	593116			✓	
COOPER	623564	✓	✓	✓	✓
COOPER C	637069	✓	✓	✓	✓
DODSON	644927	✓	✓	✓	✓
DOUGLASS 791	592791	WLO		WLO	

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Schedule for Water Quality Sampling and Water Level Monitoring

Well Name	ADWR 55 Registry No.	Semiannual Sampling First Quarter	Quarterly Sampling Second Quarter	Annual Sampling Third Quarter	Quarterly Sampling Fourth Quarter
DOUGLASS 792	592792	WLO		WLO	
DURAZO	NR	✓	✓	✓	✓
EAST	599796	✓	✓	✓	✓
EPPELE 641	805641	✓	✓	✓	✓
FLEMING	218386	WLO		WLO	
FRANCO	500101	✓	✓	✓	✓
FULTZ	212447	✓	✓	✓	✓
GARNER 557	558557	WLO		WLO	
GARNER 635	587635	✓	✓	✓	✓
GGOOSE 547	628547	✓		✓	
GOAR RANCH	610695	WLO		WLO	
HOBAN	805290	✓	✓	✓	✓
HOWARD	NR	✓	✓	✓	✓
KEEFER	209744	✓	✓	✓	✓
MCCONNELL 265	539265	✓	✓	✓	✓
METZLER	35-71891	✓	✓	✓	✓
MOORE	538847	✓	✓	✓	✓
NESS	509127	✓		✓	
NOTEMAN	212483	✓	✓	✓	✓
NWC-02	562944	✓	✓	✓	✓
NWC-03	203321	✓	✓	✓	✓
NWC-03 CAP	627684	WLO		WLO	
NWC-04	551849	✓	✓	✓	✓
NWC-06	575700	✓	✓	✓	✓
OSBORN	643436	✓		✓	
PALMER	578819	✓	✓	✓	✓
PANAGAKOS	35-76413			✓	
PARRA	576415	✓	✓	✓	✓
PIONKE	613395	✓	✓	✓	✓
POOL	509518	✓	✓	✓	✓
RAMIREZ	216425	✓	✓	✓	✓
RAY	803772	✓	✓	✓	✓
ROGERS 596/803	573596	✓	✓	✓	✓
ROGERS E	216018	✓	✓	✓	✓
RUIZ	531770	✓	✓	✓	✓
SCHWARTZ	210865	✓	✓	✓	✓
STEPHENS	808560	WLO		WLO	
SUNBELT	201531	WLO		WLO	
SWAN	NR	✓		✓	

Table 1
Schedule for Water Quality Sampling and Water Level Monitoring

Well Name	ADWR 55 Registry No.	Semiannual Sampling First Quarter	Quarterly Sampling Second Quarter	Annual Sampling Third Quarter	Quarterly Sampling Fourth Quarter
TM-02A	522574	✓		✓	
TM-06 MILLER	522695			✓	
TM-07	522576	✓		✓	
TM-15 MILLER	522699			✓	
TM-16	522578			✓	
TM-19A	522580	✓		✓	
TM-42	562554			✓	
TVI 236	802236			✓	
TVI 713	567713	WLO		WLO	
TVI 875	568875	✓	✓	✓	✓
WEED	544535	✓	✓	✓	✓
WEISKOPF	641802	✓	✓	✓	✓
ZANDER	205126	✓	✓	✓	✓

Notes:

ADWR = Arizona Department of Water Resources

WLO = Water Level Only

NR = No Record

[1]Well installed third quarter 2010 and will be sampled quarterly for the first year and re-evaluated at the end of that year.

Table 2
Summary of Groundwater Monitoring for Third Quarter 2011

Well Name	ADWR 55 Registry No.	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
ANDERSON	613396	Anderson	Well Inventory	236	Y	Y	Water quality sample collected in July 2011.
AWC-02	616586	Arizona Water Company	Plume	330	N	Y	Water quality sample collected in July 2011. Unable to collect water level because well was pumping.
AWC-03	616585	Arizona Water Company	Plume	269	N	Y	Water quality sample collected in July 2011. Unable to collect water level because well was pumping.
AWC-04	616584	Arizona Water Company	Plume	250	N	Y	Water quality sample collected in July 2011. Unable to collect water level because well was pumping.
AWC-05	590620	Arizona Water Company	Plume	1183	N	Y	Water quality sample collected in July 2011. Unable to collect water level because well was pumping.
BANKS 986	647986	Banks	Well Inventory	435	N	Y	Water quality sample collected in July 2011. Unable to collect water level because wellhead is not accessible.
BANKS 987	647987	Banks	Well Inventory	339	Y	N	Water level collected in July 2011.
BARTON 919	644919	Barton	Plume	130	N	N	Unable to access well. Unable to contact well owner .
BF-01	539783	Copper Queen Branch	Plume	400	Y	Y	Water quality sample collected in July 2011.
BIMA	577927	Bisbee Municipal Airport	Plume	465	N	Y	Water quality sample collected in August 2011. Water level not collected, could not get sounder down well.
BMO-2008-1G	909474	Copper Queen Branch	Plume	310	Y	Y	Water level collected in July 2011.
BMO-2008-3B	909147	Copper Queen Branch	Plume	260	Y	Y	Water level collected in July 2011.
BMO-2008-4B	910096	Copper Queen Branch	Plume	610	Y	Y	Water level collected in July 2011.
BMO-2008-5B	909653	Copper Queen Branch	Plume	285	Y	Y	Water level collected in July 2011.
BMO-2008-5M	909552	Copper Queen Branch	Plume	450	Y	Y	Water level collected in July 2011.
BMO-2008-6B	909146	Copper Queen Branch	Plume	265	Y	Y	Water level collected in July 2011.
BMO-2008-6M	909019	Copper Queen Branch	Plume	450	Y	Y	Water level collected in July 2011.
BMO-2008-7M	908794	Copper Queen Branch	Plume	670	Y	Y	Water level collected in July 2011.
BMO-2008-8B	910097	Copper Queen Branch	Plume	480	Y	Y	Water level collected in July 2011.
BMO-2008-8M	909711	Copper Queen Branch	Plume	1210	Y	Y	Water level collected in July 2011.
BMO-2008-9M	909255	Copper Queen Branch	Plume	775	Y	Y	Water level collected in July 2011.
BMO-2008-10GL	909435	Copper Queen Branch	Plume	810	Y	Y	Water level collected in July 2011.
BMO-2008-10GU	909272	Copper Queen Branch	Plume	449	Y	Y	Water level collected in July 2011.
BMO-2008-11G	909434	Copper Queen Branch	Plume	760	Y	Y	Water level collected in July 2011.
BMO-2008-13B	909551	Copper Queen Branch	Plume	474	Y	Y	Water level collected in July 2011.
BMO-2008-13M	909760	Copper Queen Branch	Plume	1030	Y	Y	Water level collected in July 2011.
BMO-2010-1M	219957	Copper Queen Branch	Plume	540	Y	Y	Water level collected in August 2011.
BMO-2010-2M	219958	Copper Queen Branch	Plume	370	Y	Y	Water level collected in July 2011.
BMO-2010-3B	219970	Copper Queen Branch	Plume	330	Y	Y	Water level collected in July 2011.

Table 2
Summary of Groundwater Monitoring for Third Quarter 2011

Well Name	ADWR 55 Registry No.	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
BMO-2010-3M	219969	Copper Queen Branch	Plume	532	Y	Y	Water level collected in August 2011.
CHAMBERS	629807	Chambers	Well Inventory	245	N	Y	Water quality sample collected in July 2011. Unable to collect water level because wellhead is not accessible.
COB MW-1	903992	City of Bisbee	Plume	420	Y	Y	Water level collected in July 2011.
COB MW-2	903984	City of Bisbee	Plume	170	Y	Y	Water level collected in July 2011.
COB MW-3	906823	City of Bisbee	Plume	269	Y	Y	Water level collected in July 2011.
COB WL	593116	City of Bisbee	Plume	150	Y	Y	Water level collected in July 2011.
COOPER	623564	Cooper, Teresa	Plume	325	N	Y	Water quality sample collected in July 2011. Unable to collect water level because wellhead is not accessible.
COOPER C	637069	Cooper, Charles	Plume	220	Y	Y	Water quality sample collected in August 2011.
DODSON	644927	Dodson	Plume	200	Y	Y	Water quality sample collected in July 2011.
DOUGLASS 791	592791	Douglass	Well Inventory	200	N	N	Well identified for water level measurements only; no water level measurement collected. Well property has new owner. Unable to contact new owner to get access agreement.
DOUGLASS 792	592792	Douglass	Well Inventory	200	Y	N	Well identified for water level measurements only; water level measurement taken in July 2011.
DURAZO	NR	Durazo	Well Inventory	ND	N	Y	Water quality sample collected in July 2011. Unable to collect water level because wellhead is not accessible.
EAST	599796	East	Well Inventory	125	Y	Y	Water quality sample collected in July 2011.
EPPELE 641	805641	Eppele	Well Inventory	265	Y	Y	Water quality sample collected in July 2011.
FLEMING	218386	Fleming	Well Inventory	400	Y	N	Well identified for water level measurements only. Water level measurement taken in July 2011.
FRANCO	500101	Franco	Well Inventory	200	N	N	Well not operational.
FULTZ	212447	Fultz	Well Inventory	300	N	Y	Water quality sample collected in August 2011. Unable to collect water level due to obstruction in well.
GARNER 557	558557	Garner	Plume	300	Y	N	Well identified for water level measurements only. Water level measurement taken in July 2011.
GARNER 635	587635	Garner	Plume	680	Y	Y	Water quality sample collected in July 2011.
GGOOSE 547	628547	Copper Queen Branch	Plume	800	N	N	Well not operational. Unable to collect water level due to obstruction.
GOAR RANCH	610695	Goar	Well Inventory	250	Y	N	Well identified for water level measurements only; water level measurement taken in July 2011.
HOBAN	805290	Hoban	Well Inventory	316	Y	Y	Water quality sample collected in August 2011.
HOWARD	NR	Howard	Well Inventory	200	Y	Y	Water quality sample collected in August 2011.
KEEFER	209744	Keefer	Well Inventory	245	Y	Y	Water quality sample collected in July 2011.
MARCELL	NR	Marcell	Plume	220	N	Y	Water quality samples collected in August and September 2011. Unable to collect water level because there is no available port in wellhead.
MCCONNELL 265	539265	McConnell	Well Inventory	216	Y	Y	Water quality sample collected in July 2011.

Table 2
Summary of Groundwater Monitoring for Third Quarter 2011

Well Name	ADWR 55 Registry No.	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
METZLER	35-71891	Metzler	Well Inventory	351	Y	Y	Water quality sample collected in July 2011.
MOORE	538847	Moore	Well Inventory	220	N	Y	Water quality sample collected in July 2011. Unable to collect water level because wellhead is not accessible.
NESS	509127	Ness	Well Inventory	812	Y	Y	Water quality sample collected in July 2011.
NOTEMAN	212483	Noteman	Well Inventory	400	N	Y	Water quality sample collected in July 2011. Unable to collect water level due to obstruction in well.
NSD-02	527587	Naco Sanitary District	Water Level	120	N	N	Well identified for water level measurements only. Unable to contact well owner to collect water level measurement.
NSD-03	527586	Naco Sanitary District	Water Level	100	N	N	Well identified for water level measurements only. Unable to contact well owner to collect water level measurement.
NWC-02	562944	Naco Water Company	Plume	312	N	Y	Water quality sample collected in July 2011. Unable to collect water level because the well was pumping.
NWC-03	203321	Naco Water Company	Plume	312	N	Y	Water quality sample collected in July 2011. Unable to collect water level because the well was pumping.
NWC-03 CAP	627684	Naco Water Company	Plume	179	Y	N	Well identified for water level measurements only. Water level measurement taken in July 2011.
NWC-04	551849	Naco Water Company	Well Inventory Sulfate Trend	795	N	Y	Water quality sample collected in July, September, and October 2011. Unable to collect water levels because the well was pumping.
NWC-06	575700	Naco Water Company	Well Inventory	410	N	Y	Water quality sample collected in July 2011. Unable to collect water level because the well was pumping.
OSBORN	643436	Osborn	Plume	258	Y	Y	Water quality sample collected in July 2011.
PALMER	578819	Palmer	Well Inventory	220	N	Y	Water quality sample collected in July. Unable to collect water level because wellhead is inaccessible.
PANAGAKOS	35-76413	Panagakos	Well Inventory	200	Y	Y	Water quality samples collected in July and August 2011.
PARRA	576415	Parra	Plume	355	N	Y	Water quality sample collected in July 2011. Unable to collect water level because of obstruction in well.
PIONKE	613395	Pionke	Well Inventory	300	Y	Y	Water quality sample collected in July 2011.
POOL	509518	Pool	Well Inventory	313	N	N	Unable to access well. Unable to contact well owner .
RAMIREZ	216425	Ramirez	Well Inventory	300	Y	Y	Water quality sample collected in July 2011.
RAY	803772	Ray	Well Inventory	100	Y	Y	Water quality sample collected in July 2011.
ROGERS 596	573596	Rogers, Ernest D	Plume	290	Y	N	Well is turned off. Rogers residence uses ROGERS 803. Water level measurement collected in July 2011.
ROGERS 803	641803	Rogers, Ernest D	Plume	140	N	Y	Water quality sample collected in July 2011. Unable to collect water level measurement because wellhead is not accessible.
ROGERS E	216018	Rogers, Ernest M	Well Inventory	290	N	Y	Water quality sample collected in July 2011. Unable to collect water level because of obstruction in well.
RUIZ	531770	Ruiz	Well Inventory	312	N	Y	Water quality sample collected in August 2011. Unable to collect water level measurement because wellhead is not accessible.
SCHWARTZ	210865	Schwartz	Well Inventory	305	Y	Y	Water quality sample collected in July 2011

Table 2
Summary of Groundwater Monitoring for Third Quarter 2011

Well Name	ADWR 55 Registry No.	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
STEPHENS	808560	Stephens	Well Inventory	NR	Y	N	Well identified for water level measurements only. Water level measurement taken in July 2011.
SUNBELT	201531	Sunbelt Marketing, Inc.	Well Inventory	380	Y	N	Well identified for water level measurements only. Water level measurement taken in July 2011
SWAN	NR	Swan	Well Inventory	NR	Y	Y	Water quality sample collected in July 2011.
TM-02A	522574	Copper Queen Branch	Plume	925	Y	Y	Water quality sample collected in July 2011.
TM-06 MILLER	522695	Miller	Plume	200	Y	Y	Water quality sample collected in July 2011.
TM-07	522576	Copper Queen Branch	Plume	350	N	Y	Water quality sample collected in July 2011. Unable to collect water level measurement because of obstruction in well.
TM-15 MILLER	522699	Miller	Well Inventory	325	N	Y	Water quality sample collected in July 2011. Unable to collect water level measurement because of obstruction in well.
TM-16	522578	Copper Queen Branch	Plume	115	Y	Y	Water quality sample collected in July 2011.
TM-19A	522580	Copper Queen Branch	Plume	700	Y	Y	Water quality sample collected in July 2011.
TM-42	562554	Copper Queen Branch	Plume	250	Y	Y	Water quality sample collected in July 2011.
TVI 236	802236	Turquoise Valley, Inc.	Well Inventory	222	Y	Y	Water quality sample collected in July 2011.
TVI 713	567713	Turquoise Valley, Inc.	Well Inventory	200	Y	N	Well identified for water level measurements only. Water level measurement taken in July 2011.
TVI 875	568875	Turquoise Valley, Inc.	Plume	330	N	Y	Water quality sample collected in July 2011. Unable to collect water level because well head is not accessible.
WEED	544535	Weed	Plume	320	N	Y	Water quality sample collected in July 2011. Unable to collect water level because well head is not accessible.
WEISKOPF	641802	Weiskopf	Plume	200	Y	Y	Water quality sample collected in August 2011.
ZANDER	205126	Zander	Well Inventory	280	Y	Y	Water quality sample collected in July 2011.

ADWR = Arizona Department of Water Resources

BIMA = Bisbee Municipal Airport

ft amsl = feet above mean sea level

NR = No Record

35-71891 = ADWR 35 Database

Y = Yes

N = No

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
ANDERSON	613396	3/20/08	7.25	21.1	1176	431
		5/5/08	7.03	21.8	1231	452
		7/14/08	7.11	21.6	1260	472
		10/15/08	7.10	21.3	1252	475
		1/27/09	7.27	21.0	965	488
		4/14/09	7.12	21.8	1229	534
		7/14/09	7.03	22.2	1372	550
		10/12/09	6.98	21.5	1375	510
		1/27/10	7.93	20.1	1449	523
		4/21/10	7.40	20.7	1439	627
		7/19/10	6.93	24.1	1420	648
		10/19/10	7.03	20.6	1229	416
		1/17/11	7.02	20.6	1334	562
		4/11/11	6.92	15.1	1485	609
		7/14/11	7.23	24.4	1451	678
AWC-02	616586	1/7/08	ND	ND	ND	14
		3/3/08	ND	ND	ND	16
		5/5/08	ND	ND	ND	13.3
		8/12/08	7.01	22.3	630	14.3
		10/23/08	7.31	23.1	464	15.9
		3/11/09	7.19	21.8	420	15.5
		4/22/09	7.17	22.6	430	14.7
		7/22/09	7.24	22.7	444	14.2
		10/21/09	7.19	21.3	468	16.8
		2/3/10	7.44	19.7	449	18.6
		4/23/10	7.56	19.7	526	18.3
		7/20/10	7.27	23.9	450	18.2
		11/4/10	7.72	21.3	465.9	18.8
		1/19/11	7.84	19.0	500	18.4
		4/7/11	7.27	20.3	488.5	17.3
		7/13/11	5.93	23.9	431.5	12.9
AWC-03	616585	1/7/08	ND	ND	ND	41
		3/3/08	ND	ND	ND	38
		5/5/08	ND	ND	ND	37.3
		8/12/08	7.28	22.4	469	38.8
		10/23/08	7.48	21.0	462	41.8
		3/11/09	7.25	21.2	445	64.2
		4/22/09	7.30	21.4	452	42.4
		7/22/09	7.39	22.6	456	41.8
		10/21/09	7.48	21.3	540	50.5
		2/3/10	7.44	19.7	449	42.0
		4/23/10	7.57	19.7	468	44.4
		7/20/10	7.29	23.8	460	46.7
		11/4/10	7.80	20.8	452.3	46.3
		1/19/11	7.07	19.6	560	49.0
		4/7/11	7.28	19.9	469.8	46.8
		7/13/11	6.33	23.1	458.8	47.6
		7/13/11 DUP	6.33	23.1	458.8	46.2
AWC-04	616584	2/4/08	ND	ND	ND	18
		4/7/08	ND	ND	ND	18
		6/2/08	ND	ND	ND	14.3
		8/12/08	7.08	22.5	458	21.6
		10/23/08	6.91	22.2	616	24
		3/11/09	7.02	21.3	539	27.2
		4/22/09	6.93	22.1	560	26.1
		7/22/09	7.13	22.5	587	26.2
		10/21/09	7.00	21.2	607	25.7
		2/3/10	7.35	19.3	438	16.3
		4/23/10	7.14	19.2	625	27.4
		7/20/10	7.02	24.1	600	26.6
		11/4/10	7.41	20.3	593.2	24.0
		1/19/11	8.15	20.5	690	26.2
		4/7/11	7.00	20.4	637.2	25.8
		7/13/11	6.88	20.4	610.1	25.7

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
AWC-05	590620	2/4/08	ND	ND	ND	13
		4/7/08	ND	ND	ND	14
		6/2/08	ND	ND	ND	14.3
		8/12/08	6.74	23.3	425	14.9
		10/23/08	7.45	21.0	422	15.4
		3/11/09	7.31	22.1	398	16.5
		6/3/09	7.33	22.0	418	12.1
		7/22/09	7.49	24.4	423	14.1
		10/21/09	7.37	21.1	433	16.5
		2/3/10	7.35	19.3	438	16.3
		4/23/10	7.62	18.9	443	17.6
		7/20/10	7.62	24.2	440	19.1
		11/4/10	7.92	20.7	427.1	18.4
		1/19/11	7.64	20.3	420	17.0
		4/7/11	7.22	20.8	438.3	17.6
		7/13/11	6.52	22.9	419.8	17.9
BANKS 986	647986	2/27/08	7.53	21.8	980	44
		5/12/08	7.40	22.1	1021	65.2
		7/21/08	7.43	22.9	1034	82.2
		10/13/08	7.28	21.7	980	53
		1/21/09	7.66	21.6	872	164
		4/8/09	7.56	22.7	933	47
		7/9/09	7.59	23.1	871	70.9
		10/7/09	7.50	22.2	838	67.7
		2/25/10	7.56	21.1	1020	50.5
		4/20/10	7.71	22.8	1013	53.9
		7/20/10	7.70	23.2	828.3	71.5
		10/20/10	7.60	22.4	948.7	73.4
		1/17/11	7.73	20.6	1038	53.5
		4/5/11	7.66	21.5	965.0	64.5
		7/11/11	7.72	25.4	890.0	68.8
BF-01	539783	3/4/08	6.46	21.9	2745	1320
		5/23/08	6.41	18.3	2698	1450
		8/5/08	6.11	22.4	3095	1330
		11/5/08	6.33	19.9	3027	1490
		2/20/09	6.42	19.2	1477	1330
		5/6/09	5.98	23.9	2632	1280
		8/17/09	6.21	29.7	2948	1250
		11/4/09	6.24	23.0	2846	1280
		3/1/10	6.34	21.1	2945	1260
		4/7/10	5.83	20.4	1853	1450
		7/6/10	5.93	22.6	1403	1310
		7/13/11	6.26	21.3	2960	1350
BIMA	577927	2/6/08	6.69	22.2	1335	210
		4/25/2008[1]	6.37	23.1	1521	190
		5/13/2008[1]	6.58	22.7	1489	195
		6/23/2008[1]	6.30	23.3	1572	225
		6/23/08 DUP	6.30	23.3	1572	196
		7/29/2008[1]	6.44	23.0	1647	204
		8/28/2008[1]	M	23.0	1776	256
		9/23/2008[1]	6.29	23.0	1741	296
		10/22/08	6.41	22.3	1801	285
		1/20/09	6.40	21.7	1233	190
		1/20/09 DUP	6.40	21.7	1233	200
		4/7/09	6.45	23.4	1436	212
		7/8/09	6.31	23.4	1483	189
		10/5/09	6.34	22.7	1525	233
		1/20/10	6.88	17.0	NA	222
		4/19/10	6.70	21.9	1533	256
		7/12/10	6.70	24.0	1577	273
		10/18/10	6.47	24.3	1702	296
		1/19/11	6.65	21.2	1672	283
		4/4/11	6.61	24.0	1643	282
		8/25/11	6.27	25.9	1460	300

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
BLOMMER	633472	2/5/08	7.43	20.2	714	206
		4/21/2008[1]	7.06	21.9	753	201
		5/15/2008[1]	7.16	22.2	845	211
		6/23/2008[1]	6.93	21.5	903	193
		7/29/2008[1]	7.21	22.2	921	203
		8/27/2008[1]	7.12	22.1	864	189
		9/23/2008[1]	7.16	22.3	818	193
		10/22/08	7.17	21.3	873	200
BMO-2008-1G	909474	8/27/08	7.09	24.2	808	107
		11/11/08	7.00	20.8	721	143
		2/25/09	7.01	22.0	860	109
		4/28/09	7.04	22.2	762	198
		8/4/09	7.23	22.8	950	104
		10/27/09	7.11	21.9	922	103
		2/17/10	7.36	20.5	899.3	98.4
		4/15/10	7.04	22.2	711	95.2
		7/7/10	6.91	21.5	640	88.1
		7/7/10 DUP	6.91	21.5	640	87.1
		2/10/11	6.80	21.0	916	105
		7/12/11	7.2	26.6	1015	121
BMO-2008-3B	909147	7/18/08	7.35	23.9	615	106
		11/4/08	7.36	21.4	599	179
		11/4/08 DUP	7.36	21.4	599	177
		2/19/09	7.24	21.4	664	155
		5/11/09	7.23	22.1	631	149
		8/6/09	7.33	21.4	718	151
		8/6/09 DUP	7.33	21.4	718	156
		10/26/09	7.32	21.8	684	153
		3/3/10	7.38	21.4	695	164
		4/8/10	6.47	21.3	585	162
		7/1/10	6.92	21.4	541	157
		2/14/11	6.98	20.6	698	169
		7/12/11	7.04	21.4	672	148
BMO-2008-4B	910096	12/11/08	7.34	22.8	374	9.4
		2/18/09	7.17	23.2	370	13.4
		4/30/09	7.33	24.5	376	11.4
		4/30/09 DUP	7.33	24.5	376	11.8
		8/6/09	7.53	24.6	397	11.5
		10/27/09	7.53	23.7	379	11.2
		2/24/10	7.48	21.8	362	9.7
		4/16/10	7.70	23.4	330	9.73
		7/2/10	7.25	23.6	323	10.10
		2/15/11	7.65	22.2	362	8.90
		7/22/11	7.33	23.7	371	10.2
BMO-2008-5B	909653	9/30/08	7.08	22.0	688	193
		2/18/09	7.03	21.5	691	192
		4/27/09	7.32	22.1	605	177
		8/4/09	7.35	22.3	724	174
		10/29/09	7.29	21.8	731	181
		10/29/09 DUP	7.29	21.8	731	185
		2/15/10	7.22	21.7	720	185
		4/15/10	7.21	23.0	571	194
		7/7/10	6.94	22.2	551	183
		10/5/10	6.85	22.3	722	201
		2/14/11	6.90	21.8	725	203
		5/12/11	7.06	21.5	722	195
		7/13/11	6.99	22.0	712	200

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
BMO-2008-5M	909552	10/2/08	7.13	23.6	551	107
		2/18/09	7.06	22.5	562	122
		4/27/09	7.50	22.9	501	111
		8/4/09	7.53	23.1	605	122
		10/29/09	7.35	22.4	610	123
		2/15/10	7.31	22.5	581	123
		4/16/10	7.28	22.6	509	125
		4/16/10 DUP	7.28	22.6	509	124
		7/7/10	7.02	23.5	482	123
		10/5/10	6.81	22.5	602	127
		2/14/11	6.95	22.2	591	124
		5/12/11	7.16	23.0	558	119
		7/12/11	7.22	22.7	590	126
BMO-2008-6B	909146	7/16/08	7.36	24.1	475	53.3
		11/4/08	7.41	21.5	398	60.3
		2/19/09	7.23	21.1	444	54.3
		4/27/09	7.55	21.7	389	52.7
		8/4/09	7.48	23.4	470	48.5
		10/26/09	7.29	22.5	448	48.7
		2/15/10	7.53	21.2	391	33.5
		4/15/10	7.47	21.0	362	37.0
		7/1/10	7.24	22.2	361	40.1
		10/5/10	7.05	21.0	407	37.2
		2/14/11	7.27	21.8	397	40.2
		5/12/11	7.32	21.5	380	35.0
		7/12/11	7.27	21.1	390	37.8
BMO-2008-6M	909019	7/10/08	M	22.1	702	182
		11/4/08	7.33	21.8	621	199
		2/20/09	7.11	22.0	702	193
		4/28/09	7.34	22.4	595	119
		8/4/09	7.40	23.3	750	189
		10/26/09	7.18	22.4	727	187
		2/15/10	7.29	20.8	733	193
		4/15/10	7.36	20.2	619	208
		7/1/10	7.15	22.0	571	198
		10/5/10	6.87	21.3	720	202
		2/14/11	6.80	21.3	731	202
		5/12/11	7.12	21.9	709	189
		7/12/11	7.06	21.8	709	194
BMO-2008-7M	908794	7/14/08	7.63	25.2	500	31.4
		11/6/08	7.53	22.6	380	34.5
		2/18/09	7.31	23.3	452	27.6
		5/11/09	7.43	24.4	426	26.0
		8/6/09	7.81	24.1	486	25.1
		10/27/09	7.53	23.0	470	26.1
		2/17/10	7.57	23.4	452	25.4
		2/17/10 DUP	7.57	23.4	452	25.0
		4/15/10	7.52	23.2	415	26.0
		7/6/10	7.28	23.5	391	22.8
		2/14/11	7.18	22.0	465	27.5
		2/14/11 DUP	7.18	22.0	465	26.4
		7/15/11	7.1	22.8	466	26.5
BMO-2008-8B	910097	12/5/08	6.47	20.1	2480	1890
		2/19/09	6.19	21.0	2958	1570
		5/5/09	6.18	21.3	2888	1370
		8/10/09	6.42	21.5	2897	1250
		11/9/09	6.33	21.8	2889	1510
		11/9/09 DUP	6.33	21.8	2889	1520
		3/3/10	6.51	20.4	3016	1320
		4/16/10	6.06	21.4	1682	1470
		7/1/10	6.10	21.4	1594	1440
		7/15/11	6.21	21.2	2940	1380

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
BMO-2008-8M	909711	12/9/08	7.16	23.4	852	197
		2/19/09	7.27	23.5	758	147
		2/19/09 DUP	7.27	23.5	758	149
		5/5/09	7.19	25.1	680	122
		8/10/09	7.49	24.8	673	107
		11/5/09	7.30	25.4	675	104
		3/3/10	7.70	24.1	641	99.5
		4/16/10	7.29	24.5	541	97.0
		7/1/10	6.99	25.0	502	94.7
		1/24/11	7.05	23.4	595	98.2
		7/15/11	6.89	22.1	590	79.9
BMO-2008-9M	909255	8/8/08	7.72	25.7	415	47.3
		11/5/08	7.89	21.4	444	54.4
		2/26/09	7.71	24.5	482	28.8
		5/12/09	7.76	24.8	449	51.7
		8/17/09	7.76	25.6	534	53.4
		11/3/09	7.82	24.9	552	56.9
		3/4/10	8.07	22.4	520	58.6
		4/6/10	6.74	23.8	484	60.1
		7/1/10	7.40	24.6	425	61.0
		2/10/11	6.79	24.0	520	64.2
		7/15/11	7.56	24.3	516	67
BMO-2008-10GL	909435	8/20/08	6.22	29.5	2924	1320
		11/5/08	6.47	25.3	2573	1290
		2/25/09	6.34	26.8	2646	1180
		5/12/09	6.35	26.2	2402	1120
		8/11/09	6.52	27.3	2661	1030
		11/2/09	6.52	26.7	2565	1100
		3/4/10	6.76	24.1	2937	1080
		4/8/10	6.03	25.6	1575	1260
		7/2/10	6.16	26.3	1338	1020
		7/13/11	6.32	24.8	1726	644
BMO-2008-10GU	909272	8/4/08	6.41	23.6	3660	2210
		11/5/08	6.15	20.2	3343	1890
		2/25/09	5.96	22.7	3426	1740
		5/6/09	5.99	23.2	3359	1710
		8/11/09	6.28	22.5	3348	1690
		11/2/09	6.27	21.8	3157	1730
		3/10/10	6.67	19.1	3951	1700
		4/7/10	5.96	20.4	3210	1510
		7/6/10	5.90	21.8	1610	1670
		7/13/11	6.12	22.3	3890	1670
BMO-2008-11G	909434	8/22/08	8.02	28.2	359	14.2
		11/12/08	7.96	24.2	257	13.9
		2/26/09	7.92	25.1	319	12.3
		4/28/09	8.14	25.5	273	11.8
		8/12/09	8.24	25.3	365	11.2
		11/9/09	8.03	25.5	339	13.9
		3/1/10	8.37	23.2	338	13.0
		4/9/10	6.88	24.5	301	13.0
		7/1/10	6.97	25.4	298	12.3
		2/10/11	6.99	24.0	327	11.7
		7/22/11	7.26	24.6	331	12.1
		7/22/11 DUP	7.26	24.6	331	12.0
BMO-2008-13B	909551	10/3/08	6.49	21.6	2180	980
		2/17/09	6.51	20.9	1941	1000
		5/6/09	6.55	22.0	1891	930
		8/5/09	6.63	21.5	2137	950
		10/28/09	6.81	19.7	2259	1010
		2/16/10	6.87	20.8	2093	997
		4/14/10	6.38	21.2	1346	974
		7/6/10	6.37	21.8	1208	972
		7/15/11	6.44	20.8	2160	1010

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
BMO-2008-13M	909760	12/3/08	7.73	24.1	1463	494
		2/17/09	8.21	22.7	1340	441
		4/29/09	8.04	24.8	1126	217
		8/5/09	8.04	25.4	1392	387
		10/28/09	8.12	21.4	1347	403
		2/16/10	8.07	24.9	1297	375
		4/13/10	8.06	23.2	1130	398
		7/2/10	8.30	23.9	1027	386
		7/15/11	8.4	23.4	1331	388
BMO-2010-1M	219957	9/9/10	7.82	24.6	727.0	150
		11/11/10	8.68	19.9	570	98
		2/11/11	8.15	20.8	589	138
		5/12/11	7.74	23.0	710	129
		8/31/11	7.74	23.2	562	154
BMO-2010-2M	219958	9/15/10	6.66	22.6	2054	915
		11/11/10	6.97	20.6	1800	935
		2/10/11	6.53	20.8	2120	950
		5/13/11	6.54	21.1	2160	887
		7/14/11	6.62	21.5	2160	917
BMO-2010-3B	219970	7/29/10	7.48	23.1	420	16.0
		11/10/10	7.43	21.2	370	14.9
		1/20/11	7.44	20.9	416.1	14.4
		4/7/11	7.38	20.1	424.6	14.9
		7/13/11	7.68	22.3	404.5	13.8
BMO-2010-3M	219969	7/31/10	7.73	24.3	390	14.8
		11/10/10	7.66	21.8	340	12.6
		11/10/10 DUP	7.66	21.8	340	12.7
		1/20/11	7.72	22.6	380.4	11.5
		4/7/11	7.38	23.5	376.5	12.3
		8/25/11	7.17	24.3	340	10.4
BURKE	212268	2/7/08	7.17	23.0	411	29.5
		4/22/08	7.13	27.0	423	26
		8/5/08	7.06	26.8	496	21.9
		10/20/08	7.57	26.0	466	20.5
		2/11/09	7.23	25.0	363	23.9
		4/28/09	7.16	26.1	369	24.2
		8/19/09	7.36	26.7	486	22.5
		12/16/09	7.28	25.7	488	26
		3/2/10	7.56	12.3	432	23.8
		4/22/10	7.49	16.4	452	24.8
		7/21/10	7.56	25.6	423.7	33.1
CHAMBERS	629807	3/6/08	7.73	17.8	408	7.7
		5/5/08	7.15	22.1	421	6
		7/14/08	7.43	23.2	434	5.8
		10/15/08	7.41	22.5	420	4
		1/27/09	7.57	21.5	312	5.3
		4/14/09	7.42	22.4	384	6.8
		7/15/09	7.83	23.4	414	4.3
		10/13/09	7.41	22.6	410	6.5
		1/26/10	7.31	21.3	416	5.7
		4/23/10	7.47	20.9	427.5	8.34
		7/21/10	7.49	23.1	430	7.75
		10/19/10	8.00	23.0	440	7.04
		1/18/11	7.47	22.4	390	7.30
		4/11/11	7.18	22.0	427.3	7.74
		7/18/11	7.18	23.8	420.2	8.18

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
COB MW-1	903992	2/22/08	6.93	21.2	1401	720
		5/20/08	6.88	22.0	2050	980
		7/30/08	6.88	21.7	1780	730
		10/23/08	6.95	21.2	1690	750
		2/12/09	6.92	21.1	1313	750
		4/21/09	7.15	22.7	1366	720
		7/22/09	6.94	21.6	1570	680
		7/22/09 DUP	6.94	21.6	1570	730
		10/22/09	6.81	22.3	1582	820
		2/4/10	7.04	21.1	1653	680
		4/20/10	6.92	21.8	1836	783
		7/13/10	7.02	22.3	2004	919
		7/14/11	6.78	21.4	1924	927
COB MW-2	903984	5/20/08	7.32	21.2	490	40.5
		7/30/08	7.34	20.8	511	37.6
		10/23/08	7.36	20.3	498	34.9
		2/12/09	7.35	20.2	379	35.6
		4/23/09	7.33	21.8	431	34
		7/22/09	7.36	21.3	483	33.5
		10/22/09	7.24	21.0	454	32.2
		3/3/10	7.55	19.7	450	33.5
		4/26/10	7.28	21.3	479.6	34.8
		7/13/10	6.91	21.2	479.5	30.4
		7/13/10 DUP	6.91	21.2	479.5	30.6
		1/20/11	7.47	20.7	440	29.6
		7/14/11	7.11	21.1	472.6	29.8
COB MW-3	906823	2/28/08	7.39	21.0	416	57.8
		3/27/08	ND	ND	ND	57.7
		4/30/08	ND	ND	ND	37
		5/20/08	7.56	22.3	473	35.8
		7/24/08	ND	ND	ND	64.9
		7/30/08	7.64	22.3	541	67.3
		10/9/08	ND	ND	ND	52.5
		10/23/08	7.43	20.8	507	76.6
		2/12/09	7.35	21.1	432	112
		4/23/09	7.35	22.6	407	43.7
		7/22/09	7.38	21.5	460	52.3
		10/22/09	7.40	21.3	466	74.2
		10/22/09 DUP	7.40	21.3	466	73.9
		3/3/10	7.36	21.1	480	102
		4/26/10	7.35	22.0	497.9	77.6
		7/13/10	7.41	21.7	456.7	46.5
		7/14/11	7.19	21.8	440.0	40.1
COB WL	593116	2/22/08	6.99	20.6	919	90
		3/24/08	ND	ND	ND	98.2
		4/28/08	ND	ND	ND	98.7
		5/20/08	7.30	21.9	1053	98
		7/30/08	7.17	22.0	1098	97.1
		7/30/08	ND	ND	ND	100
		10/15/08	ND	ND	ND	107
		10/23/08	7.23	21.4	1075	104
		2/12/09	6.98	20.6	814	94
		4/23/09	7.29	22.2	923	98
		7/22/09	7.17	22.5	1037	97.3
		10/22/09	7.17	22.4	988	96.1
		3/3/10	7.48	21.1	1030	97.1
		4/26/10	7.36	21.9	1038	97.7
		4/26/10 DUP	7.36	21.9	1038	97.9
		7/13/10	7.18	22.3	1013	88.7
		7/14/11	6.91	21.6	1019	87.3

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
COLLINS	565260	2/12/08	6.88	21.6	1470	520
		5/29/08	7.01	22.0	1459	520
		7/31/08	6.86	21.6	1502	536
		10/20/08	8.44	24.7	1510	518
		2/11/09	6.68	21.4	1147	567
		4/21/09	6.92	22.5	1150	499
		7/22/09	7.00	22.4	1413	460
		10/20/09	6.60	21.9	1432	513
		2/2/10	6.98	21.2	1439	471
		4/23/10	6.99	20.6	1472	561
		7/20/10	6.69	25.0	1420	569
COOPER	623564	2/14/08	7.02	20.8	371	33
		5/14/08	8.08	22.1	419	34.2
		7/31/08	7.81	28.4	455	33.7
		10/20/08	8.44	24.7	448	31.2
		2/11/09	7.32	19.2	333	34.3
		4/21/09	8.19	24.9	346	33.4
		7/20/09	8.45	29.8	430	32.3
		10/14/09	7.85	24.6	423	33.6
		2/1/10	7.83	13.6	433	32.4
		4/22/10	7.82	17.9	433	34.5
		7/19/10	7.98	29.3	420	35.0
		10/18/10	7.12	73.1	450	33.1
		1/19/11	8.83	18.4	410	32.1
		4/11/11	7.65	21.0	442.6	34.3
		7/11/11	7.45	24.2	426.5	32.1
COOPER C	637069	3/20/08	6.93	21.3	2081	880
		5/5/08	6.78	22.4	2139	990
		7/15/08	6.86	22.3	2162	1040
		7/15/08 DUP	6.86	22.3	2162	960
		10/16/08	6.80	21.4	2078	1020
		1/27/09	6.92	20.5	1489	950
		4/14/09	6.85	21.6	1833	930
		7/14/09	6.75	22.1	1972	910
		10/12/09	6.70	21.8	1858	830
		1/27/10	7.27	19.6	1930	620
		4/22/10	6.76	19.5	1921	884
		7/21/10	6.84	22.9	1761	921
		10/20/10	7.16	20.9	1980	829
		1/17/11	6.95	20.5	1880	756
		4/11/11	6.82	21.0	1942	834
		8/26/11	6.84	21.8	1800	847
DODSON	644927	2/20/08	7.61	17.3	857	54
		5/12/08	7.11	21.1	1118	34.2
		7/24/08	7.25	21.6	1233	49.3
		10/13/08	7.15	20.5	1095	56.9
		1/22/09	7.20	20.4	892	51.8
		4/9/09	7.09	21.4	1103	50.1
		7/8/09	7.18	21.1	1153	55.9
		10/6/09	7.07	21.1	1140	49.3
		1/21/10	7.15	18.9	1227	44.6
		4/19/10	7.46	19.9	1261	48.8
		4/19/10 DUP	7.46	19.9	1261	48.6
		7/20/10	7.16	22.7	1260	47.5
		10/18/10	6.43	21.2	1260	49.3
		1/19/11	7.88	19.5	1120	57.9
		4/5/11	7.03	20.9	1300	49.0
		7/12/11	6.86	23.7	1352	52.9

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
DURAZO	NR	2/10/09	7.22	18.8	848	386
		4/20/09	7.37	22.7	901	367
		7/15/09	7.57	22.8	1102	332
		10/14/09	7.17	21.9	1048	377
		2/1/10	7.30	21.1	1105	344
		4/26/10	7.22	23.1	1099	388
		7/20/10	7.28	23.0	1070	405
		10/19/10	7.28	21.9	1112	398
		1/19/11	7.94	21.6	1050	360
		4/4/11	7.20	21.9	1119	383
		7/14/11	7.01	23.6	1101	409
EAST	599796	2/8/08	7.45	19.9	423	10.6
		5/14/08	7.31	20.9	595	14.8
		7/23/08	7.34	20.8	605	11.8
		10/14/08	7.33	20.3	531	8.9
		1/20/09	7.33	20.0	482	12.5
		4/8/09	7.32	20.6	555	15.9
		7/13/09	7.33	21.2	613	13.8
		10/8/09	7.29	20.8	593	13.4
		1/25/10	7.08	19.0	585	10.7
		4/21/10	7.42	20.5	616	14.4
		4/21/10 DUP	7.42	20.5	616	13.9
		7/14/10	7.45	22.2	577.1	12.1
		10/20/10	7.64	21.2	650	12.1
		1/18/11	7.44	21.0	615.9	13.1
		4/5/11	7.19	20.8	612.5	13.8
		7/12/11	7.23	21.7	595.1	12.7
EPPELE 641	805641	3/11/08	7.98	21.4	646	21.7
		5/12/08	7.21	21.7	667	24.7
		7/21/08	7.49	23.9	605	19
		10/14/08	7.56	20.4	642	21.8
		1/21/09	7.60	21.1	500	22.7
		4/8/09	7.56	22.4	538	19.7
		7/9/09	7.43	24.3	550	17.5
		7/20/10	7.58	23.3	529.2	21.1
		10/20/10	7.66	21.0	572.1	17.2
		1/17/11	7.43	21.0	576.4	17.3
		4/5/11	7.43	21.5	569.2	16.7
		7/11/11	7.27	23.5	563.1	18.6
		7/11/11 DUP	7.27	23.5	563.1	18.3
FLEMING	218386	7/15/10	6.98	24.2	1390	573
FRANCO	500101	2/6/08	7.47	19.6	1301	670
		5/5/08	6.93	23.1	1557	680
		7/14/08	7.00	22.7	1586	680
		10/15/08	7.20	20.5	1560	680
		1/22/09	7.19	20.1	1178	740
		4/14/09	7.24	23.1	1416	690
		7/13/09	7.30	27.3	1532	670
		10/12/09	7.16	24.2	1493	650
		1/26/10	6.91	18.5	1529	640
		4/23/10	7.43	15.8	1559	699
		7/13/10	7.48	28.6	901.6	188

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
FULTZ	212447	2/27/08	6.76	21.1	1827	152
		4/21/2008[1]	6.74	22.0	1739	137
		5/14/2008[1]	6.88	22.3	1532	131
		6/23/2008[1]	6.74	22.0	1788	111
		7/29/2008[1]	6.74	22.2	1989	152
		8/28/2008[1]	M	21.6	1889	137
		9/23/2008[1]	6.82	21.9	1821	137
		10/22/08	6.80	21.4	1940	145
		1/21/09	6.74	21.2	1481	82
		4/9/09	6.78	21.5	1695	138
		7/13/09	7.04	23.4	1452	81
		10/8/09	7.00	21.6	1262	72
		10/8/09 DUP	7.00	21.6	1262	71.8
		1/25/10	7.11	21.8	1282	66.7
		4/20/10	7.32	21.2	1202	68.3
		7/14/10	7.75	22.2	1132	57.0
		10/20/10	7.27	20.5	1091	54.7
		1/18/11	7.23	20.4	1136	56.9
		4/5/11	7.08	22.1	1082	49.5
		4/5/11 DUP	7.08	22.1	1082	51.7
		8/25/11	6.45	23.3	940	50.6
GALLANT	502527	2/11/08	7.46	20.2	604	17.9
		7/23/08	7.26	21.2	925	20.9
GARNER 635	587635	2/4/08	7.61	22.7	479	37.8
		5/5/08	7.26	24.9	468	35.8
		7/15/08	7.63	25.6	480	37.4
		10/15/08	7.65	24.1	472	36
		1/28/09	7.69	23.4	368	37.4
		4/15/09	7.83	24.1	412	36.9
		7/16/09	7.56	25.1	445	35.7
		10/14/09	7.58	25.2	446	36.1
		2/2/10	7.79	22.8	465	35.1
		4/22/10	7.84	23.7	464.1	36.9
		7/20/10	7.57	25.3	458.2	38.8
		10/19/10	8.23	25.4	510	37.9
		1/19/11	7.82	24.1	463.4	35.7
		1/19/11 DUP	7.82	24.1	463.4	35.7
		4/6/11	7.76	23.4	467.4	35.8
		7/15/11	7.19	25.0	457.40	37.7
GGOOSE 547	628547	5/21/08	7.08	22.7	856	199
		8/15/08	7.02	24.8	915	178
		10/29/08	7.27	22.6	897	216
		2/24/09	7.06	23.8	851	186
		5/14/09	7.15	23.9	743	174
		8/19/09	7.20	23.8	887	175
		11/11/09	7.15	23.1	897	188
GL-03	539782	3/4/08	7.43	25.7	417	20.3
		5/22/08	7.06	25.3	647	43.3
		8/4/08	7.10	26.8	673	36.1
		11/12/08	7.21	25.2	478	34.9
		2/26/09	7.05	26.5	603	54.8
		5/5/09	6.91	28.1	682	43.9
		8/1/09	7.12	27.4	768	43.1
		11/10/09	6.96	27.0	692	49
		3/2/10	7.36	24.9	693	43.4
		3/2/2010 DUP	7.36	24.9	693	45.1
		4/9/10	6.17	25.6	556	48.1
		7/7/10	6.48	26.3	546	44.4

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
HOBAN	805290	2/27/08	6.93	22.1	1359	510
		5/7/08	6.88	22.3	1532	670
		7/14/08	6.88	23.1	1719	690
		10/16/08	6.98	22.4	1624	692
		1/28/09	6.82	21.3	1220	580
		4/15/09	7.07	21.7	1423	700
		7/14/09	6.78	22.6	1551	670
		10/15/09	6.75	22.7	1487	670
		10/15/09 DUP	6.75	22.7	1487	780
		3/2/10	7.12	19.8	1575	580
		8/31/11	6.64	22.3	1772	893
HOWARD	NR	3/4/08	7.06	20.4	1280	571
		5/8/08	6.95	21.0	1494	673
		7/14/08	7.00	21.1	1566	610
		10/15/08	7.00	20.6	1598	683
		1/28/09	6.82	21.0	1203	640
		1/28/09 DUP	6.82	21.0	1203	640
		4/15/09	7.02	21.5	1397	620
		7/15/09	7.16	21.5	1539	640
		10/12/09	6.89	21.4	1414	600
		1/27/10	7.35	20.0	1714	440
		1/27/10 DUP	7.35	20.0	1714	520
		4/21/10	7.16	20.8	1490	710
		7/19/10	6.94	24.6	1350	548
		10/18/10	6.47	21.4	1420	568
		1/17/11	7.12	19.8	1370	520
		4/11/11	7.20	20.6	1489	616
		8/26/11	7.11	23.2	1160	498
KEEFER	209744	2/6/08	7.70	19.0	378	6.8
		5/6/08	7.19	20.3	512	9
		7/16/08	7.21	21.4	539	8
		10/28/08	7.32	20.1	534	21.2
		1/28/09	7.42	19.5	356	6.1
		4/16/09	7.29	20.0	452	7.7
		7/14/09	7.35	22.1	533	7
		10/13/09	7.24	20.7	516	8.7
		1/26/10	7.15	18.8	483	7.3
		4/20/10	7.44	20.5	540.9	8.77
		7/15/10	7.50	22.2	535.8	8.84
		10/19/10	6.72	20.2	470	7.89
		1/18/11	7.45	20.6	450	7.24
		4/6/11	7.48	19.1	546.2	8.04
		7/18/11	7.19	23.2	492.3	7.79
MARCELL	NR	8/26/11	7.12	25.1	1390	669
		9/26/11	6.63	22.1	1502	638
MCCONNELL 265	539265	2/20/08	7.21	21.1	1435	720
		5/6/08	6.77	21.6	1668	737
		7/15/08	6.91	22.3	1775	700
		10/15/08	6.82	21.3	1686	703
		1/28/09	6.85	21	1274	660
		4/15/09	7.04	21.3	1472	657
		7/15/09	7.01	22.2	1607	662
		10/12/09	6.77	21.7	1594	666
		1/26/10	6.71	21.5	1641	685
		4/22/10	6.95	20.1	1691	811
		7/21/10	6.86	23.5	1560	805
		10/18/10	6.97	22.0	1704	775
		1/19/11	7.38	20.6	1610	711
		4/8/11	7.04	19.8	1775	810
		7/12/11	6.60	23.7	1702	790

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
METZLER	35-71891	3/5/08	7.27	21.6	1055	317
		5/15/08	7.12	22.8	1051	329
		7/31/08	7.16	22.5	1078	317
		10/20/08	7.24	22.2	1080	305
		10/20/08 DUP	7.24	22.2	1080	326
		2/11/09	7.12	21.3	818	321
		4/20/09	7.22	23.2	845	313
		7/15/09	7.41	22.9	1031	293
		7/15/09 DUP	7.41	22.9	1031	309
		10/14/09	7.1	22.7	989	315
		2/1/10	7.22	21.7	1021	286
		5/18/10	7.56	21.0	1053	330
		7/16/10	7.20	24.1	1007	330
		10/19/10	7.15	22.6	1006	319
		1/19/11	7.55	21.1	930	298
		4/4/11	7.03	23.3	1018	323
		7/12/11	7.07	22.3	993.0	312
MOORE	538847	2/20/08	7.69	22.2	362	7.1
		5/8/08	7.09	22.4	432	7.5
		7/16/08	7.34	23.0	482	9.8
		10/29/08	7.32	22.4	452	19.2
		1/29/09	7.11	21.7	328	6.6
		4/16/09	7.40	22.1	374	6.4
		7/15/09	7.44	23.3	439	5.8
		10/13/09	7.36	22.6	429	7.1
		1/26/10	7.54	19.6	423	6.3
		4/22/10	7.47	20.6	433	7.40
		7/15/10	7.44	24.1	431.3	7.54
		7/15/10 DUP	7.44	24.1	431.3	7.11
		10/19/10	6.79	22.1	430	7.14
		1/18/11	7.48	21.1	390	6.42
		4/6/11	7.39	21.4	426.3	6.70
		7/13/11	6.91	23.2	423.4	7.62
NESS	509127	7/24/08	7.35	26.5	563	50.2
		10/16/08	7.47	21.4	542	48.9
		1/26/09	7.39	17.2	422	52.3
		5/11/09	7.52	28.8	472	45.9
		8/11/09	7.56	28.7	525	39.8
		11/12/09	7.53	24.5	537	51.3
		2/2/10	7.67	19.7	535	48.7
		4/21/10	7.70	23.5	518.9	42.1
		7/19/10	7.58	28.9	524.7	48.1
		1/18/11	7.49	21.8	536.6	50.1
		7/12/11	7.48	26.3	520.0	43.5
NOTEMAN	212483	2/5/08	6.70	19.9	1317	310
		5/13/08	6.67	23.0	1445	272
		7/24/08	6.68	24.2	1539	274
		10/23/08	6.57	23.2	1643	356
		1/19/09	6.38	22.9	1098	322
		4/7/09	6.56	23.8	1375	303
		7/8/09	6.55	24.6	1405	260
		10/5/09	6.48	24.1	1442	281
		1/20/10	6.79	20.3	1450	289
		4/19/10	6.81	22.4	1446	307
		7/19/10	6.77	24.6	1438	309
		10/18/10	6.08	24.6	1430	280
		1/19/11	6.84	22.3	1446	266
		4/4/11	6.72	22.9	1446	276
		4/4/11 DUP	6.72	22.9	1446	279
		7/11/11	6.78	23.9	1406	272
NSD-02	527587	2/5/08	ND	ND	ND	43
		7/7/08	8.02	21.0	609	44
NSD-03	527586	2/5/08	ND	ND	ND	70.7
		7/7/08	7.64	21.0	570	58.9

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
NWC-02	562944	10/27/08	7.47	22.2	438	5.1
		2/12/09	7.58	21.6	330	6.6
		4/23/09	7.39	23.8	373	6.4
		7/21/09	7.62	23.9	408	5
		10/21/09	7.32	22.6	436	6.8
		2/3/10	7.68	19.6	423	8.5
		4/21/10	7.57	22.1	413	7.26
		7/20/10	7.36	23.7	412.5	6.87
		10/19/10	7.42	22.5	416.2	7.39
		1/18/11	7.47	23.2	390	6.43
		4/6/11	7.27	22.9	413.5	6.4
		7/15/11	7.03	22.5	416.3	7.24
NWC-03	203321	3/4/08	ND	ND	ND	560
		6/9/08	ND	ND	ND	524
		10/27/08	7.07	21.9	1374	489
		2/12/09	7.06	20.2	1023	412
		4/23/09	6.98	21.9	1129	466
		4/23/09 DUP	6.98	21.9	1129	460
		7/21/09	7.21	22.9	1194	458
		10/21/09	6.94	21.8	1224	444
		2/3/10	7.24	20.7	1214	444
		4/21/10	7.22	21.6	1178	433
		7/20/10	7.04	22.8	1229	477
		10/19/10	7.22	21.3	1172	432
		1/18/11	7.09	22.8	1120	386
		4/6/11	7.19	21.7	1114	361
		7/15/11	6.91	21.8	1094	386
NWC-04	551849	3/4/08	ND	ND	ND	240
		6/9/08	ND	ND	ND	231
		10/27/08	7.32	25.0	856	162
		1/22/09	7.23	22.9	688	184
		2/12/09	7.20	19.8	699	181
		2/12/09 DUP	7.20	19.8	699	198
		3/11/09	7.15	23.4	846	197
		4/23/09	7.21	24.1	797	188
		5/28/09	7.01	24.1	933	210
		6/24/09	6.93	25.6	792	169
		7/21/09	7.48	24.3	859	193
		8/19/09	7.12	24.5	906	183
		9/23/09	7.16	23.8	953	202
		10/21/09	7.18	24.3	875	191
		11/18/09	7.24	22.9	909	191
		12/16/09	7.28	22.3	926	193
		2/3/10	7.49	22.3	844	167
		3/8/10	7.33	22.5	880	182
		4/21/10	7.34	22.8	913	218
		5/18/10	7.68	25.8	901.3	210
		6/15/10	7.31	24.5	917.5	212
		7/20/10	7.28	28.3	873.2	188
		8/25/10	7.55	24.8	820.9	196
		9/29/10	7.38	24.5	920.2	205
		10/19/10	7.34	23.6	870.2	195
		11/4/10	7.53	23.9	853.2	197
		12/14/10	7.41	23.6	856.8	182
		1/18/11	7.31	24.1	860	194
		2/17/11	7.46	22.3	848.6	169
		3/17/11	7.44	24.1	888.1	182
		4/5/11	7.32	23.4	878.7	196
		5/11/11	7.32	23.1	868.1	175
		6/17/11	7.28	23.7	856.3	204
		7/15/11	7.06	23.5	875.1	202
		8/25/11	7.32	25.1	780	195
		9/26/11	6.56	26.2	875.4	198
		9/26/11 DUP	6.56	26.2	875.4	199

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
NWC-06	575700	3/4/08	ND	ND	ND	7.9
		6/9/08	ND	ND	ND	7.2
		10/27/08	7.35	23.3	414	6.4
		2/12/09	7.54	21.8	306	8
		4/23/09	7.30	24.5	354	7.3
		7/21/09	7.63	23.5	388	6.4
		10/21/09	7.26	23.2	413	8
		2/3/10	7.61	20.5	404	7.5
		2/3/10 DUP	7.61	20.5	404	7.4
		4/21/10	7.54	22.4	387	8.49
		7/20/10	7.33	26.0	388.6	8.59
		10/19/10	7.49	22.7	394.5	8.32
		1/18/11	7.45	23.4	380	8.24
		4/6/11	7.42	23.1	388.3	7.76
		4/6/11 DUP	7.42	23.1	388.3	7.73
		7/15/11	7.09	22.9	394.3	8.36
OSBORN	643436	2/25/08	7.35	22.4	508	16.4
		5/13/08	7.22	22.2	576	17.2
		7/22/08	7.24	22.9	618	17.7
		7/22/08 DUP	7.24	22.9	618	17.5
		10/16/08	7.39	22.4	595	15.9
		1/20/09	7.33	22.4	469	16
		4/7/09	7.25	24.0	542	17
		8/18/09	7.16	24.6	643	17.4
		10/5/09	7.14	22.9	599	17.9
		1/21/10	7.47	19.5	591	15.6
		4/19/10	7.60	21.5	601.9	19.3
		7/12/10	7.69	24.2	594.0	18.4
		7/12/11	7.87	29.8	575.9	19.5
PALMER	578819	2/14/08	7.91	17.5	435	15.9
		5/13/08	7.92	22.9	508	16.6
		7/22/08	7.64	25.8	548	16.2
		10/16/08	7.61	17.0	527	15.9
		1/20/09	7.33	19.4	441	14.3
		4/8/09	7.65	19.1	475	15.4
		7/8/09	7.47	27.2	521	14.3
		10/5/09	7.81	22.2	538	16.2
		1/20/10	7.72	11.9	510	13.8
		4/22/10	7.97	13.6	520	16.7
		7/12/10	7.62	30.2	518.8	15.7
		10/18/10	8.13	22.1	511.9	16.5
		1/18/11	7.24	17.1	517.0	15.7
		4/5/11	8.04	19.0	499.2	15.8
		7/12/11	7.65	26.6	517.6	16.4
PANAGAKOS	35-76413	4/21/08	6.80	20.5	1228	410
		7/21/08	6.95	21.9	1390	444
		10/13/08	6.86	21.2	1386	480
		10/13/08 DUP	6.86	21.2	1386	500
		1/22/09	6.92	19.7	997	397
		4/9/09	6.81	21.7	1228	431
		4/9/09 DUP	6.81	21.7	1228	426
		7/9/09	6.89	22.3	1469	490
		10/6/09	6.83	21.1	1328	472
		1/21/10	7.06	18.8	1291	318
		4/20/10	7.25	21.0	1528	608
		7/20/10	6.90	24.0	1560	706
		10/18/10	6.38	22.1	1530	568
		7/14/11	6.93	23.3	1070	223
		8/25/11	7.17	23.4	1170	222

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
PARRA	576415	2/11/08	7.08	21.8	1067	360
		5/15/08	7.10	21.8	1200	405
		7/31/08	7.00	22.4	1248	423
		7/31/08 DUP	7.00	22.4	1248	404
		10/20/08	7.07	22.9	1246	387
		2/13/09	7.24	22.1	965	405
		4/20/09	7.10	22.6	971	372
		7/20/09	7.17	23.9	1174	375
		10/20/09	6.80	22.5	1188	388
		2/1/10	7.07	21.5	1197	353
		4/22/10	6.91	20.3	1219	417
		7/14/10	7.13	22.2	1201	403
		7/14/10 DUP	7.13	22.2	1201	391
		10/20/10	7.51	21.4	1270	411
		1/19/11	7.49	20.8	1130	391
		4/4/11	6.90	22.6	1207	382
		7/12/11	6.76	23.7	1156	404
PIONKE	613395	2/6/08	7.53	19.9	910	394
		5/7/08	7.08	21.4	1100	391
		7/17/08	6.99	21.9	1209	420
		10/27/08	7.03	20.8	1175	460
		1/29/09	7.13	19.9	847	385
		4/14/09	7.58	20.7	1053	411
		7/13/09	7.35	21.5	1165	472
		10/7/09	7.43	21.1	1100	403
		3/8/10	7.72	18.6	1201	406
		4/26/10	7.22	21.9	1224	438
		7/15/10	7.32	22.3	1158	474
		10/18/10	7.33	21.3	1277	473
		10/18/10 DUP	7.33	21.3	1277	487
		1/19/11	7.32	19.9	1222	471
		4/8/11	7.13	19.2	1232	467
		7/12/11	7.30	23.8	1226	500
POOL	509518	2/20/08	7.95	20.9	497	134
		5/19/08	7.40	22.2	585	122
		7/31/08	7.47	22.3	599	117
		10/21/08	7.51	21.4	598	120
		2/13/09	7.62	20.8	473	141
		4/21/09	7.73	22.6	470	124
		7/20/09	7.76	22.9	579	122
		10/20/09	7.22	21.2	577	122
		2/24/10	7.56	22.4	577	110
		4/22/10	7.75	20.2	606.5	130
		7/14/10	7.38	21.7	580.9	117
		10/20/10	7.79	21.3	620	115
		1/20/11	7.71	20.5	530	112
		1/20/11 DUP	7.71	20.5	530	114
		4/6/11	7.37	21.6	567.4	114
POWER	624535	2/12/08	7.11	18.9	428	15.5
		7/22/08	7.10	21.7	795	20.2
RAMIREZ	216425	2/4/08	7.47	21.7	408	7.6
		5/6/08	7.19	22.7	405	8.3
		7/17/08	7.32	24.5	439	8.8
		10/27/08	7.41	22.2	412	7.3
		1/29/09	7.24	22.2	301	8.3
		4/16/09	7.49	22.4	344	7.6
		7/10/09	7.52	23.9	411	6.4
		10/6/09	7.30	23.8	388	8.4
		1/25/10	7.48	22.4	390	7.8
		4/21/10	7.45	22.6	397	9.04
		7/21/10	7.38	25.1	420	8.98
		10/19/10	7.91	23.7	450	10.8
		1/18/11	7.52	23.1	380	8.18
		4/11/11	7.24	23.2	408.5	8.65
		7/18/11	7.27	25.4	402.6	8.44

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
RAY	803772	2/15/08	7.30	19.1	1540	159
		4/21/2008[1]	6.92	21.3	1418	125
		5/13/2008[1]	7.05	20.9	1418	123
		6/23/2008[1]	6.87	21.1	1593	130
		7/29/2008[1]	6.98	21.8	1411	120
		8/28/2008[1]	M	21.1	1519	129
		9/23/2008[1]	6.90	22.2	1519	125
		10/22/08	6.96	20.8	1604	145
		1/20/09	6.92	20.6	1355	88
		4/8/09	6.85	21.4	1759	178
		7/9/09	6.93	22.3	1434	126
		10/7/09	6.98	21.3	1288	127
		1/26/10	6.82	20.6	1352	125
		4/20/10	7.14	21.5	1318	134
		7/14/10	7.11	23.8	1313	137
		10/20/10	7.14	19.6	1368	127
		1/17/11	7.04	20.8	1451	132
		1/17/11 DUP	7.04	20.8	1451	125
		4/5/11	7.03	20.8	1387	132
		7/11/11	7.07	22.8	1345	126
ROGERS 596	573596	10/19/09	6.89	23.3	1360	590
		11/5/09	6.79	21.9	1418	540
		2/25/10	6.99	19.6	1603	520
		4/22/10	7.21	18.2	1641	710
ROGERS 803	641803	2/7/08	7.45	18.6	601	138
		4/21/2008[1]	7.32	21.4	552	128
		5/8/2008[1]	7.14	21.2	622	141
		6/23/2008[1]	7.06	22.9	660	129
		7/29/2008[1]	6.78	23.1	339	134
		8/28/2008[1]	7.18	21.6	635	128
		9/23/2008[1]	7.24	21.9	599	133
		10/22/08	7.36	21.3	650	144
		2/10/09	7.42	17.9	475	141
		4/29/09	7.52	21.9	506	211
		8/3/09	7.39	24.2	674	150
		7/16/10	7.46	23.9	643.4	169
		10/19/10	7.32	21.1	643.8	154
		10/19/10 DUP	7.32	21.1	643.8	154
		1/20/11	7.44	18.1	610	143
		4/8/11	7.30	20.2	658.2	160
		7/14/11	7.12	23.5	653.5	166
ROGERS E	216018	2/4/08	7.40	21.0	435	4.6
		5/7/08	7.18	22.2	415	5.9
		7/17/08	7.28	23.0	446	7.1
		10/27/08	7.38	21.4	434	15.7
		2/10/09	7.51	20.7	322	5.4
		4/16/09	7.48	22.0	361	4.9
		7/13/09	7.34	22.6	420	3.8
		10/6/09	7.31	22.3	407	5.8
		1/25/10	7.52	20.6	414	5.1
		4/21/10	7.44	21.1	421	6.04
		7/21/10	7.37	23.8	430	6.47
		10/19/10	7.80	22.8	460	5.92
		1/18/11	7.39	21.5	390	5.50
		4/11/11	7.19	22.7	427.2	6.13
		7/18/11	7.12	24.3	418.5	6.00

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
RUIZ	531770	2/5/08	7.73	18.2	445	263
		5/15/08	7.23	25.9	965	265
		7/30/08	6.99	22.1	999	243
		10/20/08	7.04	22.0	995	238
		2/12/09	6.94	20.9	748	254
		4/21/09	7.18	22.3	759	227
		8/3/09	7.05	22.9	1029	221
		10/28/09	7.09	20.6	920	227
		2/1/10	7.08	20.9	934	236
		4/26/10	7.01	22.5	920.1	240
		7/20/10	7.08	22.5	880	240
		10/20/10	7.52	20.7	970	231
		1/18/11	7.19	20.2	860	213
		4/8/11	7.09	19.8	923.3	236
		8/26/11	6.85	22.6	800	220
SCHWARTZ	210865	2/8/08	7.52	21.5	506	158
		4/21/2008[1]	7.23	21.7	563	122
		5/19/2008[1]	7.38	22.4	629	130
		6/23/2008[1]	7.02	22.1	674	129
		7/29/2008[1]	7.25	22.4	955	245
		8/28/2008[1]	M	22.3	669	131
		9/23/2008[1]	7.27	22.2	607	124
		10/22/2008[1]	7.31	22.0	653	135
		11/19/2008[1]	7.38	21.1	612	140
		12/17/2008[1]	6.78	21.6	472	144
		1/29/2009[1]	7.08	22.0	475	124
		2/23/2009[1]	7.33	22.1	610	123
		4/17/09	7.46	22.2	520	120
		7/10/09	7.52	22.8	651	116
		7/10/09 DUP	7.52	22.8	651	117
		10/6/09	7.27	22.5	613	120
		1/22/10	7.79	19.5	664	133
		4/21/10	7.50	20.9	638	129
		7/21/10	7.43	22.0	650	134
		10/19/10	7.76	21.2	710	147
		1/17/11	7.15	21.2	620	116
		4/11/11	7.20	21.5	656.9	128
		7/18/11	7.36	23.7	612.4	116
SRC	211345	4/23/08	7.57	25.8	380	19
		8/5/08	7.40	27.2	452	15.4
SWAN	NR	2/13/08	7.28	20.7	467	24.1
		5/14/08	7.24	21.2	479	23.7
		7/24/08	7.35	22.4	506	18
		10/16/08	7.32	20.7	488	19
		1/20/09	7.05	20.4	391	19.8
		4/7/09	7.21	21.5	447	19.9
		7/8/09	7.18	23.1	473	18.5
		10/5/09	7.18	21.4	496	19.7
		1/21/10	7.49	19.5	501	18.4
		4/21/10	7.42	20.3	512.1	20.9
		7/19/10	7.13	23.8	518.6	22.2
		1/18/11	7.19	17.8	483.6	18.7
		7/12/11	7.05	22.4	478.2	19.1
TM-02A	522574	3/4/08	8.67	22.6	302	12.3
		5/23/08	7.75	22.9	321	14.7
		8/15/08	7.84	26.4	369	14.4
		10/30/08	8.07	23.9	375	21.9
		2/24/09	8.10	24.8	340	20.3
		5/6/09	8.06	26.7	320	18.7
		8/12/09	8.34	26.9	398	20
		11/4/09	8.16	26.3	381	21.8
		3/10/10	8.13	25.2	351	21.4
		3/10/10 DUP	8.13	25.2	351	21.3
		4/6/10	6.96	24.6	363	25.6
		7/6/10	7.38	24.6	343	22.1
		2/10/11	6.93	20.2	359	22.9
		7/13/11	7.92	24.8	349	22.5

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
TM-03	522575	5/20/08	7.51	22.2	778	110
		8/6/08	7.08	21.6	828	97
		11/12/08	7.47	20.5	590	128
		2/26/09	7.21	21.8	737	107
		2/26/09 DUP	7.21	21.8	737	102
		5/13/09	7.47	22.2	695	109
		8/18/09	7.48	22.4	822	98
		11/10/09	7.55	21.8	761	106
		3/2/10	7.56	21.6	748	99
		4/14/10	7.55	20.6	635	103
		7/7/10	7.19	21.4	566	103
TM-06 MILLER	522695	2/27/08	7.44	19.6	457	13.9
		5/20/08	7.50	20.7	506	32.7
		8/4/08	7.41	20.7	529	31.3
		10/29/08	7.55	20.2	531	34.5
		2/26/09	7.18	20.4	574	32.7
		5/13/09	7.35	20.9	465	30.6
		8/18/09	7.50	20.9	560	30.9
		8/18/09 DUP	7.50	20.9	560	29.9
		11/12/09	7.53	20.4	530	31.1
		4/14/10	7.35	19.4	461	29.0
		7/2/10	7.24	20.1	438	29.8
		7/21/11	7.1	20.1	516	31.7
TM-07	522576	3/6/08	7.54	20.8	726	22.5
		5/22/08	6.96	20.1	385	22.9
		8/6/08	7.04	22.8	519	22.2
		11/4/08	7.76	20.6	347	31.2
		2/20/09	7.77	19.9	376	22.5
		5/13/09	7.30	22.9	559	130
		8/17/09	7.60	22.6	442	134
		11/3/09	7.85	21.8	441	134
		3/2/10	7.67	21.6	422	124
		5/25/10	7.77	21.2	398	42.6
		7/6/10	7.58	22.0	350	44.7
		2/11/11	6.87	20.1	393	24.9
		7/21/11	6.90	21.4	402	41.7
TM-08 SWAN	522817	2/13/08	7.63	24.1	511	24.1
		5/14/08	7.44	24.4	480	12.6
		7/23/08	7.76	28.1	522	12.6
TM-15 MILLER	522699	2/27/08	7.66	21.9	344	14
		5/23/08	7.54	22.1	371	14.4
		8/5/08	7.42	23.3	413	13.7
		10/28/08	7.63	22.6	387	
		10/28/08 DUP	7.63	22.6	387	18.8
		2/26/09	7.57	22.0	373	14.6
		5/13/09	7.61	23.1	344	13.7
		8/17/09	7.73	23.2	398	14.2
		11/3/09	7.73	23.4	414	14.8
		2/24/10	7.66	22.8	381	14.4
		4/27/10	7.71	23.0	383.6	14.9
		7/20/10	7.77	23.0	324	14.3
		7/12/11	7.36	23.2	380	14.2
TM-16	522578	3/5/08	7.17	20.6	1351	497
		5/22/08	7.05	20.5	1304	522
		8/6/08	6.67	20.9	1410	466
		11/5/08	7.14	19.8	1162	547
		2/20/09	6.90	21.1	1292	492
		5/13/09	6.93	21.1	1179	484
		8/19/09	7.08	21.2	1354	468
		11/10/09	7.02	21.0	1310	505
		3/2/10	7.13	20.4	1313	451
		4/14/10	6.90	19.9	987	484
		7/2/10	6.81	20.8	858	474
		7/14/11	6.97	20.5	1285	511
		7/16/11	6.97	20.5	1285	513

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
TM-19A	522581	3/6/08	8.02	22.2	240	56.1
		5/22/08	7.36	24.0	501	64.5
		8/6/08	7.32	22.6	494	55.3
		11/18/08	7.79	24.3	365	66.3
		3/3/09	7.41	24.5	489	66.2
		4/22/09	7.44	24.3	494	62.5
		8/12/09	7.61	24.4	554	61.3
		11/4/09	7.47	24.2	522	63
		3/10/10	7.54	22.9	511	60.6
		4/9/10	6.49	23.0	435	66.5
		7/7/10	6.93	23.8	428	63.2
		2/14/11	6.69	21.4	511	61.9
		7/15/11	7.11	24.1	499	62.1
TM-42	562554	3/5/08	7.10	20.8	1342	482
		5/22/08	7.05	21.4	1270	483
		8/6/08	6.69	22.0	1388	467
		11/6/08	6.90	21.0	1025	477
		2/18/09	6.72	22.3	1245	429
		5/7/09	6.88	24.5	1155	430
		5/7/09 DUP	6.88	24.5	1155	445
		8/18/09	7.04	24.4	1336	428
		11/3/09	7.07	23.1	1266	430
		2/24/10	7.13	22.7	1236	390
		4/19/10	6.87	21.5	985	444
		7/2/10	6.81	23.9	827	407
		7/12/11	6.83	22.0	1205	441
TM-43	564729	3/3/08	8.57	21.0	341	2.1
		8/4/08	8.14	25.7	436	<5
TM-43A	564726	3/3/08	6.17	19.9	2788	1420
		8/4/08	6.03	21.6	3149	1320
TM-43B	565004	3/3/08	6.79	20.6	514	0.7
		8/5/08	6.89	21.0	507	31.8
		8/5/08 DUP	6.89	21.0	507	32.5
TVI 236	802236	3/20/08	7.48	20.0	488	31.3
		5/7/08	7.13	20.4	494	32.6
		7/15/08	7.39	21.9	532	37.6
		10/15/08	7.45	22.3	490	36.6
		2/11/09	7.32	20.1	391	27.6
		4/17/09	7.36	19.3	418	28.1
		4/17/09 DUP	7.36	19.3	418	28.3
		7/21/09	7.59	22.9	484	31.3
		10/19/09	7.31	22.1	513	33.2
		2/2/10	7.39	20.4	497	26
		4/23/10	7.46	20.0	504.6	30.9
		7/15/10	7.37	21.5	499.4	39.3
		7/15/11	6.80	22.4	499.6	42.9
TVI 875	568875	2/21/08	7.28	21.1	739	244
		5/7/08	7.09	21.2	833	250
		7/15/08	7.27	22.4	925	274
		10/15/08	7.26	22.1	878	245
		2/11/09	7.20	20.7	738	312
		4/17/09	7.31	21.5	690	251
		7/21/09	7.47	22.2	812	236
		10/19/09	7.23	21.9	822	247
		2/2/10	7.32	20.8	939	250
		4/23/10	7.34	20.2	930.4	294
		7/15/10	7.46	21.8	842.5	262
		10/20/10	7.79	21.9	890	242
		1/20/11	7.39	21.0	780	226
		4/11/11	7.20	21.1	820.6	235
		7/15/11	6.75	22.2	791.9	239
WALKER	200393	2/13/08	7.05	20.2	650	20
		7/23/08	7.25	20.7	740	45.4

Table 3
Compilation of Analytical Results
For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
WEED	544535	2/14/08	7.74	21.7	323	11.1
		5/15/08	7.22	22.7	365	12.6
		7/30/08	7.42	32.0	407	11.5
		10/20/08	8.10	31.6	405	10.2
		2/13/09	7.66	21.0	303	12.6
		4/22/09	7.46	22.2	368	11.6
		7/16/09	7.50	21.9	365	10.8
		10/20/09	7.34	21.6	381	12.7
		2/1/10	7.60	20.8	382	12.2
		4/26/10	7.69	22.1	366	13.4
		7/21/10	7.36	22.1	354.9	13.6
		7/21/10 DUP	7.36	22.1	354.9	13.5
		10/19/10	7.63	21.2	378.8	11.7
		1/19/11	7.62	21.1	383.6	12.2
		4/11/11	7.44	21.5	386.6	13
		7/18/11	7.56	22.0	379.3	12.7
WEISKOPF	641802	2/15/08	7.48	20.0	1072	500
		5/7/08	7.10	21.8	1251	483
		7/16/08	7.07	22.2	1399	560
		10/28/08	6.98	20.8	1401	602
		1/29/09	6.79	20.7	1014	503
		4/15/09	7.53	21.1	1164	503
		7/15/09	7.84	22.1	1317	486
		10/15/09	6.89	21.4	1216	484
		2/2/10	7.22	20.4	1319	451
		4/22/10	7.30	19.3	1329	572
		7/19/10	7.06	23.1	1330	573
		10/20/10	7.64	21.6	1360	515
		10/20/10 DUP	7.64	21.6	1360	529
		1/17/11	7.16	22.0	1270	481
		4/11/11	6.88	22.4	1365	557
		8/26/11	6.83	23.5	1200	549
ZANDER	205126	2/4/08	7.24	19.7	392	5.7
		5/6/08	7.26	21.2	404	6.3
		7/16/08	6.92	22.9	441	6.9
		10/28/08	7.40	21.2	415	15
		2/10/09	7.50	20.4	317	6
		4/16/09	7.47	21.7	352	5.5
		7/14/09	7.36	22.9	418	4.5
		10/13/09	7.41	21.7	407	6.3
		1/26/10	7.49	20.3	411	5.7
		4/2/10	7.55	20.0	416	6.70
		7/21/10	7.38	22.7	388.2	6.78
		10/19/10	6.78	21.3	430	6.56
		1/18/11	7.59	18.9	380	6.14
		1/18/11 DUP	7.59	18.9	380	6.06
		4/6/11	7.20	19.7	425.8	6.12
		7/13/11	7.29	22.9	410.10	6.43

ADWR = Arizona Department of Water Resources
deg C = degrees Celsius
M = pH Meter Malfunction
NA = Not Analyzed
NR = No Record
ND = No Data
SC = Specific Conductance
SU = Standard Units
µS/cm = microsiemens per centimeter
[1] Verified drinking water supply well, sample collected for sulfate trend analysis and interim action evaluation
mg/L = milligrams per liter
DUP = Blind duplicate

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
ANDERSON	613396	601134.729	3468816.065	4588.51	3/20/08	145.46	4443.05
					5/5/08	145.84	4442.67
					7/14/08	146.16	4442.35
					10/15/08	146.21	4442.30
					1/27/09	145.97	4442.54
					4/14/09	146.21	4442.30
					7/14/09	146.88	4441.63
					10/12/09	147.31	4441.20
					1/27/10	147.31	4441.20
					4/21/10	147.57	4440.94
					7/19/10	148.34	4440.17
					10/19/10	147.75	4440.76
					1/17/11	148.63	4439.88
					4/11/11	149.46	4439.05
					7/14/11	149.92	4438.59
AWC-02	616586	598907.911	3468549.357	4547.64	8/27/08	121.12	4426.52
					4/8/08[2]	116	4431.64
					10/23/08[3]	115	4432.64
					4/22/09[3]	118	4429.64
					10/9/09[3]	117	4430.64
					4/23/10[3]	119	4428.64
AWC-03	616585	599090.322	3468681.898	4539.52	8/27/08	119.40	4420.12
					4/8/2008[2]	112	4427.52
					10/23/08[3]	106	4433.52
					4/22/09[3]	114	4425.52
					10/9/09[3]	116	4423.52
					4/23/10[3]	116	4423.52
AWC-04	616584	598949.929	3468717.084	4540.48	8/18/08	112.56	4427.92
					4/8/2008[2]	108	4432.48
					10/23/08[3]	111.31	4429.17
					4/22/09[3]	110	4430.48
					10/9/09[3]	110	4430.48
					4/23/10[3]	109	4431.48
AWC-05	590620	599269.904	3468541.692	4542.51	8/27/08	299.65	4242.86
					4/8/08	284	4258.51
					10/23/08	284	4258.51
					4/22/09	286	4256.51
					6/3/09	125	4417.51
					10/9/09[3]	289	4253.51
					4/23/10[3]	278	4264.51

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BANKS 987	647987	606981.921	3469206.175	4648.18	2/27/08	208.00	4440.18
					5/12/08	216.30	4431.88
					7/21/08	228.95	4419.23
					10/13/08	228.20	4419.98
					1/21/09	206.64	4441.54
					4/8/09	205.50	4442.68
					7/9/09	235.68	4412.50
					10/7/09	236.71	4411.47
					2/25/10	216.98	4431.20
					4/20/10	219.35	4428.83
					7/20/10	235.60	4412.58
					10/20/10	230.24	4417.94
					1/17/11	215.28	4432.90
					4/5/11	221.68	4426.50
					7/11/11	237.39	4410.79
BARTON 919	644919	606243.850	3469076.689	4692.36	5/12/08	113.71	4578.65
					7/23/08	113.56	4578.80
					10/16/08	113.20	4579.16
					3/11/09	112.92	4579.44
					4/10/09	112.89	4579.47
					7/7/09	112.86	4579.50
BF-01	539783	604169.077	3472151.593	4835.23	3/4/08	348.99	4486.24
					5/23/08	348.80	4486.43
					8/5/08	348.66	4486.57
					11/5/08	348.94	4486.29
					2/20/09	348.78	4486.45
					5/6/09	348.73	4486.50
					8/17/09	348.73	4486.50
					11/4/09	348.65	4486.58
					3/1/10	348.84	4486.39
					4/7/10	348.70	4486.53
					7/6/10	348.69	4486.54
					7/13/11	348.67	4486.56
BIMA	577927	606001.245	3471852.804	4802.05	5/13/08	367.31	4434.74
					8/18/08	370.24	4431.81
					10/23/08	353.96	4448.09
					1/20/09	353.07	4448.98
					4/7/09	357.76	4444.29
					7/8/09	365.44	4436.61
					10/5/09	370.11	4431.94
					4/19/10	382.25	4419.80
					7/21/10	386.89	4415.16
					10/18/10	387.39	4414.66
					1/19/11	391.47	4410.58
					4/4/11	395.22	4406.83

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2008-1G	909474	606467.681	3471723.644	4805.10	8/27/08	62.05	4743.05
					11/11/08	60.95	4744.15
					2/25/09	61.43	4743.67
					4/28/09	62.01	4743.09
					8/4/09	62.96	4742.14
					10/27/09	63.61	4741.49
					2/17/10	64.51	4740.59
					4/15/10	65.05	4740.05
					7/7/10	65.83	4739.27
					2/10/11	67.74	4737.36
					7/12/11	69.37	4735.73
BMO-2008-3B	909147	602012.923	3467919.582	4583.97	7/18/08	138.05	4445.92
					11/4/08	137.95	4446.02
					2/19/09	138.19	4445.78
					5/11/09	138.46	4445.51
					8/6/09	139.02	4444.95
					10/26/09	139.60	4444.37
					3/3/10	140.03	4443.94
					4/8/10	140.07	4443.90
					7/1/10	140.70	4443.27
					2/14/11	141.41	4442.56
					7/12/11	142.21	4441.76
BMO-2008-4B	910096	601099.405	3468383.430	4573.17	12/11/08	130.77	4442.40
					2/18/09	130.58	4442.59
					4/30/09	131.24	4441.93
					8/6/09	131.96	4441.21
					10/27/09	132.04	4441.13
					2/24/10	131.82	4441.35
					4/16/10	132.65	4440.52
					7/2/10	133.20	4439.97
					2/15/11	133.78	4439.39
					7/22/11	134.80	4438.37
BMO-2008-5B	909653	600438.159	3468994.715	4585.10	9/30/08	145.10	4440.00
					2/18/09	144.35	4440.75
					4/27/09	144.78	4440.32
					8/4/09	145.36	4439.74
					10/29/09	145.88	4439.22
					2/15/10	145.42	4439.68
					4/15/10	145.80	4439.30
					7/7/10	146.59	4438.51
					10/5/10	147.00	4438.10
					2/14/11	147.56	4437.54
					5/12/11	148.04	4437.06
					7/13/11	148.31	4436.79

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2008-5M	909552	600445.071	3468994.282	4585.02	10/2/08	146.65	4438.37
					2/18/09	145.97	4439.05
					4/27/09	146.46	4438.56
					8/4/09	147.13	4437.89
					10/29/09	147.68	4437.34
					2/15/10	147.07	4437.95
					4/16/10	147.34	4437.68
					7/7/10	148.28	4436.74
					10/5/10	148.68	4436.34
					2/14/11	148.74	4436.28
					5/12/11	149.66	4435.36
					7/12/11	150.20	4434.82
BMO-2008-6B	909146	600366.523	3469820.644	4627.44	7/16/08	190.13	4437.31
					11/4/08	190.23	4437.21
					2/19/09	189.71	4437.73
					4/27/09	189.99	4437.45
					8/4/09	190.80	4436.64
					10/26/09	191.04	4436.40
					2/15/10	190.82	4436.62
					4/15/10	190.75	4436.69
					7/1/10	191.43	4436.01
					10/5/10	192.50	4434.94
					2/14/11	192.19	4435.25
					5/12/11	192.70	4434.74
					7/12/11	193.30	4434.14
BMO-2008-6M	909019	600367.943	3469813.885	4626.90	7/10/08	191.63	4435.27
					11/4/08	190.25	4436.65
					2/20/09	190.70	4436.20
					4/28/09	190.98	4435.92
					8/4/09	191.77	4435.13
					10/26/09	192.14	4434.76
					2/15/10	191.78	4435.12
					4/15/10	191.64	4435.26
					7/1/10	192.53	4434.37
					10/5/10	192.96	4433.94
					2/14/11	193.14	4433.76
					5/12/11	193.68	4433.22
					7/12/11	194.47	4432.43
BMO-2008-7M	908794	603099.165	3470029.283	4688.33	7/14/08	238.31	4450.02
					11/6/08	239.69	4448.64
					2/18/09	238.90	4449.43
					5/11/09	239.03	4449.30
					8/6/09	239.17	4449.16
					10/27/09	239.55	4448.78
					2/17/10	239.98	4448.35
					4/15/10	240.13	4448.20
					7/6/10	240.28	4448.05
					2/14/11	241.26	4447.07
					7/15/11	241.81	4446.52

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2008-8B	910097	604171.347	3471141.719	4753.25	12/5/08	297.94	4455.31
					2/19/09	297.63	4455.62
					5/5/09	297.37	4455.88
					8/10/09	297.53	4455.72
					11/9/09	297.85	4455.40
					3/3/10	298.37	4454.88
					4/16/10	298.46	4454.79
					7/1/10	298.64	4454.61
					2/11/11	299.56	4453.69
					5/13/11	299.78	4453.47
					7/15/11	300.00	4453.25
BMO-2008-8M	909711	604167.912	3471127.902	4752.45	12/9/08	299.79	4452.66
					2/19/09	298.32	4454.13
					5/5/09	298.27	4454.18
					8/10/09	298.57	4453.88
					11/5/09	298.81	4453.64
					3/3/10	299.18	4453.27
					4/16/10	299.42	4453.03
					7/1/10	299.70	4452.75
					1/24/11	300.46	4451.99
					5/13/11	301.00	4451.45
					7/15/11	300.96	4451.49
BMO-2008-9M	909255	604668.669	3471121.675	4762.61	8/8/08	287.17	4475.44
					11/5/08	287.65	4474.96
					2/26/09	285.65	4476.96
					5/12/09	285.28	4477.33
					8/17/09	286.09	4476.52
					11/3/09	286.55	4476.06
					3/4/10	287.45	4475.16
					4/6/10	287.81	4474.80
					7/1/10	288.26	4474.35
					2/10/11	289.77	4472.84
					5/13/11	290.47	4472.14
					7/15/11	290.95	4471.66
BMO-2008-10GL	909435	605264.072	3471702.043	4792.21	8/20/08	521.75	4270.46
					11/5/08	520.50	4271.71
					2/25/09	516.72	4275.49
					5/12/09	514.68	4277.53
					8/11/09	513.23	4278.98
					11/2/09	509.43	4282.78
					3/4/10	510.88	4281.33
					4/8/10	506.31	4285.90
					7/2/10	511.80	4280.41
					7/13/11	512.16	4280.05

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2008-10GU	909272	605267.551	3471731.866	4793.45	8/4/08	299.28	4494.17
					11/5/08	295.89	4497.56
					2/25/09	289.84	4503.61
					5/6/09	289.35	4504.10
					8/11/09	289.09	4504.36
					11/2/09	289.77	4503.68
					3/10/10	289.58	4503.87
					4/7/10	289.5	4503.95
					7/6/10	288.93	4504.52
					7/13/11	301.02	4492.43
BMO-2008-11G	909434	603800.995	3472626.482	4844.67	8/22/08	577.76	4266.91
					11/12/08	576.80	4267.87
					2/26/09	575.91	4268.76
					4/8/09	575.46	4269.21
					8/12/09	574.84	4269.83
					11/9/09	573.41	4271.26
					3/1/10	573.68	4270.99
					4/9/10	573.56	4271.11
					7/1/10	572.97	4271.70
					2/10/11	571.61	4273.06
					7/22/11	571.20	4273.47
BMO-2008-13B	909551	601657.612	3470076.358	4649.21	10/3/08	206.42	4442.79
					2/17/09	206.11	4443.10
					5/6/09	206.32	4442.89
					8/5/09	206.79	4442.42
					10/28/09	207.08	4442.13
					2/16/10	207.26	4441.95
					4/14/10	207.27	4441.94
					7/6/10	207.68	4441.53
					2/10/11	208.51	4440.70
					5/13/11	208.95	4440.26
					7/15/11	209.36	4439.85
BMO-2008-13M	909760	601650.495	3470040.455	4647.15	12/3/08	206.00	4441.15
					2/17/09	208.74	4438.41
					4/29/09	208.53	4438.62
					8/5/09	208.85	4438.30
					10/28/09	208.91	4438.24
					2/16/10	209.16	4437.99
					4/13/10	209.20	4437.95
					7/2/10	209.30	4437.85
					2/10/11	210.36	4436.79
					5/13/11	210.50	4436.65
					7/15/11	210.67	4436.48
BMO-2010-1M	219957	605581.263	3469935.750	4718.55	9/7/10	224.13	4494.42
					11/10/10	222.97	4495.58
					2/11/11	222.01	4496.54
					5/12/11	223.08	4495.47
					8/31/11	224.38	4494.17

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2010-2M	219958	605685.549	3470564.646	4746.16	9/7/10	264.13	4482.03
					11/11/10	263.94	4482.22
					2/10/11	264.13	4482.03
					5/13/11	266.97	4479.19
					7/14/11	268.05	4478.11
BMO-2010-3B	219970	599977.962	3468347.363	4550.59	7/28/10	115.38	4435.21
					11/10/10	115.80	4434.79
					1/20/11	115.46	4435.13
					4/7/11	116.11	4434.48
					7/13/11	117.30	4433.29
BMO-2010-3M	219969	599970.801	3468353.543	4550.53	7/30/10	118.63	4431.90
					11/10/10	118.75	4431.78
					1/20/11	118.32	4432.21
					4/7/11	119.09	4431.44
					8/25/11	120.74	4429.79
BURKE	212268	602230.087	3473029.816	4856.30	4/22/08	606.55	4249.75
					8/5/08	605.86	4250.44
					10/28/08	604.88	4251.42
					2/19/09	603.91	4252.39
					4/28/09	603.70	4252.60
					8/19/09	602.66	4253.64
COB MW-1	903992	603153.259	3469889.889	4683.26	2/22/08	232.47	4450.79
					5/20/08	233.12	4450.14
					7/30/08	233.37	4449.89
					10/23/08	233.62	4449.64
					2/12/09	234.05	4449.21
					4/21/09	234.99	4448.27
					7/22/09	234.34	4448.92
					10/22/09	234.69	4448.57
					2/4/10	235.15	4448.11
					4/20/10	235.47	4447.79
					7/13/10	235.68	4447.58
					7/14/11	236.98	4446.28
COB MW-2	903984	600973.257	3468114.836	4566.21	2/22/08	122.85	4443.36
					5/20/08	123.00	4443.21
					7/30/08	123.53	4442.68
					10/23/08	124.02	4442.19
					2/12/09	123.39	4442.82
					4/23/09	124.16	4442.05
					7/22/09	124.91	4441.30
					10/22/09	125.33	4440.88
					3/3/10	124.93	4441.28
					4/26/10	125.47	4440.74
					7/13/10	126.54	4439.67
					1/20/11	126.46	4439.75
					7/14/11	128.17	4438.04

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Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
COB MW-3	906823	599169.225	3468726.000	4538.63	2/28/08	120.84	4417.79
					5/20/08	125.00	4413.63
					7/30/08	118.50	4420.13
					10/23/08	117.93	4420.70
					2/12/09	110.91	4427.72
					4/23/09	125.13	4413.50
					7/22/09	124.09	4414.54
					10/22/09	118.03	4420.60
					3/3/10	120.14	4418.49
					4/26/10	123.12	4415.51
					7/13/10	128.60	4410.03
					7/14/11	132.41	4406.22
COB WL	593116	606357.506	3472502.012	4832.06	2/22/08	56.50	4775.56
					5/20/08	57.50	4774.56
					7/30/08	58.64	4773.42
					10/23/08	58.76	4773.30
					2/12/09	58.89	4773.17
					4/23/09	59.73	4772.33
					7/22/09	61.27	4770.79
					10/22/09	62.82	4769.24
					3/3/10	65.24	4766.82
					4/26/10	66.13	4765.93
					7/13/10	67.52	4764.54
					7/14/11	73.86	4758.20
COLLINS	565260	602551.286	3471341.335	4733.72	2/12/08	289.47	4444.25
					5/29/08	288.53	4445.19
					7/31/08	290.08	4443.64
					10/20/08	290.15	4443.57
					4/21/09	290.66	4443.06
					7/20/09	290.78	4442.94
					10/20/09	290.52	4443.20
					2/2/10	291.64	4442.08
					4/23/10	291.96	4441.76
					7/20/10	292.21	4441.51
COOPER C	637069	601349.987	3468913.011	4599.14	3/4/08	155.08	4444.06
					5/5/08	155.34	4443.80
					7/15/08	156.01	4443.13
					10/16/08	155.85	4443.29
					1/27/09	155.62	4443.52
					4/14/09	155.86	4443.28
					7/14/09	156.50	4442.64
					10/12/09	156.89	4442.25
					1/27/10	157.03	4442.11
					4/22/10	157.31	4441.83
					7/21/10	158.00	4441.14
					10/20/10	158.41	4440.73
					1/17/11	158.37	4440.77
					4/11/11	158.74	4440.40
					8/26/11	159.51	4439.63

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Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
DODSON	644927	605594.560	3469063.772	4686.34	5/12/08	81.38	4604.96
					7/24/08	82.20	4604.14
					10/13/08	81.82	4604.52
					1/22/09	82.33	4604.01
					4/9/09	82.84	4603.50
					7/8/09	86.88	4599.46
					10/6/09	87.27	4599.07
					1/21/10	88.54	4597.80
					4/19/10	89.53	4596.81
					7/20/10	90.79	4595.55
					10/18/10	90.33	4596.01
					1/19/11	90.34	4596.00
					4/5/11	91.05	4595.29
					7/12/11	92.07	4594.27
DOUGLASS 791	592791	607632.993	3470222.677	4703.27	2/13/08	22.11	4681.16
					5/13/08	24.60	4678.67
					7/22/08	27.00	4676.27
					10/16/08	23.60	4679.67
					1/19/09	26.51	4676.76
					4/8/09	28.53	4674.74
					7/7/09	31.04	4672.23
					10/5/09	31.49	4671.78
					1/21/10	34.55	4668.72
					4/19/10	36.40	4666.87
					7/12/10	36.74	4666.53
					1/18/11	25.96	4677.31
DOUGLASS 792	592792	607607.541	3469829.115	4681.73	2/13/08	87.76	4593.97
					5/13/08	87.21	4594.52
					7/22/08	86.90	4594.83
					10/16/08	86.45	4595.28
					1/20/09	86.26	4595.47
					4/8/09	86.04	4595.69
					7/7/09	86.16	4595.57
					10/5/09	86.19	4595.54
					1/21/10	86.45	4595.28
					4/19/10	87.19	4594.54
					7/12/10	87.55	4594.18
					1/18/11	87.80	4593.93
					7/12/11	88.38	4593.35

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Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
EAST	599796	607076.365	3468712.215	4626.01	2/8/08	50.20	4575.81
					5/14/08	52.45	4573.56
					7/23/08	52.16	4573.85
					10/14/08	52.19	4573.82
					1/20/09	50.52	4575.49
					4/8/09	51.91	4574.10
					7/13/09	56.93	4569.08
					10/8/09	60.95	4565.06
					1/25/10	59.35	4566.66
					4/21/10	58.88	4567.13
					7/14/10	61.86	4564.15
					10/20/10	61.20	4564.81
					1/18/11	59.79	4566.22
					4/5/11	59.73	4566.28
					7/12/11	63.79	4562.22
EPPELE 641	805641	607165.354	3469229.942	4642.86	3/11/08	29.52	4613.34
					5/12/08	30.64	4612.22
					7/21/08	25.59	4617.27
					10/14/08	24.53	4618.33
					1/21/09	27.35	4615.51
					4/8/09	29.08	4613.78
					7/9/09	31.51	4611.35
					10/7/09	29.92	4612.94
					7/20/10	50.38	4592.48
					10/20/10	48.88	4593.98
					1/17/11	51.13	4591.73
					4/5/11	53.81	4589.05
					7/11/11	56.82	4586.04
FLEMING	218386	605565.701	3469342.523	4693.68	2/18/09	299.30	4394.38
					4/8/09	301.81	4391.87
					7/7/09	304.60	4389.08
					10/6/09	307.84	4385.84
					1/21/10	311.73	4381.95
					4/20/10	315.26	4378.42
					7/15/10	318.32	4375.36
					11/4/10	349.62	4344.06
					1/19/11	356.89	4336.79
					7/12/11	364.72	4328.96
FULTZ	212447	607153.306	3469063.892	4642.92	10/22/08	40.59	4602.33
					1/21/09	40.66	4602.26
					4/9/09	42.88	4600.04
					7/13/09	54.94	4587.98
					10/8/09	56.16	4586.76
					1/25/10	53.45	4589.47
					4/20/10	63.82	4579.10
					7/14/10	119.86	4523.06

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Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
GARNER 557	558557	602659.240	3468962.415	4638.45	2/21/08	191.05	4447.40
					5/5/08	191.28	4447.17
					7/15/08	191.44	4447.01
					10/16/08	191.83	4446.62
					1/28/09	191.92	4446.53
					4/15/09	192.09	4446.36
					7/16/09	192.52	4445.93
					10/14/09	192.82	4445.63
					2/2/10	193.33	4445.12
					4/22/10	193.49	4444.96
					7/20/10	193.93	4444.52
					10/19/10	194.29	4444.16
					1/19/11	194.61	4443.84
					4/6/11	194.86	4443.59
					7/15/11	195.25	4443.20
GARNER 635	587635	602665.352	3468967.902	4640.74	2/4/08	193.20	4447.54
					5/5/08	195.90	4444.84
					7/15/08	193.58	4447.16
					10/15/08	194.35	4446.39
					1/28/09	194.80	4445.94
					4/15/09	195.54	4445.20
					7/16/09	194.88	4445.86
					10/14/09	196.36	4444.38
					2/2/10	195.32	4445.42
					4/22/10	196.01	4444.73
					8/25/10	195.57	4445.17
					10/19/10	225.83	4414.91
					1/19/11	196.89	4443.85
					4/6/11	197.40	4443.34
					7/15/11	198.07	4442.67
GGOOSE 547	628547	606256.657	3469820.260	4717.11	5/21/08	220.91	4496.20
					8/15/08	238.48	4478.63
					10/29/08	235.90	4481.21
					2/24/09	236.13	4480.98
					5/14/09	236.17	4480.94
					8/19/09	236.01	4481.10
					8/19/09	236.01	4481.10
					11/11/09	237.66	4479.45
					3/9/10	238.84	4478.27
					4/27/10	239.17	4477.94
GL-03	539782	604386.940	3473747.943	4924.31	5/22/08	660.15	4264.16
					8/4/08	659.79	4264.52
					12/2/08	658.25	4266.06
					2/26/09	658.62	4265.69
					5/5/09	657.23	4267.08
					8/12/09	656.56	4267.75
					8/12/09	656.56	4267.75
					11/10/09	655.31	4269.00
					3/2/10	655.52	4268.79
					4/9/10	655.35	4268.96
					7/7/10	655.05	4269.26

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
GOAR RANCH	610695	602454.751	3468892.471	4631.13	2/21/08	183.90	4447.23
					5/5/08	188.11	4443.02
					7/16/08	184.41	4446.72
					10/22/08	184.68	4446.45
					1/27/09	184.87	4446.26
					4/15/09	184.96	4446.17
					7/7/09	185.36	4445.77
					10/12/09	185.72	4445.41
					2/2/10	186.25	4444.88
					4/22/10	186.44	4444.69
					7/13/10	186.76	4444.37
					1/19/11	187.52	4443.61
					7/12/11	188.24	4442.89
HOBAN	805290	601705.848	3468880.329	4597.21	2/27/08	163.05	4434.16
					5/7/08	163.28	4433.93
					7/14/08	163.87	4433.34
					10/16/08	163.95	4433.26
					1/28/09	163.82	4433.39
					4/15/09	164.16	4433.05
					7/14/09	164.59	4432.62
					10/15/09	165.00	4432.21
					3/2/10	165.32	4431.89
					5/18/10	165.71	4431.50
					7/20/10	166.17	4431.04
					10/19/10	166.45	4430.76
					8/31/11	167.76	4429.45
HOWARD[4]	NR	601281.159	3468770.377	4593.91	3/4/08	150.10	4443.81
					5/8/08	150.70	4443.21
					7/14/08	150.91	4443.00
					10/15/08	150.67	4443.24
					1/28/09	150.67	4443.24
					4/15/09	151.15	4442.76
					7/15/09	151.76	4442.15
					10/12/09	152.08	4441.83
					1/27/10	152.20	4441.71
					4/21/10	152.30	4441.61
					7/19/10	153.16	4440.75
					10/18/10	153.53	4440.38
					1/17/11	153.51	4440.40
					4/11/11	154.24	4439.67
					8/26/11	154.79	4439.12

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Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
KEEFER	209744	599879.175	3468119.015	4572.03	2/6/08	134.67	4437.36
					5/6/08	135.28	4436.75
					7/16/08	136.24	4435.79
					10/28/08	135.87	4436.16
					1/28/09	134.88	4437.15
					4/16/09	135.00	4437.03
					7/14/09	136.07	4435.96
					10/13/09	136.67	4435.36
					1/26/10	136.26	4435.77
					4/20/10	136.26	4435.77
					7/15/10	137.29	4434.74
					10/19/10	137.68	4434.35
					1/18/11	137.42	4434.61
					4/6/11	137.91	4434.12
					7/18/11	140.39	4431.64
MCCONNELL 265	539265	601463.094	3468840.139	4600.70	2/20/08	156.15	4444.55
					5/6/08	156.40	4444.30
					7/15/08	157.07	4443.63
					11/19/08	157.17	4443.53
					1/28/09	156.70	4444.00
					4/15/09	157.22	4443.48
					7/15/09	157.59	4443.11
					10/12/09	158.13	4442.57
					1/26/10	158.35	4442.35
					4/22/10	158.68	4442.02
					7/21/10	159.37	4441.33
					10/18/10	159.63	4441.07
					1/19/11	159.69	4441.01
					4/8/11	159.10	4441.60
					7/12/11	160.77	4439.93
METZLER	35-71891	602091.308	3471381.176	4728.53	3/5/08	288.30	4440.23
					5/15/08	286.53	4442.00
					7/31/08	286.82	4441.71
					10/20/08	287.09	4441.44
					2/11/09	287.74	4440.79
					4/20/09	287.47	4441.06
					7/15/09	287.58	4440.95
					10/14/09	287.99	4440.54
					2/1/10	288.38	4440.15
					5/18/10	288.65	4439.88
					7/16/10	288.88	4439.65
					10/19/10	289.09	4439.44
					1/19/11	289.54	4438.99
					4/4/11	289.87	4438.66
					7/12/11	289.98	4438.55

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
NESS	509127	607866.391	3471419.494	4761.23	7/24/08	557.90	4203.33
					10/16/08	549.30	4211.93
					2/25/09	536.40	4224.83
					5/11/09	544.64	4216.59
					8/11/09	566.87	4194.36
					11/12/09	537.34	4223.89
					2/2/10	531.85	4229.38
					4/21/10	568.11	4193.12
					7/19/10	573.02	4188.21
					1/18/11	541.80	4219.43
					7/12/11	597.71	4163.52
NOTEMAN	212483	606053.800	3471576.400	4800.68	5/13/08	339.77	4460.91
					8/27/08	344.34	4456.34
					11/22/08	322.26	4478.42
					2/25/09	327.54	4473.14
NSD-02	527587	598820.051	3468821.474	4531.38	10/7/09	101.17	4430.21
					3/16/10	99.43	4431.95
					5/25/10	101.63	4429.75
					8/25/10	102.38	4429.00
					3/17/11	102.68	4428.70
					6/17/11	109.29	4422.09
NSD-03	527586	598070.538	3468694.259	4518.28	10/7/09	85.62	4432.66
					3/16/10	83.51	4434.77
					5/25/10	84.49	4433.79
					8/25/10	85.70	4432.58
					3/17/11	86.76	4431.52
					6/17/11	88.76	4429.52
NWC-02	562944	600177.435	3467474.673	4600.44	10/27/08	160.51	4439.93
					4/29/09[5]	160.5	4439.94
					9/10/09[5]	155	4445.44
					4/2010[5]	131	4469.44
NWC-03	203321	601153.857	3468350.838	4574.99	11/3/08	131.48	4443.51
					4/29/09[5]	130	4444.99
					9/10/09[5]	126	4448.99
					10/9/09[5]	125	4449.99
NWC-03 CAP[6]	627684	601151.704	3468343.653	4572.82	2/2/09	130.03	4442.79
					4/23/09	130.62	4442.20
					7/21/09	131.26	4441.56
					10/21/09	131.60	4441.22
					2/3/10	131.34	4441.48
					4/21/10	131.86	4440.96
					7/20/10	131.50	4441.32
					1/18/11	132.91	4439.91
					7/15/11	134.42	4438.40
NWC-04	551849	605829.808	3469071.959	4690.77	12/2/08	352.11	4338.66
					4/29/09[5]	328	4362.77
					9/10/09[5]	324	4366.77
					4/2010[5]	216	4474.77
NWC-06	575700	599822.821	3467749.954	4592.50	4/29/09[5]	156	4436.50
					9/10/09[5]	155	4437.50
					10/9/09[5]	148	4444.50
					4/2010[5]	140	4452.50

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Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
OSBORN	643436	607031.823	3470270.548	4711.95	5/13/08	68.65	4643.30
					8/5/08	69.53	4642.42
					10/16/08	69.83	4642.12
					1/20/09	69.23	4642.72
					4/7/09	69.60	4642.35
					7/8/09	96.61	4615.34
					10/5/09	75.09	4636.86
					1/21/10	75.37	4636.58
					4/19/10	81.59	4630.36
					7/12/10	83.00	4628.95
					7/12/11	74.60	4637.35
PANAGAKOS	35-76413	605304.234	3469323.140	4691.40	1/22/09	155.28	4536.12
					4/9/09	156.15	4535.25
					7/9/09	161.61	4529.79
					10/6/09	167.20	4524.20
					1/21/10	166.92	4524.48
					4/20/10	167.11	4524.29
					7/20/10	171.78	4519.62
					10/18/10	176.39	4515.01
					7/14/11	173.78	4517.62
					8/25/11	172.89	4518.51
PARRA	576415	602170.716	3471263.549	4727.21	5/15/08	279.78	4447.43
					8/18/08	280.06	4447.15
					11/3/08	280.39	4446.82
					2/13/09	280.75	4446.46
					4/28/09	280.88	4446.33
					7/20/09	280.99	4446.22
PIONKE	613395	601045.471	3468960.981	4592.13	7/17/08	149.88	4442.25
					11/3/08	150.99	4441.14
					2/25/09	149.68	4442.45
					4/14/09	150.01	4442.12
					7/13/09	150.47	4441.66
					10/7/09	150.96	4441.17
					3/8/10	151.11	4441.02
					4/26/10	151.32	4440.81
					7/15/10	151.90	4440.23
					10/18/10	152.38	4439.75
					1/19/11	152.38	4439.75
					4/8/11	153.04	4439.09
					7/12/11	153.57	4438.56
POOL	509518	599683.603	3470013.823	4639.09	2/20/08	204.22	4434.87
					5/19/08	204.72	4434.37
					7/31/08	205.56	4433.53
					10/21/08	205.06	4434.03
					2/13/09	204.74	4434.35
					4/21/09	204.87	4434.22
					7/20/09	205.69	4433.40
					10/20/09	206.06	4433.03
					2/24/10	205.59	4433.50
					4/22/10	205.48	4433.61
					7/14/10	206.58	4432.51
					10/20/10	206.74	4432.35

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Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
RAMIREZ	216425	599730.649	3467584.363	4596.61	10/27/08	159.45	4437.16
					1/29/09	158.74	4437.87
					4/16/09	158.66	4437.95
					7/10/09	159.64	4436.97
					10/6/09	160.36	4436.25
					1/25/10	160.10	4436.51
					4/21/10	159.96	4436.65
					7/21/10	161.05	4435.56
					10/19/10	161.23	4435.38
					1/18/11	161.22	4435.39
					4/11/11	161.48	4435.13
					7/18/11	162.39	4434.22
RAY	803772	607083.422	3469195.147	4647.91	2/15/08	40.85	4607.06
					5/13/08	43.82	4604.09
					7/29/08	45.25	4602.66
					10/22/08	44.54	4603.37
					1/20/09	44.31	4603.60
					4/8/09	44.68	4603.23
					7/9/09	48.99	4598.92
					10/7/09	49.87	4598.04
					1/26/10	47.61	4600.30
					4/20/10	49.78	4598.13
					7/14/10	51.36	4596.55
					10/20/10	49.85	4598.06
					1/17/11	50.51	4597.40
					4/5/11	51.84	4596.07
					7/11/11	55.74	4592.17
ROGERS 596	573596	601001.503	3468491.639	4577.35	11/11/09	135.46	4441.89
					2/25/10	135.89	4441.46
					4/22/10	135.62	4441.73
					7/16/10	136.63	4440.72
					10/19/10	136.61	4440.74
					1/20/11	134.21	4443.14
					4/8/11	137.68	4439.67
					7/14/11	138.09	4439.26
ROGERS 750[7]	641750	600977.690	3468417.386	4579.02	2/7/08	129.85	4449.17
					7/29/08	131.86	4447.16
					10/22/08	132.08	4446.94
					2/10/09	130.62	4448.40
					4/29/09	131.33	4447.69
					8/3/09	135.07	4443.95
ROGERS E	216018	600449.648	3467636.029	4590.66	7/17/08	149.65	4441.01
					11/3/08	150.15	4440.51
					2/10/09	149.02	4441.64
					4/16/09	149.53	4441.13
					7/13/09	150.31	4440.35
					10/6/09	150.76	4439.90
					1/25/10	150.64	4440.02
					4/21/10	150.97	4439.69
					8/25/10	151.15	4439.51
					10/19/10	151.57	4439.09

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Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
RUIZ	531770	602857.357	3471424.219	4735.18	2/5/08	293.29	4441.89
					5/15/08	293.57	4441.61
					7/30/08	293.86	4441.32
					10/20/08	294.18	4441.00
					2/12/09	294.62	4440.56
					4/21/09	294.66	4440.52
					8/3/09	294.98	4440.20
					10/28/09	295.33	4439.85
					2/1/10	295.70	4439.48
					4/26/10	295.96	4439.22
					4/8/11	297.20	4437.98
SCHWARTZ[8]	210865	600811.014	3468269.622	4564.49	2/8/08	121.80	4442.69
					5/19/08	123.49	4441.00
					7/29/08	122.64	4441.85
					10/22/08	123.39	4441.10
					1/29/09	122.87	4441.62
					4/17/09	123.53	4440.96
					7/10/09	124.15	4440.34
					10/6/09	124.55	4439.94
					1/22/10	124.32	4440.17
					4/21/10	124.65	4439.84
					7/21/10	125.80	4438.69
					10/19/10	126.30	4438.19
					1/17/11	125.35	4439.14
					4/11/11	127.50	4436.99
					7/18/11	127.67	4436.82
STEPHENS	808560	606981.766	3469072.799	4651.22	5/13/08	44.94	4606.28
					8/5/08	46.61	4604.61
					10/16/08	46.60	4604.62
					1/21/09	47.19	4604.03
					4/8/09	48.45	4602.77
					7/7/09	49.41	4601.81
					10/7/09	50.33	4600.89
					1/26/10	51.13	4600.09
					4/20/10	51.24	4599.98
					7/14/10	51.91	4599.31
					1/18/11	52.98	4598.24
					7/11/11	54.44	4596.78
SUNBELT	201531	605998.250	3471735.149	4806.52	2/6/08	352.10	4454.42
					5/15/08	358.97	4447.55
					8/5/08	Dry	<4426
					10/16/08	347.00	4459.52
					1/21/09	344.78	4461.74
					4/10/09	349.64	4456.88
					7/8/09	356.99	4449.53
					10/5/09	Dry	<4426
					1/21/10	Dry	<4426
					4/19/10	Dry	<4426
					7/12/10	Dry	<4426
					1/19/11	Dry	<4426
					8/25/11	Dry	<4426

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Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
SWAN	NR	607378.547	3470648.298	4716.59	2/13/08	26.50	4690.09
					5/14/08	30.69	4685.90
					7/24/08	32.06	4684.53
					10/16/08	27.53	4689.06
					1/20/09	29.77	4686.82
					4/7/09	31.47	4685.12
					7/8/09	33.61	4682.98
					10/5/09	35.12	4681.47
					1/21/10	36.64	4679.95
					4/21/10	38.06	4678.53
					7/19/10	39.67	4676.92
					1/18/11	35.06	4681.53
					7/12/11	39.32	4677.27
TM-02A	522574	604152.059	3472008.794	4808.43	3/4/08	346.62	4461.81
					5/23/08	346.16	4462.27
					8/15/08	353.91	4454.52
					10/30/08	349.45	4458.98
					2/24/09	348.64	4459.79
					5/6/09	349.38	4459.05
					8/12/09	349.13	4459.30
					11/4/09	348.97	4459.46
					3/10/10	348.19	4460.24
					4/6/10	353.86	4454.57
					7/6/10	349.20	4459.23
					2/10/11	347.60	4460.83
					7/13/11	348.14	4460.29
TM-03	522575	606366.130	3473711.046	4897.85	3/12/08	127.14	4770.71
					5/20/08	127.40	4770.45
					8/6/08	128.02	4769.83
					11/12/08	128.00	4769.85
					2/26/09	126.94	4770.91
					5/13/09	113.86	4783.99
					8/18/09	128.80	4769.05
					11/10/09	125.38	4772.47
					3/2/10	128.02	4769.83
					4/14/10	130.56	4767.29
					7/7/10	131.25	4766.60
TM-06 MILLER	522695	606055.975	3468376.658	4707.88	2/26/08	158.78	4549.10
					5/20/08	158.76	4549.12
					8/4/08	158.80	4549.08
					10/29/08	158.85	4549.03
					2/16/09	159.28	4548.60
					5/13/09	158.81	4549.07
					8/18/09	158.91	4548.97
					11/12/09	158.96	4548.92
					3/8/10	158.99	4548.89
					4/14/10	159.02	4548.86
					7/2/10	159.13	4548.75
					7/21/11	159.88	4548.00

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Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
TM-16	522578	605588.075	3469842.199	4717.71	3/5/08	81.00	4636.71
					5/22/08	81.24	4636.47
					8/6/08	81.65	4636.06
					11/5/08	81.75	4635.96
					2/26/09	81.88	4635.83
					5/13/09	82.01	4635.70
					8/19/09	82.37	4635.34
					11/10/09	82.83	4634.88
					3/2/10	83.09	4634.62
					4/14/10	83.22	4634.49
					7/2/10	83.51	4634.20
					7/14/11	80.41	4637.30
TM-19A	522581	602458.710	3469197.426	4645.87	3/6/08	199.85	4446.02
					5/22/08	199.50	4446.37
					8/6/08	199.19	4446.68
					11/18/08	199.46	4446.41
					3/3/09	199.81	4446.06
					4/22/09	200.57	4445.30
					8/12/09	201.46	4444.41
					11/4/09	201.16	4444.71
					3/10/10	201.34	4444.53
					4/9/10	201.55	4444.32
					7/7/10	202.35	4443.52
					2/14/11	203.00	4442.87
					7/15/11	203.30	4442.57
TM-42	562554	603698.271	3469104.903	4666.67	3/5/08	211.04	4455.63
					5/22/08	210.98	4455.69
					8/6/08	211.55	4455.12
					11/6/08	207.05	4459.62
					2/18/09	212.31	4454.36
					5/7/09	212.37	4454.30
					8/18/09	212.77	4453.90
					11/3/09	213.05	4453.62
					2/24/10	213.36	4453.31
					4/19/10	213.51	4453.16
					7/2/10	213.52	4453.15
					7/12/11	214.62	4452.05
TVI 236	802236	600552.215	3467978.431	4561.98	5/7/08	123.30	4438.68
					7/15/08	121.55	4440.43
					10/15/08	122.35	4439.63
					2/11/09	121.28	4440.70
					4/17/09	122.73	4439.25
					7/21/09	123.96	4438.02
					10/19/09	123.88	4438.10
					2/2/10	122.26	4439.72
					4/23/10	122.70	4439.28
					7/15/10	125.08	4436.90
					7/15/11	127.23	4434.75

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
TVI 713	567713	600729.095	3468412.946	4567.22	5/7/08	127.10	4440.12
					7/14/08	126.30	4440.92
					10/15/08	130.00	4437.22
					2/11/09	149.87	4417.35
					4/17/09	126.73	4440.49
					7/21/09	127.36	4439.86
					10/19/09	127.79	4439.43
					2/2/10	126.71	4440.51
					4/23/10	127.53	4439.69
					7/15/10	129.14	4438.08
					10/20/10	130.84	4436.38
					1/20/11	134.36	4432.86
					4/11/11	135.72	4431.50
					7/15/11	131.61	4435.61
WEISKOPF	641802	601154.951	3468658.855	4586.89	2/15/08	143.31	4443.58
					5/7/08	143.90	4442.99
					7/16/08	144.22	4442.67
					10/28/08	145.81	4441.08
					1/29/09	143.99	4442.90
					4/15/09	144.38	4442.51
					7/15/09	144.99	4441.90
					10/15/09	145.66	4441.23
					2/2/10	145.28	4441.61
					4/22/10	145.72	4441.17
					7/19/10	146.46	4440.43
					10/20/10	147.11	4439.78
					1/17/11	146.72	4440.17
					4/11/11	146.31	4440.58
					8/26/11	148.06	4438.83

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation[1] (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
ZANDER	205126	599678.880	3467998.486	4580.94	2/4/08	144.85	4436.09
					5/6/08	145.33	4435.61
					7/16/08	146.40	4434.54
					10/28/08	146.01	4434.93
					2/10/09	144.83	4436.11
					4/16/09	144.94	4436.00
					7/14/09	146.14	4434.80
					10/13/09	146.77	4434.17
					1/26/10	146.34	4434.60
					4/22/10	146.27	4434.67
					7/21/10	147.81	4433.13
					10/19/10	147.80	4433.14
					1/18/11	147.52	4433.42
					4/6/11	147.84	4433.10
					7/13/11	148.91	4432.03

ADWR = Arizona Department of Water Resources

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

ft amsl = feet above mean sea level

NR = No Record

[1] Survey Source: Survey conducted by Gilbert Technical Service, Inc and Arizona Land Specialists, Inc

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

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

[4] Measuring point elevation changed to reflect survey results September 10, 2010 and applied to all measurements collected

[5] Depth to Water measurement provided by Naco Water Company

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

[7] Well previously identified as ROGERS 803

[8] Measuring point elevation changed to reflect survey results September 10, 2010 and applied to all measurements collected

FIGURES

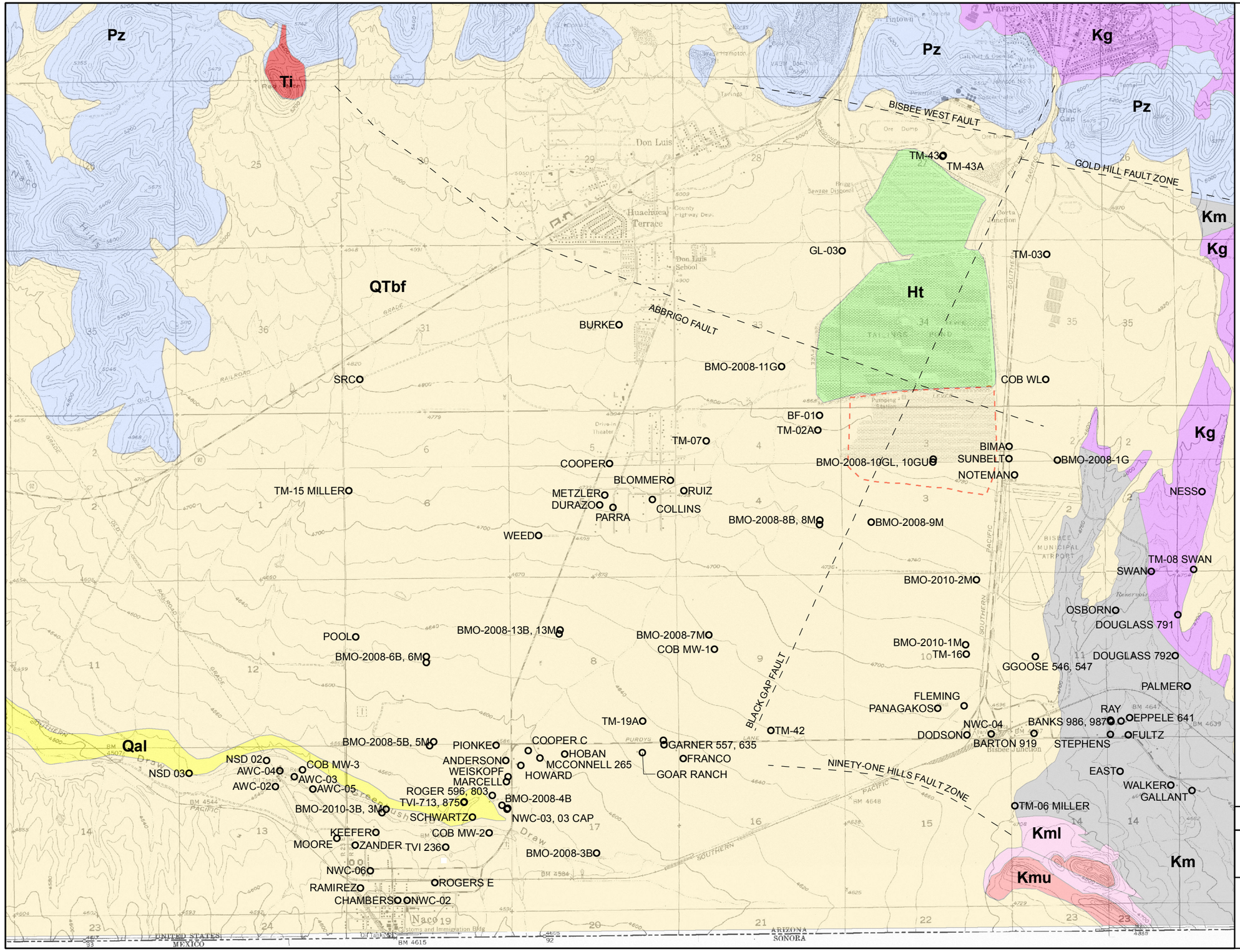
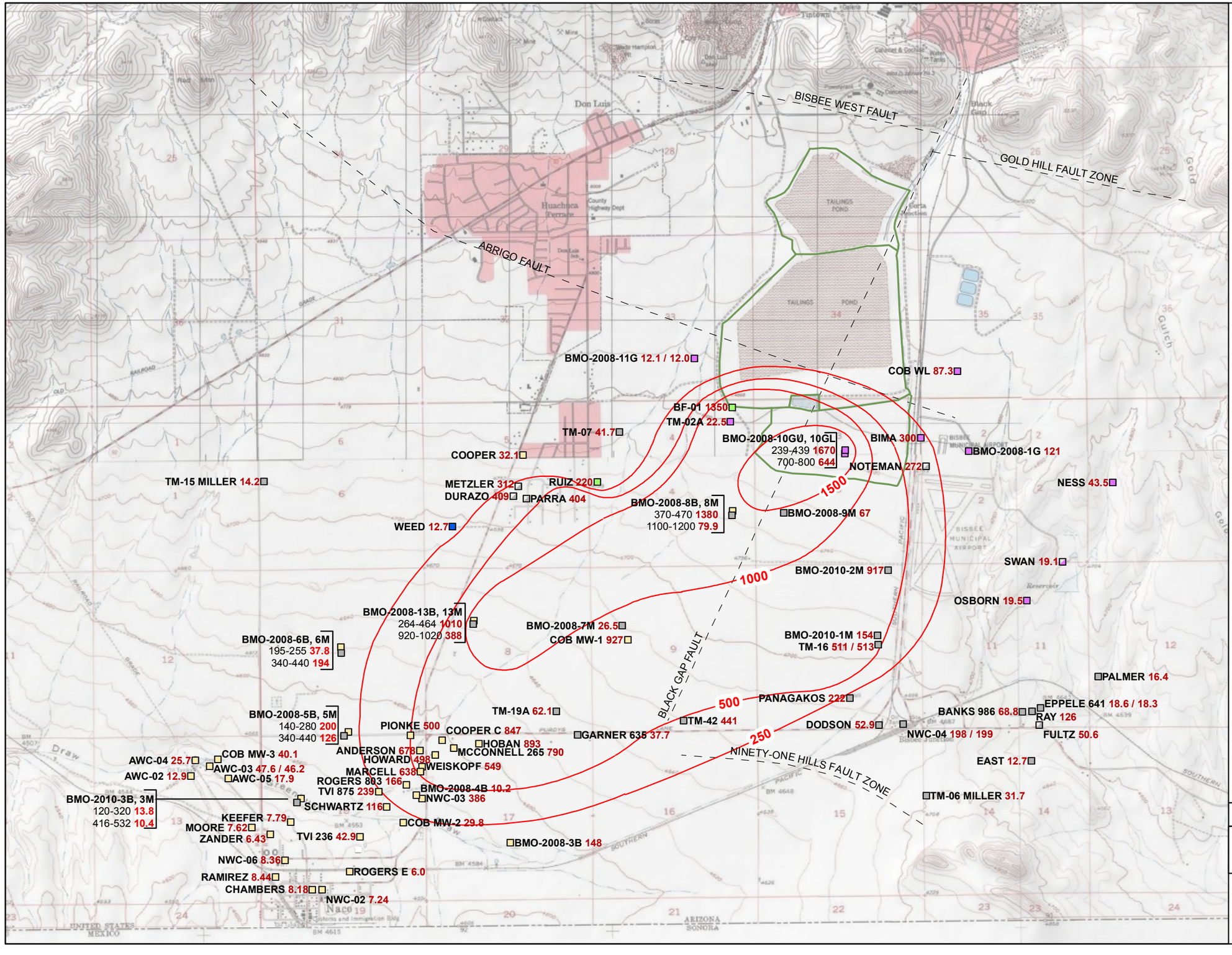


Figure 1
Generalized Geology and Well Locations



Legend

- POOL — Well ID
- 114 — Sulfate Concentration (mg/L)
- Sulfate Concentration Contour (mg/L)
- Faults (inferred)
- CTSA Facility

Co-located Wells
- Well ID
- Screen (ft bls): SO4 Concentration (mg/L)

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

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

Scale (Feet)

0 — 3,000 — 6,000

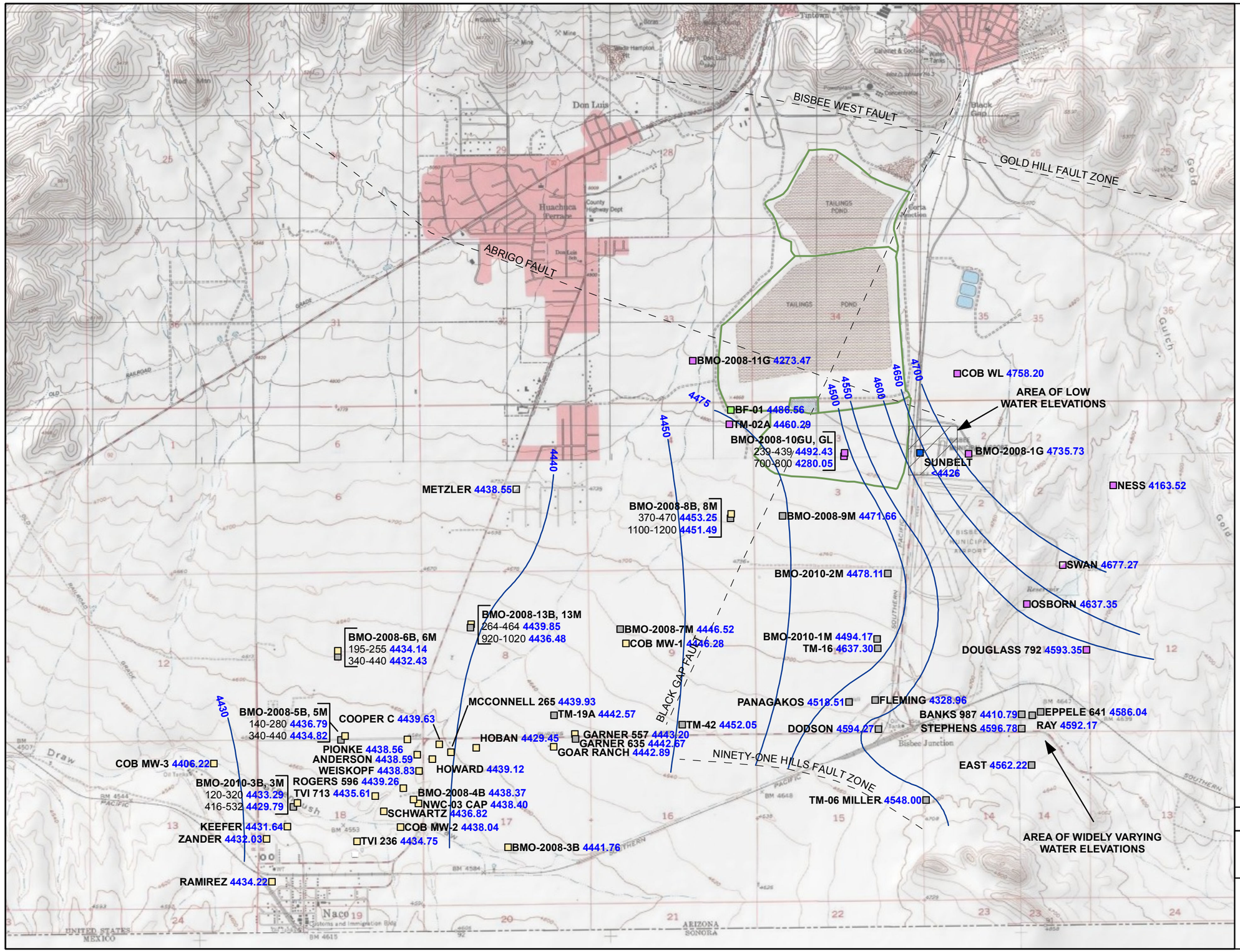
Notes:

Projection: UTM Zone 12N NAD83

Date	File ID
9/20/11	055038-146

CLEAR CREEK ASSOCIATES

Figure 2
Sulfate Concentrations in Groundwater
Third Quarter 2011



Legend

- BIMA — Well ID
- 4406.83 — Groundwater Elevation (ft amsl)
- Groundwater Elevation Contours (dashed where inferred)
- Faults (inferred)
- CTSA Facility

Co-located Wells
- Well ID
- Screen (ft bls): Water Elevation (ft amsl)

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

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

Scale (Feet)

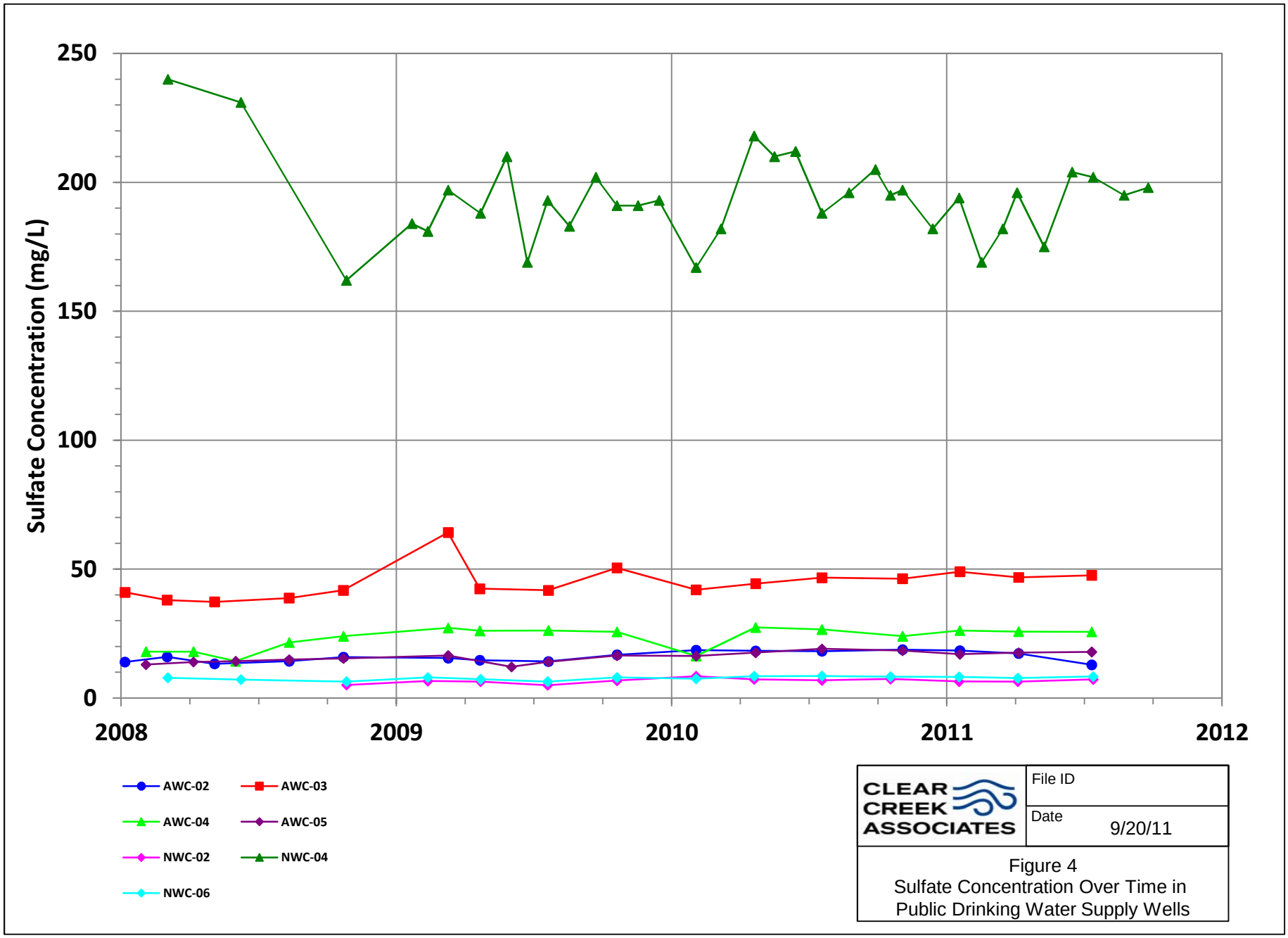
0 3,000 6,000

Notes:
Projection: UTM Zone 12N NAD83

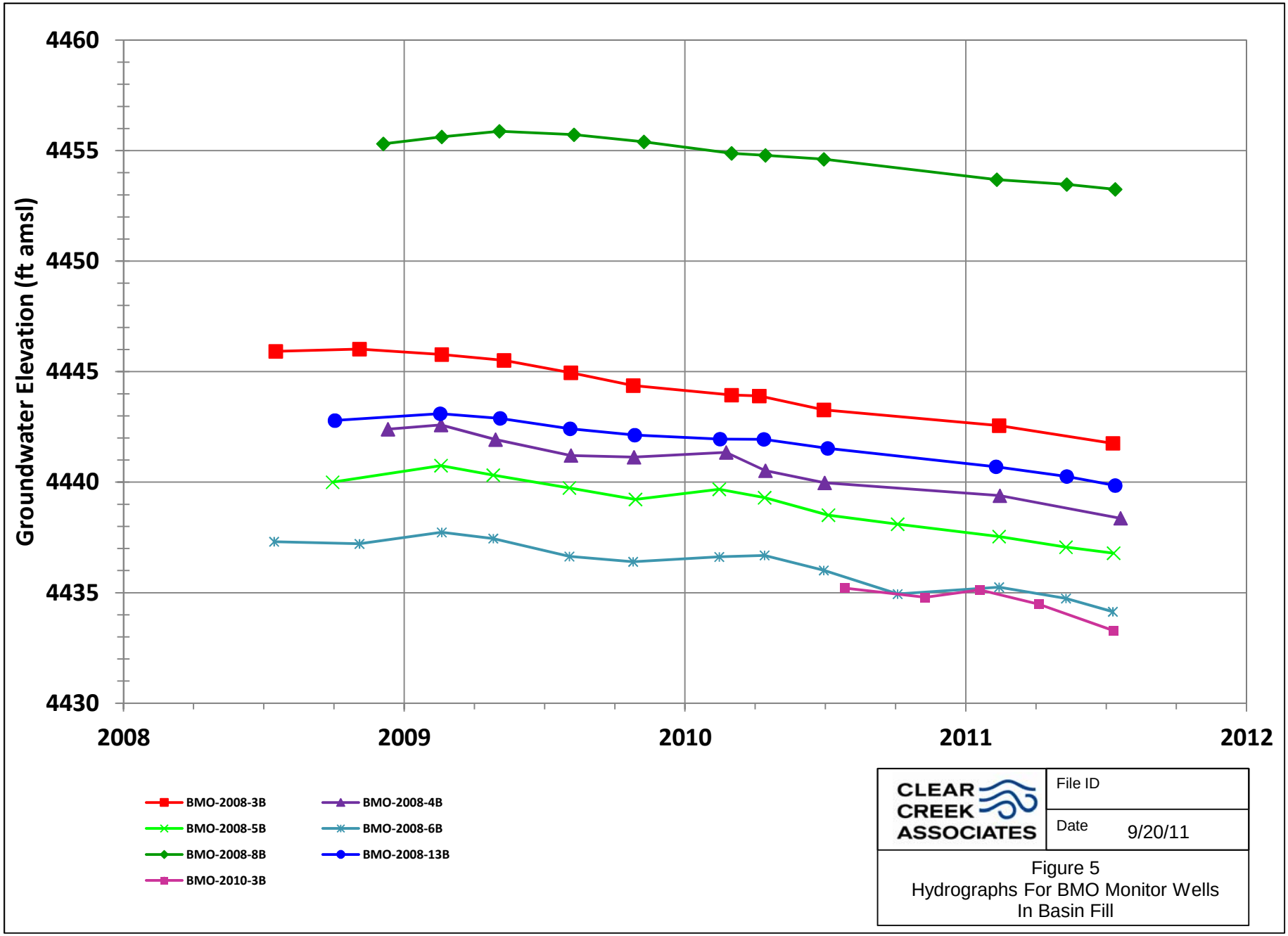
Date	File ID
9/20/11	055038-145

CLEAR CREEK ASSOCIATES

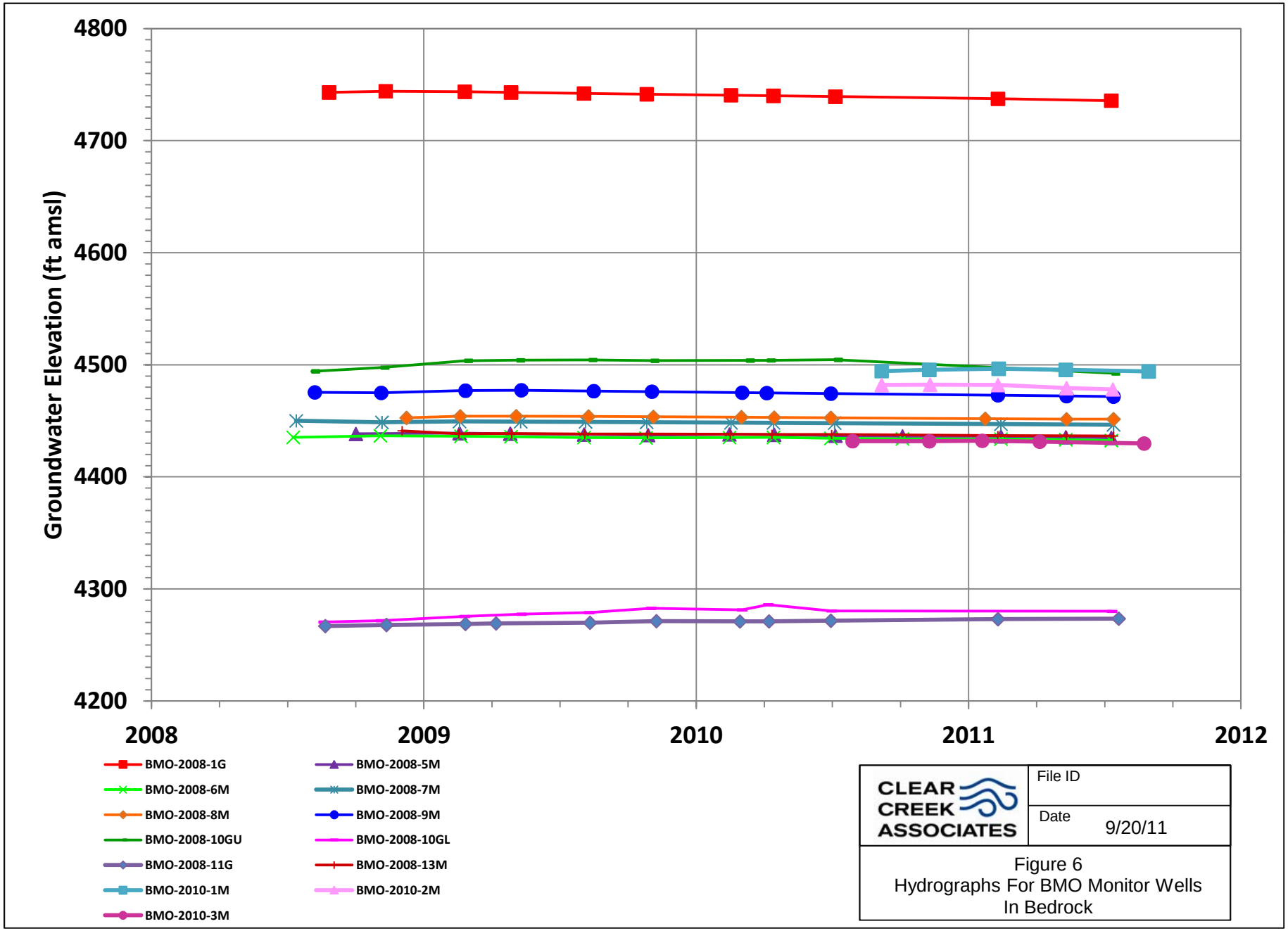
Figure 3
Groundwater Elevations
Third Quarter 2011



N:\Projects\G & K\055038_Copper Queen Branch Mitigation Order\Groundwater Monitoring\Groundwater Monitoring Reports\2011 Q3 CQB Groundwater Monitoring Report\SO4 and GW elev Time Series for Select Q3 2011.xls



N:\Projects\G & K\055038_Copper Queen Branch Mitigation Order\Groundwater Monitoring\Groundwater Monitoring Reports\2011 Q3 CQB Groundwater Monitoring Report\SO4 and GW elev Time Series for Select Q3 2011.xls



N:\Projects\G & K\055038_Copper Queen Branch Mitigation Order\Groundwater Monitoring\Groundwater Monitoring Reports\2011 Q3 CQB Groundwater Monitoring Report\SO4 and GW elev Time Series for Select Q3 2011.xls

APPENDIX A

DATA VERIFICATION REPORT

APPENDIX A

DATA VERIFICATION REPORT

THIRD QUARTER 2011
GROUNDWATER MONITORING REPORT

Prepared for:

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

Prepared by:

CLEAR CREEK ASSOCIATES, P.L.C.
221 North Court Avenue, Suite 101
Tucson, Arizona 85701

October 7, 2011

TABLE OF CONTENTS

1. INTRODUCTION

This report summarizes the data verification review of groundwater samples collected and analyzed during the third quarter 2011 by Clear Creek Associates (Clear Creek) and Freeport-McMoRan Corporation Copper Queen Branch (CQB) pursuant to Mitigation Order on Consent Docket No. P-121-07 (ADEQ, 2007). Clear Creek and CQB collected groundwater samples pursuant to the groundwater monitoring program approved by ADEQ in April 2010 (ADEQ, 2010). Analytical results for groundwater samples collected for this project during the third quarter 2011 were provided to Clear Creek by SVL Analytical, Inc. (SVL) of Kellogg, Idaho for preparation of the third quarter 2011 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 reviews field sampling for samples collected by Clear Creek and CQB. Additionally, sample handling and laboratory QA/QC data are evaluated according to the data quality indicators (DQIs) given in the QAPP.

The laboratory reports for the third quarter 2011 samples including COC forms, laboratory correspondence, QC summaries, data qualifiers, internal QA/QC tests performed by SVL and any case narratives are presented with the laboratory reports included in Appendix B. Based on the results of laboratory control samples, matrix spike/recovery and blank spikes, SVL did not advise of any modifications that should be made regarding the usability and data validation status of the laboratory test results. The analytical results for all 96 samples collected by Clear Creek and CQB are contained in 7 reports having the SVL Project numbers identified in the following table.

SVL ID	WELLS REPORTED
Number of wells sampled: 78 Number of well samples collected: 81 Number of duplicate samples collected: 5 Number of field and equipment blanks collected: 10 Total number of samples collected: 96	
W1G0308	AWC-02, AWC-03, AWC-04, AWC-05, BANKS 986, BMO-2010-3B, COOPER, DODSON, DUP20110711, DUP20110713, EAST, EB20110712, EB20110713, EPPELE 641, FB20110712, FB20110713, MCCONNELL 265, METZLER, NESS, NOTEMAN, OSBORN, PALMER, PARRA, RAY, SWAN
W10G0385	BMO-2008-6B, BMO-2008-6M, BMO-2008-3B, BMO-2008-5M, TM-42, TM-15 MILLER, BMO-2008-1G, BMO-2008-10GU, BMO-2008-10GL, BMO-2008-5B, TM-16, DUP071411, BMO-2010-2M, TM-2A, BF-01, BMO-2008-13B, BMO-2008-8B, BMO-2008-8M, BMO-2008-9M , BMO-2008-13M, BMO-2008-7M, TM-19A
W1G0441	ANDERSON, COB MW-1, COB MW-2, COB MW-3, COB WL, CHAMBERS, DURAZO, GARNER 635, KEEFER, MOORE, NWC-02, NWC-03, NWC-04, NWC-06, PANAGAKOS, PIONKE, RAMIREZ, ROGERS 803, ROGERS E, SCHWARTZ, TVI 236, TVI 875, WEED, ZANDER
W1G0604	TM-6, FB072111, TM-7, EQB-P-072211, EQB072211, BMO-2008-11G, DUP072111, BMO-2008-4B
W1H0745	BMO-2010-3M, NWC-04, BIMA, FULTZ, PANAGAKOS COOPER C, HOWARD, MARCELL, WEISKOPF, RUIZ
W1I0168	1385 PURDY LANE (HOBAN), BMO-2010-1M
W1I0650	NWC-04, DUP20110926, FB20110926A, FB20110926B, EB20110926

2. FIELD OPERATIONS

Field operations for this project consisted of the following for all monitoring wells sampled by Clear Creek and CQB:

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

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

2.1 Water Level Monitoring

Static water level measurements were attempted at each well that was sampled and at all wells where water level monitoring was conducted by Clear Creek and CQB. 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 in the groundwater monitoring program approved by ADEQ (ADEQ, 2010). More detailed information regarding the wells sampled for water quality and water level measurements is listed in Tables 2, 3, and 4 of the main text.

2.2.1 Pre-Sampling Field Activities

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

2.2.2 Well Purging, Field Measurements, and Sample Collection

Three wetted casing volumes were purged from each well prior to sampling, when possible. However, when three casing volumes could not be purged, this information was noted on the groundwater sampling form (Appendix D) 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. If possible, field parameters were monitored until the measurements stabilized within 0.3 standard units for pH, 2 degrees Celsius for temperature and 100 microSiemen/centimeter for specific conductance as described in Section 4.2.1.2 of the QAPP.

During this monitoring period 81 groundwater samples were collected for analysis from 78 wells. Groundwater samples were collected by filtering the sample into a 250 milliliter bottle using clean filtration apparatus and one disposable 0.45-micron filter. All bottles were provided by SVL and maintained in a clean and secure work area until used in the field.

[1] Field pH meter was calibrated using a three point calibration and pH buffers 4, 7, and 10
[2] Field SC meter was calibrated using a standard stock solution of 3900 µS/cm

2.2.3 Post-Sampling Field Activities

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

After sample collection, samples from each well were placed into a plastic bag and stored on ice until they could be packed securely for shipping to SVL. In addition, the sample 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 Clear Creek and CQB were shipped to SVL 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 SVL. As noted on the analytical data reports from SVL, all of the sample bottles were received intact, properly preserved, and in good condition. The samples were shipped within one to four days of sample collection and the time between sample collection and receipt of samples by SVL was one to five days. The samples were collected, shipped, and received by SVL within the established holding time for dissolved sulfate analysis in accordance with United States Environmental Protection Agency (EPA) Method 300.0.

4. LABORATORY QUALITY CONTROL

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

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

4.1 Licensure

SVL is licensed with the Arizona Department of Health Services (license number AZ0538) and is accredited in accordance with the National Environmental Laboratory Accreditation Conference.

4.2 Analytical Method

EPA method 300.0 was used for sulfate analysis during this monitoring period.

4.3 Method Detection Limit (MDL) and Reporting Limit (RL)

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

Method	MDL (mg/L)	RL (mg/L)	Target MDL[1] (mg/L)
EPA 300.0	0.07	0.30	10

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

4.4 Timeliness

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

4.5 Quality Control Measurements

The following QC samples were prepared and analyzed:

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

4.5.1 Calibration Blanks, and Calibration Verification Standards

Results from the analyses of the initial calibration blanks and initial calibration verification standards conducted by EPA Method 300.0 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 showed percent recoveries that were within the acceptance criteria specified by the SVL QA plan and the QAPP.

4.5.2 Analytical Spike

Analytical spike samples were analyzed for the EPA Method 300.0. The spike samples were prepared by adding a sulfate spike to randomly chosen samples. Spike recoveries for most analyses were between 90 and 110 percent. Instances in which analytical spike recoveries were unusable were qualified with an "M3" flag indicating that the analyte concentration was disproportionate to the spike level or an "M1" flag indicating that the spike level was too high. In the five cases where an M1 or M3 qualifier was used the laboratory control sample recovery was acceptable and no corrective action was required per the SVL Quality Manual and QAPP. The laboratory control samples were prepared by adding a sulfate spike to de-ionized water.

4.5.3 Laboratory Duplicate Samples

Analyses of laboratory duplicate samples were reviewed as part of this quality data verification report. Field duplicate samples are discussed in Section 5.1. In all cases where the relative percent difference (RPD) could be calculated, the RPD was within 20 percent, which is the tolerance range set by the laboratory. The results met QA criteria and demonstrate an appropriate level of precision in laboratory analysis of these samples.

4.5.4 Sample Re-Analysis

During the third quarter 2011, two field samples were re-analyzed by SVL at the request of Clear Creek. Sample re-analysis was requested based on comparison to historical results. For the re-analysis SVL checked the dilution factor of the original sample and conducted additional analyses on the sample. The samples are shown in the table below. The results are confirmed if the RPD is within 20 percent.

SVL Project No.	Well ID	Original Result (mg/L)	Re-Run (mg/L)	RPD
W1G0441	**PANAGAKOS**	**223**	**220**	1.35%
W10G0385*	**BMO-2008-10GL**	**644**	**716**	10.59%
W10G0385*	**BMO-2008-10GL**	**644**	**700**	8.33%
W1I0168*	**1385 PURDY LANE**	**893**	**824**	8.04%
W1I0168*	**1385 PURDY LANE**	**893**	**803**	10.61%

mg/L = milligrams per liter
RPD = Relative percent difference
**Reanalysis was performed twice to confirm original result*

4.5.5 Field Blank Samples

During the third quarter 2011, 10 field blank samples were collected, including five field blanks (FB20110712, FB20110713, FB072111, FB20110926A, and FB20110926B) and five equipment blanks (EB20110712, EB20110713, EQB-P-072211, EQB072211, and EB20110926). Field blank samples were collected in accordance with procedures described in Section 4.2.1.5 of the QAPP. Field blank samples were collected and submitted along with other samples to evaluate the potential for contaminant introduction under field conditions. As required by Section 4.2.1.5 of the QAPP, a minimum of one field blank and one equipment blank sample was collected for every twenty samples. Analytical results from field blank and equipment blank samples showed no detections.

5. DATA QUALITY INDICATORS

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

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

Each of these DQIs is discussed below in relation to the third quarter 2011 groundwater sampling and analysis conducted by Clear Creek and CQB.

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 Section 4.5.3 there were no exceedances of RPD QA criteria for any laboratory duplicates. During this monitoring period five field filtered duplicate samples (DUP20110712, DUP20110713, DUP071411, DUP072211, and DUP20110926) were collected by Clear Creek and CQB for analysis. The collection of five duplicate samples meets QA/QC method and quantity goal as stated in Section 4.2.1.5 of the QAPP.

Sulfate results for the five duplicate samples collected are provided in the table below. The range of RPD values was between 0.39 and 2.99 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.

SVL Project No.	Well ID	Duplicate ID	Sample (mg/l)	Duplicate (mg/l)	RPD
W1G0308	EPPELE641	DUP20110711	18.6	18.3	1.63%
W1G0308	AWC-03	DUP20110713	47.6	46.2	2.99%
W10G0385	TM-16	DUP071411	511	513	0.39%
W1G0604	BMO-2008-11G	DUP072211	12.0	12.1	0.83%
XXXXXXX	NWC-04	DUP20110926	XX	XX	#VAL UE!

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 there were no significant exceedances of the recovery QA criteria for any of the calibration standards, analytical spikes, or laboratory duplicates, respectively. Based on this information, the overall accuracy of the data is judged sufficient for the purpose of aquifer characterization.

5.4 Representativeness

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

5.5 Comparability

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

5.6 Completeness

All samples collected and subsequently analyzed and reported by SVL 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 method 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 (ADEQ). 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.

ADEQ. 2010. Correspondence from Cynthia Campbell, ADEQ, to Rebecca Sawyer, CQB, Re: Request to Modify Groundwater Monitoring Program, Mitigation Order on Consent No. P-127-07, Your Letter dated January 25, 2010. April 22, 2010.

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 B

ANALYTICAL REPORTS

One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
AWC-02	W1G0308-01	Ground Water	13-Jul-11 09:28	BD	14-Jul-2011
AWC-03	W1G0308-02	Ground Water	13-Jul-11 09:07	BD	14-Jul-2011
AWC-04	W1G0308-03	Ground Water	13-Jul-11 09:38	BD	14-Jul-2011
AWC-05	W1G0308-04	Ground Water	13-Jul-11 08:54	BD	14-Jul-2011
BANKS 986	W1G0308-05	Ground Water	11-Jul-11 13:34	BD	14-Jul-2011
BMO-2010-3B	W1G0308-06	Ground Water	13-Jul-11 11:25	BD	14-Jul-2011
COOPER	W1G0308-07	Ground Water	11-Jul-11 11:08	BD	14-Jul-2011
DODSON	W1G0308-08	Ground Water	12-Jul-11 13:15	BD	14-Jul-2011
DUP20110711	W1G0308-09	Ground Water	11-Jul-11 10:30	BD	14-Jul-2011
DUP20110713	W1G0308-10	Ground Water	13-Jul-11 11:40	BD	14-Jul-2011
EAST	W1G0308-11	Ground Water	12-Jul-11 11:28	BD	14-Jul-2011
EB20110712	W1G0308-12	Ground Water	12-Jul-11 09:04	BD	14-Jul-2011
EB20110713	W1G0308-13	Ground Water	13-Jul-11 12:50	BD	14-Jul-2011
EPPELE 641	W1G0308-14	Ground Water	11-Jul-11 14:55	BD	14-Jul-2011
FB20110712	W1G0308-15	Ground Water	12-Jul-11 09:02	BD	14-Jul-2011
FB20110713	W1G0308-16	Ground Water	13-Jul-11 13:02	BD	14-Jul-2011
MCCONNELL 265	W1G0308-17	Ground Water	12-Jul-11 14:50	BD	14-Jul-2011
METZLER	W1G0308-18	Ground Water	12-Jul-11 17:00	BD	14-Jul-2011
NESS	W1G0308-19	Ground Water	12-Jul-11 09:18	BD	14-Jul-2011
NOTEMAN	W1G0308-20	Ground Water	11-Jul-11 16:53	BD	14-Jul-2011
OSBORN	W1G0308-21	Ground Water	12-Jul-11 12:03	BD	14-Jul-2011
PALMER	W1G0308-22	Ground Water	12-Jul-11 09:47	BD	14-Jul-2011
PARRA	W1G0308-23	Ground Water	12-Jul-11 15:50	BD	14-Jul-2011
RAY	W1G0308-24	Ground Water	11-Jul-11 15:43	BD	14-Jul-2011
SWAN	W1G0308-25	Ground Water	12-Jul-11 10:32	BD	14-Jul-2011

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested.
Sample preparation is defined by the client as per their Data Quality Objectives.
This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.
The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **AWC-02**
SVL Sample ID: **W1G0308-01 (Ground Water)**

Sampled: 13-Jul-11 09:28
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	12.9	mg/L	0.30	0.07		W129318	FEH	07/27/11 15:37	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **AWC-03**
SVL Sample ID: **W1G0308-02 (Ground Water)**

Sampled: 13-Jul-11 09:07
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	47.6	mg/L	0.30	0.07		W129318	FEH	07/27/11 16:30	

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **AWC-04**
SVL Sample ID: **W1G0308-03 (Ground Water)**

Sampled: 13-Jul-11 09:38
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	25.7	mg/L	0.30	0.07		W129318	FEH	07/27/11 16:40	

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **AWC-05**
SVL Sample ID: **W1G0308-04 (Ground Water)**

Sampled: 13-Jul-11 08:54
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	17.9	mg/L	0.30	0.07		W129318	FEH	07/27/11 16:50	

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **BANKS 986**
SVL Sample ID: **W1G0308-05 (Ground Water)**

Sampled: 11-Jul-11 13:34
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	68.8	mg/L	1.50	0.37	5	W129318	FEH	07/27/11 17:01	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **BMO-2010-3B**
SVL Sample ID: **W1G0308-06 (Ground Water)**

Sampled: 13-Jul-11 11:25
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	13.8	mg/L	0.30	0.07		W129318	FEH	07/27/11 17:11	

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **COOPER**
SVL Sample ID: **W1G0308-07 (Ground Water)**

Sampled: 11-Jul-11 11:08
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	32.1	mg/L	0.30	0.07		W129318	FEH	07/27/11 17:22	

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **DODSON**
SVL Sample ID: **W1G0308-08 (Ground Water)**

Sampled: 12-Jul-11 13:15
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	52.9	mg/L	1.50	0.37	5	W129318	FEH	07/27/11 17:32	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **DUP20110711**
SVL Sample ID: **W1G0308-09 (Ground Water)**

Sampled: 11-Jul-11 10:30
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	18.3	mg/L	0.30	0.07		W129318	FEH	07/27/11 17:42	

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **DUP20110713**
SVL Sample ID: **W1G0308-10 (Ground Water)**

Sampled: 13-Jul-11 11:40
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	46.2	mg/L	1.50	0.37	5	W129318	FEH	07/27/11 17:53	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **EAST**
SVL Sample ID: **W1G0308-11 (Ground Water)**

Sampled: 12-Jul-11 11:28
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	12.7	mg/L	0.30	0.07		W129318	FEH	07/27/11 18:24	

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **EB20110712**
SVL Sample ID: **W1G0308-12 (Ground Water)**

Sampled: 12-Jul-11 09:04
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W129318	FEH	07/26/11 01:32	

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **EB20110713**
SVL Sample ID: **W1G0308-13 (Ground Water)**

Sampled: 13-Jul-11 12:50
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W129318	FEH	07/26/11 01:42	

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **EPPELE 641**
SVL Sample ID: **W1G0308-14 (Ground Water)**

Sampled: 11-Jul-11 14:55
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	18.6	mg/L	0.30	0.07		W129318	FEH	07/26/11 01:53	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **FB20110712**
SVL Sample ID: **W1G0308-15 (Ground Water)**

Sampled: 12-Jul-11 09:02
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W129318	FEH	07/26/11 02:03	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **FB20110713**
SVL Sample ID: **W1G0308-16 (Ground Water)**

Sampled: 13-Jul-11 13:02
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W129318	FEH	07/26/11 21:40	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **MCCONNELL 265**
SVL Sample ID: **W1G0308-17 (Ground Water)**

Sampled: 12-Jul-11 14:50
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	790	mg/L	7.50	1.85	25	W129318	FEH	07/26/11 21:50	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **METZLER**
SVL Sample ID: **W1G0308-18 (Ground Water)**

Sampled: 12-Jul-11 17:00
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	312	mg/L	3.00	0.74	10	W129318	FEH	07/26/11 22:01	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **NESS**
SVL Sample ID: **W1G0308-19 (Ground Water)**

Sampled: 12-Jul-11 09:18
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	43.5	mg/L	1.50	0.37	5	W129318	FEH	07/26/11 22:11	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **NOTEMAN**
SVL Sample ID: **W1G0308-20 (Ground Water)**

Sampled: 11-Jul-11 16:53
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	272	mg/L	3.00	0.74	10	W129318	FEH	07/26/11 22:22	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **OSBORN**
SVL Sample ID: **W1G0308-21 (Ground Water)**

Sampled: 12-Jul-11 12:03
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	19.5	mg/L	0.30	0.07		W129319	TBB/F	07/26/11 16:53	

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **PALMER**
SVL Sample ID: **W1G0308-22 (Ground Water)**

Sampled: 12-Jul-11 09:47
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	16.4	mg/L	0.30	0.07		W129319	TBB/F	07/26/11 17:04	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **PARRA**
SVL Sample ID: **W1G0308-23 (Ground Water)**

Sampled: 12-Jul-11 15:50
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	404	mg/L	3.00	0.74	10	W129319	TBB/F	07/26/11 17:35	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **RAY**
SVL Sample ID: **W1G0308-24 (Ground Water)**

Sampled: 11-Jul-11 15:43
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	126	mg/L	1.50	0.37	5	W129319	FEH	07/26/11 02:34	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Client Sample ID: **SWAN**
SVL Sample ID: **W1G0308-25 (Ground Water)**

Sampled: 12-Jul-11 10:32
Received: 14-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	19.1	mg/L	0.30	0.07		W129319	FEH	07/26/11 02:45	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

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Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0308**
Reported: 29-Jul-11 15:40

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W129318	27-Jul-11	
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W129319	26-Jul-11	

Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	9.86	10.0	98.6	90 - 110	W129319	26-Jul-11	
EPA 300.0	Sulfate as SO4	mg/L	9.73	10.0	97.3	90 - 110	W129318	27-Jul-11	

Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	12.9	12.9	0.1	20	W129318	27-Jul-11	
EPA 300.0	Sulfate as SO4	mg/L	60.7	60.5	0.3	20	W129319	26-Jul-11	D2

Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	mg/L	70.8	60.5	10.0	102	90 - 110	W129319	26-Jul-11	D2
EPA 300.0	Sulfate as SO4	mg/L	23.5	12.9	10.0	106	90 - 110	W129318	27-Jul-11	
EPA 300.0	Sulfate as SO4	mg/L	23.2	12.7	10.0	105	90 - 110	W129318	28-Jul-11	

Notes and Definitions

D2	Sample required dilution due to high concentration of target analyte.
LCS	Laboratory Control Sample (Blank Spike)
RPD	Relative Percent Difference
UDL	A result is less than the detection limit
R > 4S	% recovery not applicable, sample concentration more than four times greater than spike level
<RL	A result is less than the reporting limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
N/A	Not Applicable

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Freeport McMoRan - Bisbee
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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BMO-2008-6B	W1G0385-01	Ground Water	12-Jul-11 06:55	CS	19-Jul-2011
BMO-2008-6M	W1G0385-02	Ground Water	12-Jul-11 07:50	CS	19-Jul-2011
BMO-2008-3B	W1G0385-03	Ground Water	12-Jul-11 08:50	CS	19-Jul-2011
BMO-2008-5M	W1G0385-04	Ground Water	12-Jul-11 10:15	CS	19-Jul-2011
TM-42	W1G0385-05	Ground Water	12-Jul-11 12:45	CS	19-Jul-2011
TM-15 MILLER	W1G0385-06	Ground Water	12-Jul-11 13:45	CS	19-Jul-2011
BMO-2008-1G	W1G0385-07	Ground Water	12-Jul-11 16:20	CS	19-Jul-2011
BMO-2008-10GU	W1G0385-08	Ground Water	13-Jul-11 10:45	CS	19-Jul-2011
BMO-2008-10GL	W1G0385-09	Ground Water	13-Jul-11 15:25	CS	19-Jul-2011
BMO-2008-5B	W1G0385-10	Ground Water	13-Jul-11 17:00	CS	19-Jul-2011
TM-16	W1G0385-11	Ground Water	14-Jul-11 08:35	CS	19-Jul-2011
DUP971411	W1G0385-12	Ground Water	14-Jul-11 08:35	CS	19-Jul-2011
BMO-2010-2M	W1G0385-13	Ground Water	14-Jul-11 09:50	CS	19-Jul-2011
TM-2A	W1G0385-14	Ground Water	14-Jul-11 10:50	CS	19-Jul-2011
BF-1	W1G0385-15	Ground Water	14-Jul-11 11:32	CS	19-Jul-2011
BMO-2008-13B	W1G0385-16	Ground Water	15-Jul-11 06:55	CS	19-Jul-2011
BMO-2008-8B	W1G0385-17	Ground Water	15-Jul-11 09:05	CS	19-Jul-2011
BMO-2008-8M	W1G0385-18	Ground Water	15-Jul-11 12:10	CS	19-Jul-2011
BMO-2008-9M	W1G0385-19	Ground Water	15-Jul-11 14:20	CS	19-Jul-2011
BMO-2008-13M	W1G0385-20	Ground Water	15-Jul-11 15:30	CS	19-Jul-2011
BMO-2008-7M	W1G0385-21	Ground Water	15-Jul-11 17:05	CS	19-Jul-2011
TM-19A	W1G0385-22	Ground Water	15-Jul-11 17:55	CS	19-Jul-2011

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested.
Sample preparation is defined by the client as per their Data Quality Objectives.
This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.
The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **BMO-2008-6B**
SVL Sample ID: **W1G0385-01 (Ground Water)**

Sampled: 12-Jul-11 06:55
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	37.8	mg/L	0.30	0.07		W130221	FEH	07/29/11 19:21	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Brandan Borgias
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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **BMO-2008-6M**
SVL Sample ID: **W1G0385-02 (Ground Water)**

Sampled: 12-Jul-11 07:50
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	194	mg/L	1.50	0.37	5	W130221	FEH	07/29/11 19:52	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **BMO-2008-3B**
SVL Sample ID: **W1G0385-03 (Ground Water)**

Sampled: 12-Jul-11 08:50
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	148	mg/L	1.50	0.37	5	W130221	FEH	07/29/11 20:03	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **BMO-2008-5M**
SVL Sample ID: **W1G0385-04 (Ground Water)**

Sampled: 12-Jul-11 10:15
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	126	mg/L	1.50	0.37	5	W130221	FEH	07/29/11 20:13	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **TM-42**
SVL Sample ID: **W1G0385-05 (Ground Water)**

Sampled: 12-Jul-11 12:45
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	441	mg/L	3.00	0.74	10	W130221	FEH	07/29/11 20:24	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **TM-15 MILLER**
SVL Sample ID: **W1G0385-06 (Ground Water)**

Sampled: 12-Jul-11 13:45
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	14.2	mg/L	0.30	0.07		W130221	FEH	07/29/11 20:55	

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **BMO-2008-1G**
SVL Sample ID: **W1G0385-07 (Ground Water)**

Sampled: 12-Jul-11 16:20
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	121	mg/L	1.50	0.37	5	W130221	FEH	07/29/11 21:16	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **BMO-2008-10GU**
SVL Sample ID: **W1G0385-08 (Ground Water)**

Sampled: 13-Jul-11 10:45
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	1670	mg/L	15.0	3.70	50	W130221	FEH	07/29/11 21:26	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **BMO-2008-10GL**
SVL Sample ID: **W1G0385-09 (Ground Water)**

Sampled: 13-Jul-11 15:25
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	644	mg/L	7.50	1.85	25	W130221	FEH	07/29/11 21:37	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **BMO-2008-5B**
SVL Sample ID: **W1G0385-10 (Ground Water)**

Sampled: 13-Jul-11 17:00
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	200	mg/L	1.50	0.37	5	W130221	FEH	07/29/11 21:47	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **TM-16**
SVL Sample ID: **W1G0385-11 (Ground Water)**

Sampled: 14-Jul-11 08:35
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	511	mg/L	7.50	1.85	25	W130221	FEH	08/01/11 16:38	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **DUP971411**
SVL Sample ID: **W1G0385-12 (Ground Water)**

Sampled: 14-Jul-11 08:35
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	513	mg/L	7.50	1.85	25	W130221	FEH	08/01/11 16:49	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **BMO-2010-2M**
SVL Sample ID: **W1G0385-13 (Ground Water)**

Sampled: 14-Jul-11 09:50
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	917	mg/L	7.50	1.85	25	W130221	FEH	07/29/11 22:18	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **TM-2A**
SVL Sample ID: **W1G0385-14 (Ground Water)**

Sampled: 14-Jul-11 10:50
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	22.5	mg/L	0.30	0.07		W130221	FEH	07/29/11 22:29	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **BF-1**
SVL Sample ID: **W1G0385-15 (Ground Water)**

Sampled: 14-Jul-11 11:32
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	1350	mg/L	15.0	3.70	50	W130221	FEH	07/29/11 23:00	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **BMO-2008-13B**
SVL Sample ID: **W1G0385-16 (Ground Water)**

Sampled: 15-Jul-11 06:55
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	1010	mg/L	15.0	3.70	50	W130221	FEH	07/29/11 23:10	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **BMO-2008-8B**
SVL Sample ID: **W1G0385-17 (Ground Water)**

Sampled: 15-Jul-11 09:05
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	1380	mg/L	15.0	3.70	50	W130221	FEH	07/29/11 23:21	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **BMO-2008-8M**
SVL Sample ID: **W1G0385-18 (Ground Water)**

Sampled: 15-Jul-11 12:10
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	79.9	mg/L	1.50	0.37	5	W130221	FEH	07/29/11 23:31	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Brandan Borgias
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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **BMO-2008-9M**
SVL Sample ID: **W1G0385-19 (Ground Water)**

Sampled: 15-Jul-11 14:20
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	67.0	mg/L	1.50	0.37	5	W130221	FEH	08/01/11 16:59	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Brandan Borgias
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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **BMO-2008-13M**
SVL Sample ID: **W1G0385-20 (Ground Water)**

Sampled: 15-Jul-11 15:30
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	388	mg/L	3.00	0.74	10	W130221	FEH	07/29/11 23:52	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Brandan Borgias
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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **BMO-2008-7M**
SVL Sample ID: **W1G0385-21 (Ground Water)**

Sampled: 15-Jul-11 17:05
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	26.5	mg/L	0.30	0.07		W130223	FEH	07/29/11 22:40	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Client Sample ID: **TM-19A**
SVL Sample ID: **W1G0385-22 (Ground Water)**

Sampled: 15-Jul-11 17:55
Received: 19-Jul-11
Sampled By: CS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	62.1	mg/L	1.50	0.37	5	W130223	FEH	07/29/11 22:51	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0385**
Reported: 04-Aug-11 10:17

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W130221	29-Jul-11	
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W130223	29-Jul-11	

Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	9.80	10.0	98.0	90 - 110	W130221	29-Jul-11	
EPA 300.0	Sulfate as SO4	mg/L	9.94	10.0	99.4	90 - 110	W130223	29-Jul-11	

Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	37.8	37.8	0.0	20	W130221	29-Jul-11	
EPA 300.0	Sulfate as SO4	mg/L	41.8	42.9	2.6	20	W130223	01-Aug-11	D2

Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	mg/L	51.3	42.9	10.0	R > 4S	90 - 110	W130223	01-Aug-11	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	48.3	37.8	10.0	105	90 - 110	W130221	29-Jul-11	

Notes and Definitions

D2	Sample required dilution due to high concentration of target analyte.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The LCS was acceptable.
LCS	Laboratory Control Sample (Blank Spike)
RPD	Relative Percent Difference
UDL	A result is less than the detection limit
R > 4S	% recovery not applicable, sample concentration more than four times greater than spike level
<RL	A result is less than the reporting limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
N/A	Not Applicable

SVL holds the following certifications:
AZ:0538, **CA**:2080, **FL**(**NELAC**):E87993, **ID**:ID00019 & ID00965 (Microbiology), **NV**:ID000192007A, **WA**:1268

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
ANDERSON	W1G0441-01	Ground Water	14-Jul-11 14:42	BD	20-Jul-2011
COB MW-1	W1G0441-02	Ground Water	14-Jul-11 13:35	BD	20-Jul-2011
COB MW-2	W1G0441-03	Ground Water	14-Jul-11 09:27	BD	20-Jul-2011
COB MW-3	W1G0441-04	Ground Water	14-Jul-11 10:17	BD	20-Jul-2011
COB WL	W1G0441-05	Ground Water	14-Jul-11 08:47	BD	20-Jul-2011
CHAMBERS	W1G0441-06	Ground Water	18-Jul-11 11:28	BD	20-Jul-2011
DURAZO	W1G0441-07	Ground Water	14-Jul-11 15:48	BD	20-Jul-2011
GARNER 635	W1G0441-08	Ground Water	15-Jul-11 13:05	BD	20-Jul-2011
KEEFER	W1G0441-09	Ground Water	18-Jul-11 12:18	BD	20-Jul-2011
MOORE	W1G0441-10	Ground Water	13-Jul-11 14:24	BD	20-Jul-2011
NWC-02	W1G0441-11	Ground Water	15-Jul-11 09:17	BD	20-Jul-2011
NWC-03	W1G0441-12	Ground Water	15-Jul-11 08:32	BD	20-Jul-2011
NWC-04	W1G0441-13	Ground Water	15-Jul-11 08:06	BD	20-Jul-2011
NWC-06	W1G0441-14	Ground Water	15-Jul-11 08:57	BD	20-Jul-2011
PANAGAKOS	W1G0441-15	Ground Water	14-Jul-11 14:23	BD	20-Jul-2011
PIONKE	W1G0441-16	Ground Water	12-Jul-11 18:10	BD	20-Jul-2011
RAMIREZ	W1G0441-17	Ground Water	18-Jul-11 11:08	BD	20-Jul-2011
ROGERS 803	W1G0441-18	Ground Water	14-Jul-11 15:14	BD	20-Jul-2011
ROGERS E	W1G0441-19	Ground Water	18-Jul-11 10:05	BD	20-Jul-2011
SCHWARTZ	W1G0441-20	Ground Water	18-Jul-11 13:55	BD	20-Jul-2011
TVI 236	W1G0441-21	Ground Water	15-Jul-11 10:48	BD	20-Jul-2011
TVI 875	W1G0441-22	Ground Water	15-Jul-11 10:13	BD	20-Jul-2011
WEED	W1G0441-23	Ground Water	18-Jul-11 14:50	BD	20-Jul-2011
ZANDER	W1G0441-24	Ground Water	13-Jul-11 15:44	BD	20-Jul-2011

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested.
Sample preparation is defined by the client as per their Data Quality Objectives.
This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.
The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.

Case Narrative

08/08/2011 BAB: The value for sample W1G0441-15 (PANAGAKOS) was markedly lower than in the past. The dilutions were confirmed and a reanalysis check confirmed the result of ~220 mg/L.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **ANDERSON**
SVL Sample ID: **W1G0441-01 (Ground Water)**

Sampled: 14-Jul-11 14:42
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	678	mg/L	7.50	1.85	25	W130222	FEH	08/02/11 11:25	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Laboratory Director

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **COB MW-1**
SVL Sample ID: **W1G0441-02 (Ground Water)**

Sampled: 14-Jul-11 13:35
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	927	mg/L	7.50	1.85	25	W130222	FEH	08/01/11 19:55	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **COB MW-2**
SVL Sample ID: **W1G0441-03 (Ground Water)**

Sampled: 14-Jul-11 09:27
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	29.8	mg/L	0.30	0.07		W130222	FEH	08/01/11 20:26	

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **COB MW-3**
SVL Sample ID: **W1G0441-04 (Ground Water)**

Sampled: 14-Jul-11 10:17
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	40.1	mg/L	0.30	0.07		W130222	FEH	08/01/11 20:37	

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **COB WL**
SVL Sample ID: **W1G0441-05 (Ground Water)**

Sampled: 14-Jul-11 08:47
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	87.3	mg/L	1.50	0.37	5	W130222	FEH	08/02/11 11:36	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **CHAMBERS**
SVL Sample ID: **W1G0441-06 (Ground Water)**

Sampled: 18-Jul-11 11:28
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	8.18	mg/L	0.30	0.07		W130222	FEH	08/01/11 20:58	

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **DURAZO**
SVL Sample ID: **W1G0441-07 (Ground Water)**

Sampled: 14-Jul-11 15:48
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	409	mg/L	3.00	0.74	10	W130222	FEH	08/01/11 21:29	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **GARNER 635**
SVL Sample ID: **W1G0441-08 (Ground Water)**

Sampled: 15-Jul-11 13:05
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	37.7	mg/L	0.30	0.07		W130222	FEH	08/01/11 21:39	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **KEEFER**
SVL Sample ID: **W1G0441-09 (Ground Water)**

Sampled: 18-Jul-11 12:18
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	7.79	mg/L	0.30	0.07		W130222	FEH	08/01/11 22:00	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **MOORE**
SVL Sample ID: **W1G0441-10 (Ground Water)**

Sampled: 13-Jul-11 14:24
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	7.62	mg/L	0.30	0.07		W130222	FEH	08/01/11 22:31	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **NWC-02**
SVL Sample ID: **W1G0441-11 (Ground Water)**

Sampled: 15-Jul-11 09:17
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	7.24	mg/L	0.30	0.07		W130222	FEH	08/01/11 22:42	

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **NWC-03**
SVL Sample ID: **W1G0441-12 (Ground Water)**

Sampled: 15-Jul-11 08:32
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	386	mg/L	3.00	0.74	10	W130222	FEH	08/01/11 22:52	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **NWC-04**
SVL Sample ID: **W1G0441-13 (Ground Water)**

Sampled: 15-Jul-11 08:06
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	202	mg/L	1.50	0.37	5	W130222	FEH	08/01/11 23:03	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **NWC-06**
SVL Sample ID: **W1G0441-14 (Ground Water)**

Sampled: 15-Jul-11 08:57
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	8.36	mg/L	0.30	0.07		W130222	FEH	08/01/11 23:13	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **PANAGAKOS**
SVL Sample ID: **W1G0441-15 (Ground Water)**

Sampled: 14-Jul-11 14:23
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	223	mg/L	1.50	0.37	5	W130222	FEH	08/01/11 23:24	D2

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **PIONKE**
SVL Sample ID: **W1G0441-16 (Ground Water)**

Sampled: 12-Jul-11 18:10
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	500	mg/L	7.50	1.85	25	W130222	FEH	08/02/11 11:46	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **RAMIREZ**
SVL Sample ID: **W1G0441-17 (Ground Water)**

Sampled: 18-Jul-11 11:08
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	8.44	mg/L	0.30	0.07		W130222	FEH	08/01/11 23:44	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **ROGERS 803**
SVL Sample ID: **W1G0441-18 (Ground Water)**

Sampled: 14-Jul-11 15:14
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	166	mg/L	1.50	0.37	5	W130222	FEH	08/01/11 23:55	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **ROGERS E**
SVL Sample ID: **W1G0441-19 (Ground Water)**

Sampled: 18-Jul-11 10:05
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	6.00	mg/L	0.30	0.07		W130222	FEH	08/02/11 11:56	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **SCHWARTZ**
SVL Sample ID: **W1G0441-20 (Ground Water)**

Sampled: 18-Jul-11 13:55
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	116	mg/L	1.50	0.37	5	W130222	FEH	08/02/11 12:07	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Nan Wilson
Laboratory Director

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Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **TVI 236**
SVL Sample ID: **W1G0441-21 (Ground Water)**

Sampled: 15-Jul-11 10:48
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	42.9	mg/L	1.50	0.37	5	W130223	FEH	08/01/11 14:11	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **TVI 875**
SVL Sample ID: **W1G0441-22 (Ground Water)**

Sampled: 15-Jul-11 10:13
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	239	mg/L	3.00	0.74	10	W130223	FEH	07/29/11 23:33	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Nan Wilson
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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **WEED**
SVL Sample ID: **W1G0441-23 (Ground Water)**

Sampled: 18-Jul-11 14:50
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	12.7	mg/L	0.30	0.07		W130223	FEH	07/29/11 23:43	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Client Sample ID: **ZANDER**
SVL Sample ID: **W1G0441-24 (Ground Water)**

Sampled: 13-Jul-11 15:44
Received: 20-Jul-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	6.43	mg/L	0.30	0.07		W130223	FEH	07/29/11 23:53	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W130222	01-Aug-11	
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W130223	29-Jul-11	

Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	10.2	10.0	102	90 - 110	W130222	01-Aug-11	
EPA 300.0	Sulfate as SO4	mg/L	9.94	10.0	99.4	90 - 110	W130223	29-Jul-11	

Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	41.8	42.9	2.6	20	W130223	01-Aug-11	D2
EPA 300.0	Sulfate as SO4	mg/L	8.17	8.18	0.1	20	W130222	01-Aug-11	

Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	mg/L	51.3	42.9	10.0	R > 4S	90 - 110	W130223	01-Aug-11	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	18.8	8.18	10.0	106	90 - 110	W130222	01-Aug-11	
EPA 300.0	Sulfate as SO4	mg/L	48.8	37.7	10.0	111	90 - 110	W130222	01-Aug-11	M1

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Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0441**
Reported: 08-Aug-11 13:51

Notes and Definitions

D2	Sample required dilution due to high concentration of target analyte.
M1	Matrix spike recovery was high, but the LCS recovery was acceptable.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The LCS was acceptable.
LCS	Laboratory Control Sample (Blank Spike)
RPD	Relative Percent Difference
UDL	A result is less than the detection limit
R > 4S	% recovery not applicable, sample concentration more than four times greater than spike level
<RL	A result is less than the reporting limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
N/A	Not Applicable

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Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0604**
Reported: 11-Aug-11 09:43

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
WMD-2011-3M	W1G0604-01	Ground Water	20-Jul-11 12:45	CLS	27-Jul-2011
TM-6	W1G0604-02	Ground Water	21-Jul-11 09:20	CLS	27-Jul-2011
FB072111	W1G0604-03	Water	21-Jul-11 09:25	CLS	27-Jul-2011
TM-7	W1G0604-04	Ground Water	21-Jul-11 10:38	CLS	27-Jul-2011
EQB-P-072211	W1G0604-05	Water	22-Jul-11 07:15	CLS	27-Jul-2011
EQB-072211	W1G0604-06	Water	22-Jul-11 07:17	CLS	27-Jul-2011
BMO-2008-11G	W1G0604-07	Ground Water	22-Jul-11 07:30	CLS	27-Jul-2011
DUP 072211	W1G0604-08	Ground Water	22-Jul-11 07:30	CLS	27-Jul-2011
BMO-2008-4B	W1G0604-09	Ground Water	22-Jul-11 14:30	CLS	27-Jul-2011

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested.
Sample preparation is defined by the client as per their Data Quality Objectives.
This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.
The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.

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Freeport McMoRan - Bisbee
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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0604**
Reported: 11-Aug-11 09:43

Client Sample ID: **WMD-2011-3M**
SVL Sample ID: **W1G0604-01 (Ground Water)**

Sampled: 20-Jul-11 12:45
Received: 27-Jul-11
Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	363	mg/L	3.00	0.74	10	W132087	FEH	08/04/11 18:56	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
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Freeport McMoRan - Bisbee
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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0604**
Reported: 11-Aug-11 09:43

Client Sample ID: **TM-6**
SVL Sample ID: **W1G0604-02 (Ground Water)**

Sampled: 21-Jul-11 09:20
Received: 27-Jul-11
Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	31.7	mg/L	0.30	0.07		W132087	FEH	08/04/11 19:05	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0604**
Reported: 11-Aug-11 09:43

Client Sample ID: **FB072111**
SVL Sample ID: **W1G0604-03 (Water)**

Sampled: 21-Jul-11 09:25
Received: 27-Jul-11
Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W132077	FEH	08/04/11 19:32	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0604**
Reported: 11-Aug-11 09:43

Client Sample ID: **TM-7**
SVL Sample ID: **W1G0604-04 (Ground Water)**

Sampled: 21-Jul-11 10:38
Received: 27-Jul-11
Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	41.7	mg/L	1.50	0.37	5	W132087	FEH	08/04/11 19:41	D1

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0604**
Reported: 11-Aug-11 09:43

Client Sample ID: **EQB-P-072211**
SVL Sample ID: **W1G0604-05 (Water)**

Sampled: 22-Jul-11 07:15
Received: 27-Jul-11
Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W132077	FEH	08/04/11 19:50	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0604**
Reported: 11-Aug-11 09:43

Client Sample ID: **EQB-072211**
SVL Sample ID: **W1G0604-06 (Water)**

Sampled: 22-Jul-11 07:17
Received: 27-Jul-11
Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W132077	FEH	08/04/11 19:59	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0604**
Reported: 11-Aug-11 09:43

Client Sample ID: **BMO-2008-11G**
SVL Sample ID: **W1G0604-07 (Ground Water)**

Sampled: 22-Jul-11 07:30
Received: 27-Jul-11
Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	12.1	mg/L	0.30	0.07		W132087	FEH	08/04/11 20:08	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0604**
Reported: 11-Aug-11 09:43

Client Sample ID: **DUP 072211**
SVL Sample ID: **W1G0604-08 (Ground Water)**

Sampled: 22-Jul-11 07:30
Received: 27-Jul-11
Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	12.0	mg/L	0.30	0.07		W132087	FEH	08/04/11 20:17	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0604**
Reported: 11-Aug-11 09:43

Client Sample ID: **BMO-2008-4B**
SVL Sample ID: **W1G0604-09 (Ground Water)**

Sampled: 22-Jul-11 14:30
Received: 27-Jul-11
Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	10.2	mg/L	0.30	0.07		W132087	FEH	08/04/11 20:26	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0604**
Reported: 11-Aug-11 09:43

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W132077	05-Aug-11	
Dissolved Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W132087	04-Aug-11	

Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	9.61	10.0	96.1	90 - 110	W132077	05-Aug-11	
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	10.0	10.0	100	90 - 110	W132087	04-Aug-11	

Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	59.0	59.5	0.9	20	W132077	05-Aug-11	D2
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	<0.30	<0.30	<RL	20	W132087	04-Aug-11	

Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	mg/L	74.2	59.5	10.0	R > 4S	90 - 110	W132077	05-Aug-11	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	89.2	70.5	10.0	R > 4S	90 - 110	W132077	05-Aug-11	D2,M3
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	mg/L	10.9	<0.30	10.0	108	90 - 110	W132087	04-Aug-11	
EPA 300.0	Sulfate as SO4	mg/L	10.9	<0.30	10.0	108	90 - 110	W132087	04-Aug-11	

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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1G0604**
Reported: 11-Aug-11 09:43

Notes and Definitions

D1	Sample required dilution due to matrix.
D2	Sample required dilution due to high concentration of target analyte.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The LCS was acceptable.
LCS	Laboratory Control Sample (Blank Spike)
RPD	Relative Percent Difference
UDL	A result is less than the detection limit
R > 4S	% recovery not applicable, sample concentration more than four times greater than spike level
<RL	A result is less than the reporting limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
N/A	Not Applicable

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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1H0745**
Reported: 12-Sep-11 13:02

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BMO-2010-3M	W1H0745-01	Ground Water	25-Aug-11 11:05	BJD	30-Aug-2011
NWC-04	W1H0745-02	Ground Water	25-Aug-11 12:15	BJD	30-Aug-2011
BIMA	W1H0745-03	Ground Water	25-Aug-11 13:25	BJD	30-Aug-2011
FULTZ	W1H0745-04	Ground Water	25-Aug-11 16:35	BJD	30-Aug-2011
PANAGAKOS	W1H0745-05	Ground Water	25-Aug-11 17:25	BJD	30-Aug-2011
COOPER C	W1H0745-06	Ground Water	26-Aug-11 07:55	BJD	30-Aug-2011
HOWARD	W1H0745-07	Ground Water	26-Aug-11 08:35	BJD	30-Aug-2011
MARCELL	W1H0745-08	Ground Water	26-Aug-11 09:25	BJD	30-Aug-2011
WEISKOPF	W1H0745-09	Ground Water	26-Aug-11 10:10	BJD	30-Aug-2011
RUIZ	W1H0745-10	Ground Water	26-Aug-11 10:38	BJD	30-Aug-2011

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested. Non-Detects are reported at the MDL.
Sample preparation is defined by the client as per their Data Quality Objectives.
This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.
The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.

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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1H0745**
Reported: 12-Sep-11 13:02

Client Sample ID: **BMO-2010-3M**
SVL Sample ID: **W1H0745-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 25-Aug-11 11:05
Received: 30-Aug-11
Sampled By: BJD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	10.4	mg/L	0.30	0.07		W136170	DT	09/08/11 11:10	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
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Freeport McMoRan - Copper Queen Branch
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Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1H0745**
Reported: 12-Sep-11 13:02

Client Sample ID: **NWC-04**
SVL Sample ID: **W1H0745-02 (Ground Water)**

Sampled: 25-Aug-11 12:15
Received: 30-Aug-11
Sampled By: BJD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	195	mg/L	1.50	0.37	5	W136170	DT	09/07/11 16:38	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1H0745**
Reported: 12-Sep-11 13:02

Client Sample ID: **BIMA**
SVL Sample ID: **W1H0745-03 (Ground Water)**

Sampled: 25-Aug-11 13:25
Received: 30-Aug-11
Sampled By: BJD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	300	mg/L	3.00	0.74	10	W136170	DT	09/08/11 11:39	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1H0745**
Reported: 12-Sep-11 13:02

Client Sample ID: **FULTZ**
SVL Sample ID: **W1H0745-04 (Ground Water)**

Sampled: 25-Aug-11 16:35
Received: 30-Aug-11
Sampled By: BJD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	50.6	mg/L	1.50	0.37	5	W136170	DT	09/07/11 16:57	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1H0745**
Reported: 12-Sep-11 13:02

Client Sample ID: **PANAGAKOS**
SVL Sample ID: **W1H0745-05 (Ground Water)**

Sampled: 25-Aug-11 17:25
Received: 30-Aug-11
Sampled By: BJD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	222	mg/L	1.50	0.37	5	W136170	DT	09/07/11 17:07	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1H0745**
Reported: 12-Sep-11 13:02

Client Sample ID: **COOPER C**
SVL Sample ID: **W1H0745-06 (Ground Water)**

Sampled: 26-Aug-11 07:55
Received: 30-Aug-11
Sampled By: BJD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	847	mg/L	15.0	3.70	50	W136170	DT	09/08/11 11:49	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1H0745**
Reported: 12-Sep-11 13:02

Client Sample ID: **HOWARD**
SVL Sample ID: **W1H0745-07 (Ground Water)**

Sampled: 26-Aug-11 08:35
Received: 30-Aug-11
Sampled By: BJD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	498	mg/L	15.0	3.70	50	W136170	DT	09/08/11 11:59	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1H0745**
Reported: 12-Sep-11 13:02

Client Sample ID: **MARCELL**
SVL Sample ID: **W1H0745-08 (Ground Water)**

Sampled: 26-Aug-11 09:25
Received: 30-Aug-11
Sampled By: BJD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	669	mg/L	15.0	3.70	50	W136170	DT	09/08/11 12:09	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1H0745**
Reported: 12-Sep-11 13:02

Client Sample ID: **WEISKOPF**
SVL Sample ID: **W1H0745-09 (Ground Water)**

Sampled: 26-Aug-11 10:10
Received: 30-Aug-11
Sampled By: BJD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	549	mg/L	15.0	3.70	50	W136170	DT	09/08/11 12:19	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1H0745**
Reported: 12-Sep-11 13:02

Client Sample ID: **RUIZ**
SVL Sample ID: **W1H0745-10 (Ground Water)**

Sampled: 26-Aug-11 10:38
Received: 30-Aug-11
Sampled By: BJD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	220	mg/L	1.50	0.37	5	W136170	DT	09/07/11 18:17	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1H0745**
Reported: 12-Sep-11 13:02

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W136170	07-Sep-11	

Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	9.70	10.0	97.0	90 - 110	W136170	07-Sep-11	

Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	10.4	10.4	0.4	20	W136170	08-Sep-11	

Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	mg/L	20.9	10.4	10.0	104	90 - 110	W136170	08-Sep-11	

Notes and Definitions

D2	Sample required dilution due to high concentration of target analyte.
LCS	Laboratory Control Sample (Blank Spike)
RPD	Relative Percent Difference
UDL	A result is less than the detection limit
R > 4S	% recovery not applicable, sample concentration more than four times greater than spike level
<RL	A result is less than the reporting limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
N/A	Not Applicable

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Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1I0168**
Reported: 23-Sep-11 14:44

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BMO-2010-1M	W1I0168-01	Ground Water	31-Aug-11 09:40	CLS	08-Sep-2011
1385 PURDY LANE	W1I0168-02	Ground Water	31-Aug-11 11:30	CLS	08-Sep-2011

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested. Non-Detects are reported at the MDL.
Sample preparation is defined by the client as per their Data Quality Objectives.
This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.
The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.

Case Narrative

09/23/2011mab: Report reissued. Client requested reanalysis for SO4 on sample -02.
Reanalyzed in duplicate;original result confirmed. Orginal and reanalysis results reported.

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Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1I0168**
Reported: 23-Sep-11 14:44

Client Sample ID: **BMO-2010-1M**
SVL Sample ID: **W1I0168-01 (Ground Water)**

Sampled: 31-Aug-11 09:40
Received: 08-Sep-11
Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	154	mg/L	1.50	0.37	5	W139097	DT	09/20/11 18:02	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

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Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1I0168**
Reported: 23-Sep-11 14:44

Client Sample ID: **1385 PURDY LANE**
SVL Sample ID: **W1I0168-02 (Ground Water)**

Sampled: 31-Aug-11 11:30
Received: 08-Sep-11
Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	893	mg/L	15.0	3.70	50	W139097	DT	09/21/11 14:33	D2
EPA 300.0	**Sulfate as SO4**	824	mg/L	15.0	3.70	50	W139097	DT	09/22/11 23:24	D2,N4
EPA 300.0	**Sulfate as SO4**	803	mg/L	15.0	3.70	50	W139097	DT	09/22/11 23:34	D2,N4

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Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1I0168**
Reported: 23-Sep-11 14:44

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W139097	20-Sep-11	

Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	10.8	10.0	108	90 - 110	W139097	20-Sep-11	

Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	8.59	8.48	1.2	20	W139097	20-Sep-11	

Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	mg/L	19.9	8.48	10.0	114	90 - 110	W139097	20-Sep-11	M1
EPA 300.0	Sulfate as SO4	mg/L	16.4	5.34	10.0	111	90 - 110	W139097	20-Sep-11	M1

Notes and Definitions

D2	Sample required dilution due to high concentration of target analyte.
M1	Matrix spike recovery was high, but the LCS recovery was acceptable.
N4	After re-analysis original results are confirmed.
LCS	Laboratory Control Sample (Blank Spike)
RPD	Relative Percent Difference
UDL	A result is less than the detection limit
R > 4S	% recovery not applicable, sample concentration more than four times greater than spike level
<RL	A result is less than the reporting limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
N/A	Not Applicable

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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1I0650**
Reported: 29-Sep-11 10:29

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
FB20110926	W1I0650-01	Ground Water	26-Sep-11 10:42	BD	27-Sep-2011
EB 20110926 A	W1I0650-02	Ground Water	26-Sep-11 10:45	BD	27-Sep-2011
EB20110926 B	W1I0650-03	Ground Water	26-Sep-11 10:47	BD	27-Sep-2011
NWC-04	W1I0650-04	Ground Water	26-Sep-11 11:05	BD	27-Sep-2011
MARCELL	W1I0650-05	Ground Water	26-Sep-11 12:10	BD	27-Sep-2011
DUP20110926	W1I0650-06	Ground Water	26-Sep-11 13:00	BD	27-Sep-2011

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested. Non-Detects are reported at the MDL.
Sample preparation is defined by the client as per their Data Quality Objectives.
This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.
The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.

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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1I0650**
Reported: 29-Sep-11 10:29

Client Sample ID: **FB20110926**
SVL Sample ID: **W1I0650-01 (Ground Water)**

Sampled: 26-Sep-11 10:42
Received: 27-Sep-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W140099	DT	09/28/11 13:55	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1I0650**
Reported: 29-Sep-11 10:29

Client Sample ID: **EB 20110926 A**
SVL Sample ID: **W1I0650-02 (Ground Water)**

Sampled: 26-Sep-11 10:45
Received: 27-Sep-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W140098	DT	09/27/11 12:14	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1I0650**
Reported: 29-Sep-11 10:29

Client Sample ID: **EB20110926 B**
SVL Sample ID: **W1I0650-03 (Ground Water)**

Sampled: 26-Sep-11 10:47
Received: 27-Sep-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W140099	DT	09/28/11 14:23	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1I0650**
Reported: 29-Sep-11 10:29

Client Sample ID: **NWC-04**
SVL Sample ID: **W1I0650-04 (Ground Water)**

Sampled: 26-Sep-11 11:05
Received: 27-Sep-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	198	mg/L	3.00	0.74	10	W140098	DT	09/27/11 13:39	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1I0650**
Reported: 29-Sep-11 10:29

Client Sample ID: **MARCELL**
SVL Sample ID: **W1I0650-05 (Ground Water)**

Sampled: 26-Sep-11 12:10
Received: 27-Sep-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	638	mg/L	15.0	3.70	50	W140098	DT	09/27/11 13:57	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1I0650**
Reported: 29-Sep-11 10:29

Client Sample ID: **DUP20110926**
SVL Sample ID: **W1I0650-06 (Ground Water)**

Sampled: 26-Sep-11 13:00
Received: 27-Sep-11
Sampled By: BD

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	**Sulfate as SO4**	199	mg/L	3.00	0.74	10	W140098	DT	09/27/11 14:16	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1I0650**
Reported: 29-Sep-11 10:29

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W140099	28-Sep-11	
Dissolved Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W140098	27-Sep-11	

Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	9.76	10.0	97.6	90 - 110	W140099	28-Sep-11	
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	9.69	10.0	96.9	90 - 110	W140098	27-Sep-11	

Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	<0.30	<0.30	UDL	20	W140099	28-Sep-11	
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	<0.30	<0.30	UDL	20	W140098	27-Sep-11	

Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	mg/L	10.4	<0.30	10.0	104	90 - 110	W140099	28-Sep-11	
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	mg/L	10.1	<0.30	10.0	101	90 - 110	W140098	27-Sep-11	

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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W1I0650**
Reported: 29-Sep-11 10:29

Notes and Definitions

D2	Sample required dilution due to high concentration of target analyte.
LCS	Laboratory Control Sample (Blank Spike)
RPD	Relative Percent Difference
UDL	A result is less than the detection limit
R > 4S	% recovery not applicable, sample concentration more than four times greater than spike level
<RL	A result is less than the reporting limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
N/A	Not Applicable

APPENDIX C

GROUNDWATER SAMPLING FORMS

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-14-11

Well ID: ANDERSON Weather: SUNNY 90's

ADWR No: Sampler: BJD

WELL DATA

		Casing Capacity	
Well Depth (ft bls):		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):		2	0.16
Static Water Level (ft bmp):	149.92	4	0.65
Casing Volume (gal):	x3 =	5	1.02
Total Volume Purged (gal):		6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
14:40				7.23	24.4	1451	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
ANDERSON	14:42	Poly	250mL	1	300.0	N	y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [ ] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [x] Other: No Purge Sample From Tank

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-13-11

Well ID: AWC-02 Weather: Clear 70's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp):

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
				5.93	23.9	431.5	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
AWC-02	9:28	Poly	250mL	1	300.0	ϕ	y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☒ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☒ Other: Well has been pumping. No purge

Additional Comments: Collect sample for AWC

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-13-11

Well ID: AWC-03 Weather: Clear 70's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp):

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
				6.33	23.1	458.8	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
AWC-03	9:07	Poly	250mL	1	300.0	Ø	Y
DUP20110713	11:40	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☒ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☒ Other: Well has been pumping.

Additional Comments: Collect sample for AWC.

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-13-11

Well ID: AWC-09 Weather: Clear 70's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp):

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
9:35				6.08	20.4	610.1	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
AWC-09	9:38	Poly	250 ml	1	300.0	Ø	Y/N

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☒ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☒ Other: Well has been pumping. No purge.

Additional Comments: Collect split sample for AWC.

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-13-11

Well ID: AWC-05 Weather: Clear 70's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp):

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On			6.52			
				6.42	22.9	419.8	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
AWC-05	8:54	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☒ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other: Well has been running. No purge.

Additional Comments: collect split for ADEC

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 7-11-11

Well ID: BANKS 986 | Weather: cloudy, 80's

ADWR No: | Sampler: BJD

WELL DATA

		Casing Capacity	
Well Depth (ft bls):	435'	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	6"	2	0.16
Static Water Level (ft bmp):		4	0.65
Casing Volume (gal):	x3 = ~~400~~ 870	5	1.02
Total Volume Purged (gal):	884	6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
11:50	Pump On						
12:10	20	8.5	170	7.37	24.2	884.3	
12:30	40	8.5	340	7.57	24.0	849.1	
12:50	60	8.5	510	7.67	24.4	884.9	
13:00	70	8.5	595	7.56	24.2	866.3	
13:10	80	8.5	680	7.66	24.3	885.0	
13:30	100	8.5	850	7.72	25.4	890.0	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BANKS 986	13:39	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☒ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☒ Purged well until field parameters stabilized.
- ☒ Other: Purged 3 well volumes based on SWL @ 987

Additional Comments: 237.39 = SWL at BANKS 987

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7/11/11

Well ID: BANKS 987 Weather:

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp): 237.39

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
							k

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [ ] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments: WLO

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: | Date: 7-13-11

Well ID: BF-1 | Weather: Sunny 70

ADWR No: | Sampler: Christopher L Sherman

WELL DATA

Well Depth (ft bls):	400
Casing Diameter (in):	4
Static Water Level (ft bmp):	348.67
Casing Volume (gal):	x3 =
Total Volume Purged (gal):	

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0604	Pump On						
0606	2						
0608				6.29	21.9	2970	Broke Suction
1128	Pump on						
1130							351.9
1132				6.26	21.3	2960	Sampled
							Pump Off

7-14-11

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BF-1	1132	Plastic	250 mL	1	EPA 300.0	Ice	Y S

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [ ] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [x] Other: Pumped well dry, Waited 28 hrs, Sampled well and Sampled

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 8-25-11

Well ID: BIMA Weather: Sunny 90's

ADWR No: Sampler:

WELL DATA

Well Depth (ft bls): 465

Casing Diameter (in):

Static Water Level (ft bmp): ?

Casing Volume (gal): 50 x3 = 150

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C) °F	Specific Conductance (µS/cm)	Comments
13:50	Pump On						
14:00	10	5	50	6.37	80.3	1440	
14:10	20	5	100	6.51	76.6	1430	
14:20	30	5	150	6.27	78.6	1460	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BIMA	13:25	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☒ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☒ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-12-11

Well ID: BMO-2008-16 Weather: Partly Cloudy - 96

ADWR No: Sampler: Christopher L Sherman

WELL DATA

Well Depth (ft bls):	310
Casing Diameter (in):	5
Static Water Level (ft bmp):	69.37
Casing Volume (gal):	245.5 x3 = 736.5
Total Volume Purged (gal):	747

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1450	Pump On						
1500	10	8.3	83	7.26	21.8	1023	
1520	30	8.3	249	7.19	21.5	1011	
1540	50	8.3	415	7.20	21.5	1017	
1600	70	8.3	581	7.19	21.7	1012	
1620	90	8.3	747	7.20	21.6	1015	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-16	1620	Plastic	250mL	1	EPA 300.0	Ice	Yes

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

240.7

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-12-11

Well ID: BMO-2008-3B Weather: Sunny 85°

ADWR No: Sampler: Christopher L Stevenson

WELL DATA

Well Depth (ft bls): 260

Casing Diameter (in): 5"

Static Water Level (ft bmp): 142.21

Casing Volume (gal): 120.1 x3 = 360.3

Total Volume Purged (gal): 540

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0830	Pump On						
0835	5	27	135	7.02	21.4	680	
0840	10	27	270	7.04	21.3	675	
0845	15	27	405	7.05	21.3	675	
0850	20	27	540	7.04	21.4	672	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-3B	0850	Plastic	250	1	EPA-300.0	None	N

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

117.8

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-22-11

Well ID: BMO-2008-4B Weather: Partly Cloudy - 95

ADWR No: Sampler: Christopher L Sherman

WELL DATA

Well Depth (ft bls): 610

Casing Diameter (in): 5"

Static Water Level (ft bmp): 134.8

Casing Volume (gal): 484.7 x3 = 1454

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1325	Pump On						
1335	10	23	230	7.40	23.3	371	
1350	25	23	575	7.35	23.5	375	
1415	50	23	1150	7.33	23.6	373	
1430	65	23	1495	7.33	23.7	371	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-4B	1430	Plastic	250mL	1	EPA 300.0	Ice	YES

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments: 475 L

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-13-11

Well ID: BMO-2008-5B Weather: Sunny - 89

ADWR No: Sampler: Christopher L Sherman

WELL DATA

Well Depth (ft bls):	285
Casing Diameter (in):	5"
Static Water Level (ft bmp):	148.31
Casing Volume (gal):	139.4 x3 = 418.2
Total Volume Purged (gal):	~~400~~ 675

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1635	Pump On						
1640	5	27	135	7.01	22.1	713	
1650	15	27	405	6.98	22.0	715	
1700	25	27	675	6.99	22.0	712	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-5B	1700	Plastic	250 mL	1	EPA 300.0	ICE	~~YES~~ k

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

136.7

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: | Date: 7-12-11

Well ID: BMO-2008-5M | Weather: Partly Cloudy - 89°

ADWR No: | Sampler: Christopher L Sherman

WELL DATA

Well Depth (ft bls):	450
Casing Diameter (in):	5
Static Water Level (ft bmp):	150.20
Casing Volume (gal):	305.7 x3 = 917
Total Volume Purged (gal):	990

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0920	Pump On						
0925	5	18	90	7.20	22.8	591	
0945	25	18	450	7.24	22.6	585	
1005	45	18	810	7.26	22.8	588	
1015	55	18	990	7.22	22.7	590	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-5M	1015	Plastic	250mL	1	EPA 300	None	yes

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

2798

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-12-11

Well ID: BMO-2008-6B Weather: Partly Cloudy 70°

ADWR No: Sampler: Christopher L Stevenson

WELL DATA

Well Depth (ft bls): 265'

Casing Diameter (in): 5"

Static Water Level (ft bmp): 193.3

Casing Volume (gal): 73.1 x3 = 219.3

Total Volume Purged (gal): 225

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0610	Pump On						
0615	5	5.1	25	7.03	21.1	410	
0625	15	5.1	75	7.22	21.3	377	
0640	30	5.1	150	7.25	21.2	386	
0655	45	5.1	225	7.27	21.1	390	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-6B	0655	plastic	250 mL	1	EPA 300	None	Y/N

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

71.7

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-12-11

Well ID: BMO-2008-6M Weather: Partly Cloudy - 94°

ADWR No: Sampler: Christopher L Sherman

WELL DATA

Well Depth (ft bls):	450'
Casing Diameter (in):	5
Static Water Level (ft bmp):	194.47
Casing Volume (gal):	260.6 x3 = 781.8
Total Volume Purged (gal):	840

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0710	Pump On						
0720	10	21	210	6.99	22.1	721	
0730	20	21	420	7.04	21.9	710	
0740	30	21	630	7.05	21.8	712	
0750	40	21	840	7.06	21.8	709	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-6M	0750	Plastic	250mL	1	EPA-300	None	Yes

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

255.5

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038
Client: Freeport Copper Queen Branch
Task No:
Date: 7-15-11
Well ID: BMO-2008-7M
Weather: Sunny 95
ADWR No:
Sampler: Christopher L Sloan

WELL DATA

Well Depth (ft bls): 620
Casing Diameter (in): 5
Static Water Level (ft bmp): 241.81
Casing Volume (gal): 436.7 x3 = 1310
Total Volume Purged (gal): 1365

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1600	Pump On						
1605	5	21	105	7.08	23.0	468	
1625	25	21	525	7.10	22.9	466	
1645	45	21	945	7.11	22.8	466	
1705	65	21	1365	7.10	22.8	466	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-7M	1705	Plastic	250mL	1	EPA-320.0	ICE	Y*

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabiiized.
- [ ] Other:

Additional Comments:

728.1

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: | Date: 7-15-11

Well ID: BMO-2008-8B | Weather: Sunny 94

ADWR No: | Sampler: Christopher L Shannon

WELL DATA

Well Depth (ft bls):	480
Casing Diameter (in):	5"
Static Water Level (ft bmp):	390.0
Casing Volume (gal):	183.6 x3 =
Total Volume Purged (gal):	550.8

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0820	Pump On						
0825	5	14.2	71	6.20	21.1	2920	
0835	15	14.2	213	6.18	21.1	2930	
0845	25	14.2	355	6.21	21.2	2940	
0855	35	14.2	497	6.19	21.1	2950	
0905	45	14.2	639	6.21	21.2	2940	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-8B	0905	Plastic	250mL	1	EPA 300.0	Ice	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

189

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-15-11

Well ID: BMP-2008-8M Weather: Sunny 96

ADWR No: Sampler: Christopher L Sherman

WELL DATA

Well Depth (ft bls):	1210
Casing Diameter (in):	5
Static Water Level (ft bmp):	300.96
Casing Volume (gal):	927.2 x3 = 2781.6
Total Volume Purged (gal):	2816

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0930	Pump On						
0935	5	17.6	88	6.92	21.7	585	
1030	60	17.6	1056	6.90	21.8	587	
1130	120	17.6	2112	6.91	21.9	591	
1200	150	17.6	2640	6.90	22.0	588	
1210	160	17.6	2816	6.89	22.1	590	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMP-2008-8M	1210	Plastic	250mL	1	EPA-300.0	Ice	Yes

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☒ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☒ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments:

909.4

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-15-11

Well ID: BMO-2008-9M Weather: Sunny 98

ADWR No: Sampler: Christopher L Sluming

WELL DATA

Well Depth (ft bls):	775
Casing Diameter (in):	5"
Static Water Level (ft bmp):	290.95
Casing Volume (gal):	493.1 x3 = 1480
Total Volume Purged (gal):	1589

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1250	Pump On						
1255	5	18.7	93.5	7.55	24.6	515	
1320	25	18.7	467	7.51	24.2	516	
1340	45	18.7	841	7.56	24.3	514	
1400	65	18.7	1215	7.54	24.3	516	
1420	85	18.7	1589	7.56	24.7	516	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-9M	1420	Plastic	250mL	1	EPA-300.0	Ice	X-n

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

484.1

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: | Date: 7-13-11

Well ID: BMO-2008-106L | Weather: Sunny 89°

ADWR No: | Sampler: Christopher L Shumway

WELL DATA

Well Depth (ft bls):	810
Casing Diameter (in):	5"
Static Water Level (ft bmp):	512.16
Casing Volume (gal):	303.7 x3 = 923.1
Total Volume Purged (gal):	938

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1115	Pump On						
1125	10	4.6	46	6.32	25.0	1727	
1215	60	3.8	276	6.30	24.9	1719	
1305	110	3.8	466	6.31	24.6	1727	
1325	130	3.3	542	6.35	24.7	1728	
1455	220	3.3	839	6.36	24.7	1730	
1525	250	2.7	938	6.32	24.8	1726	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-106L	1525	Plastic	250 mL	1	EPA 300.0	Ice	Yes

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

297.8

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: | Date: 7-13-11

Well ID: BMO-2008-106U | Weather: Sunny 28

ADWR No: | Sampler: Christopher L Sherman

WELL DATA

Well Depth (ft bls):	449
Casing Diameter (in):	5
Static Water Level (ft bmp):	301.02
Casing Volume (gal):	151 x3 = 453
Total Volume Purged (gal):	494

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0835	Pump On						
0845	10	5.5	55	6.09	22.4	3860	
0855	20	5.5	110	6.10	22.2	3840	
0935	60	5.5	330	6.12	22.3	3890	
0940	65	3.5	357	6.14	22.3	3870	
1000	85	3.3	427	6.11	22.3	3870	
1005	90	1.5	434	6.10	22.2	3880	
1045	130	1.5	494	6.12	22.3	3890	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-106U	1045	Plastic	250mL	1	EPA 300.0	Ice	Yes k

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

148

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-22-11

Well ID: BMO-2008-116 Weather: Partly Cloudy - 72°

ADWR No: Sampler: Christopher L Sherman

WELL DATA

Well Depth (ft bls):	760
Casing Diameter (in):	5
Static Water Level (ft bmp):	571.20
Casing Volume (gal):	192.5 x3 = 577.5
Total Volume Purged (gal):	600

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0615	Pump On						
0625	10	8	80	7.27	24.8	335	
0645	30	8	240	7.29	24.7	337	
0715	60	8	480	7.27	24.5	333	
0730	75	8	600	7.26	24.6	331	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-116	0730	Plastic	250 mL	1	EPA 300.0	Ice	~~y~~ k
DUP 072211	0730	Plastic	250mL	1	EPA 300.0	Ice	y ~~c~~ s

WATER LEVEL MEASUREMENT COLLECTION

- ☑ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☑ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: Duplicate

188.3

CLEAR CREEK

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-15-11

Well ID: BMO-2008-13B Weather: Sunny 72

ADWR No: Sampler: Christopher L Sherman

WELL DATA

Well Depth (ft bls):	475
Casing Diameter (in):	5
Static Water Level (ft bmp):	209.36
Casing Volume (gal):	270.9 x3 = 813
Total Volume Purged (gal):	~~813~~ 900

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0610	Pump On						
0615	5	20	100	6.42	21.0	2160	
0625	15	20	300	6.43	21.1	2170	
0635	25	20	500	6.41	20.9	2170	
0645	35	20	700	6.42	20.9	2180	
0655	45	20	900	6.44	20.8	2160	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-13B	0655	Plastic	250ml	1	EPA-300.0	Ice	yes

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

265.6

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-15-11

Well ID: BMO-2008-13M Weather: Sunny 69

ADWR No: Sampler: Christopher L Sherman

WELL DATA

Well Depth (ft bls): 1030

Casing Diameter (in): 5

Static Water Level (ft bmp): 210.67

Casing Volume (gal): 835.7 x3 = 2507.1

Total Volume Purged (gal): 2604

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0516	Pump On						
0535	20	5.7	114	8.43	22.4	1331	
0735	140	5.7	>798	8.55	22.6	1317	
0835	200	4.6	1140				
0935	260	3.8	1416				
1135	380	3.8	1872	8.40	23.0	1328	
1235	440	2.8	2100	8.44	23.2	1330	
1530	620	2.8	2604	8.40	23.4	1331	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-13M	1530	Plastic	250mL	1	EPA 300.0	Ice	Yes

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

819.4

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	8-31-11
Well ID:	BMO-2010-1M	Weather:	Sunny
ADWR No:		Sampler:	Christopher L Sharma

WELL DATA

Well Depth (ft bls):	550
Casing Diameter (in):	5"
Static Water Level (ft bmp):	224.38
Casing Volume (gals):	332.2
3 Casing Volumes (gals):	996.6

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0635							
0645	10	10	100	7.28	22.8	523	
0650	15	10	150	7.81	22.6	522	
0735	60	5	375	7.83	22.8	520	
0835	120	5	675	7.77	23.0	560	
0940	185	5	1000	7.74	23.2	562	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMO-2010-1M	0940	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-14-11

Well ID: BMO-2010-2M Weather: Sunny

ADWR No: Sampler: Christopher L Shumway

WELL DATA

Well Depth (ft bls):	380
Casing Diameter (in):	5
Static Water Level (ft bmp):	268.05
Casing Volume (gal):	114.2 x3 = 342.6
Total Volume Purged (gal):	360

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0920	Pump On						
0925	5	12	60	6.60	21.3	2.17	
0930	10	12	120	6.64	21.5	2.17	
0940	20	12	240	6.65	21.5	2.15	
0950	30	12	360	6.62	21.5	2.16	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2010-2M	0950	Plastic	250 ml	1	EPA 300.0	Ice	k

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

1/2

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-13-11

Well ID: BMO-2010-3B Weather: Sunny 80's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):	330
Casing Diameter (in):	5"
Static Water Level (ft bmp):	117.30
Casing Volume (gal):	218 x3 = 654
Total Volume Purged (gal):	

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
10:05	Pump On			7.47			
10:25	20	8	160	~~9.47~~	22.7	405.7	
10:45	40	8	320	7.62	22.3	404.8	
11:05	60	8	480	7.89	22.1	405.8	
11:15	70	8	560	~~7.47~~	22.9	403.3	7.76 = pH
11:25	80	8	640	7.68	22.3	404.5	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2010-3B	11:25	Poly	250mL	1	300.0	0	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date:

Well ID: BMO-2010-3M Weather:

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp): 120.33

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
							k

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.5 | Date: 8-25-11

Well ID: BMO-2010-3M | Weather: Sunny, Humid 80's

ADWR No: | Sampler: BJD

WELL DATA

Well Depth (ft bls):	531
Casing Diameter (in):	5"
Static Water Level (ft bmp):	120.74
Casing Volume (gal):	420 x3 = 1260
Total Volume Purged (gal):	1260

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp F (°C)	Specific Conductance (µS/cm)	Comments
8:45	Pump On		270				
9:15	30	9	180	7.15	76.7	310	Brown
9:45	60	9	540	7.16	77.2	330	Brown
10:15	90	9	810	7.18	76.4	340	Clear
10:45	120	9	1080	7.18	77.3	340	↓
11:00	135	~~9~~ 1215	1215	7.17	75.7	340	↓
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2010-3M	11:05	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-18-11

Well ID: CHAMBERS Weather: Sunny 90's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls): 245

Casing Diameter (in):

Static Water Level (ft bmp):

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
11:17	Pump On						
11:20	3	8	24	7.24	25.1	422.4	
11:23	6	8	48	7.18	24.9	418.1	
11:26	9	8	72	7.18	23.8	420.2	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
CHAMBERS	11:28						k

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☒ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☒ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: Collect sample as fast as possible to avoid flooding yard

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 7-14-11

Well ID: COBMW-1 | Weather: Sunny 80's

ADWR No: | Sampler: BJD

WELL DATA

Well Depth (ft bls):	420
Casing Diameter (in):	8
Static Water Level (ft bmp):	236.98
Casing Volume (gal):	480 x3 = 1440
Total Volume Purged (gal):	1550

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
11:00	Pump On						
11:30	30	10	300	6.82	24.0	1822	
12:00	60	10	600	6.86	22.1	1828	1828
12:30	90	10	900	6.78	21.6	1880	
13:00	120	10	1200	6.83	21.5	1905	
13:30	150	10	1500	6.78	21.4	1924	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
COB MW-1	13:35	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-19-11

Well ID: COB MW-2 Weather: Partly cloudy 70's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):	170
Casing Diameter (in):	4"
Static Water Level (ft bmp):	128.17
Casing Volume (gal):	30 x3 = 90
Total Volume Purged (gal):	

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
9:12	Pump On						
09:15	3	7	21	6.94	21.3	467.1	
09:18	6	7	42	6.99	20.9	470.7	
09:21	9	7	63	7.04	21.0	471.5	
09:25	13	7	91	7.11	21.1	472.6	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
COB MW-2	9:27	Poly	250mL	1	30U	Ø	k
						Ø	

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-14-11

Well ID: COB MW-3 Weather: Sunny 80's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):	269
Casing Diameter (in):	4"
Static Water Level (ft bmp):	132.41
Casing Volume (gal):	90 x3 = 270
Total Volume Purged (gal):	

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
10:00	Pump On						
10:05 ~~10:00~~	5	20	100	7.18	22.0	435.2	
10:10	10	20	200	7.20	22.0	437.4	
10:15	15	20	300	7.19	21.8	440.0	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
COB MW-3	10:17	Poly	250	1	300.0	~~N~~	Y ~~N~~

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-14-11

Well ID: COB WL Weather: Sunny 80s

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls): 150

Casing Diameter (in): 4"

Static Water Level (ft bmp): 73.86

Casing Volume (gal): 50 x3 = 150

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
08:25	Pump On						
08:30	5	7.5	38	6.83	22.1	942.4	
08:35	10	7.5	75	6.88	21.7	1015	
08:45	20	7.5	150	6.91	21.6	1019	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
COB WL	8:47	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 8-26-11

Well ID: COOPER C Weather: Sunny 70's

ADWR No: Sampler: BSO

WELL DATA

Well Depth (ft bls):	220
Casing Diameter (in):	6"
Static Water Level (ft bmp):	159.57
Casing Volume (gal):	90 x3 = 270
Total Volume Purged (gal):	300

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
07:25 ~~07:25~~	Pump On						
07:35	10	10	100	6.81	71.7	1840	
07:40	~~20~~ 15	10	~~200~~ 150	6.86	70.9	1830	
07:45	20	10	200	6.82	70.8	1820	
07:50	25	10	25	6.84	71.3	1800	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
COOPER C	07:55	Poly	250mL	1	300.0	Ø	Y X

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-11-11

Well ID: COOPER Weather: Drizzle, 70's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):	325
Casing Diameter (in):	6
Static Water Level (ft bmp):	NA
Casing Volume (gal):	NA x3 =
Total Volume Purged (gal):	126

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
10:50	Pump On						
10:55	5	7	35	7.31	23.4	427.1	
11:00	10	7	70	7.39	23.2	425.1	
11:05	15	7	105	7.45	24.2	426.5	pH= 7.45
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
COOPER	11:08	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☒ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☒ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 7-12-11

Well ID: DODSON | Weather: Cloudy, 80% Humid

ADWR No: | Sampler: BJD

WELL DATA

Well Depth (ft bls):	200
Casing Diameter (in):	6"
Static Water Level (ft bmp):	92.07
Casing Volume (gal):	160 x3 = 480
Total Volume Purged (gal):	490

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
12:40	Pump On						
12:50	10	14	140	6.84	22.9	1385	
13:00	20	14	280	6.92	23.4	1375	
13:10	30	14	420	6.86	23.7	1352	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
DODSON	13:15	Poly	250mL	1	300.0	Ø	y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-12-11

Well ID: DOUGLASS 792 Weather: Cloudy 80's Humid

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp): 88.38

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
							k

WATER LEVEL MEASUREMENT COLLECTION

- ☑ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: WCO

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-14-11

Well ID: DURAZO Weather: Sunny 80s

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp):

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
15:30	Pump On						
15:35	5	7.5	38	7.02	23.9	1089	
15:40	10	7.5	75	7.01	23.6	1098	
15:45	15	7.5	112	7.01	23.6	1101	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
DURAZO	15:48	Poly	750mL	1	300.0	0	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☒ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☒ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 7-12-11

Well ID: EAST | Weather: Cloudy 80's Humid

ADWR No: | Sampler: BJD

WELL DATA

Well Depth (ft bls):	125'
Casing Diameter (in):	6"
Static Water Level (ft bmp):	63.79
Casing Volume (gal):	92 x3 = 276
Total Volume Purged (gal):	364

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
11:00	Pump On						
11:10	10	13	130	7.33	21.8	588.7	
11:15	15	13	195	~~7.30~~	21.8	590.1	pH = 7.30
11:20	20	13	260	7.32	21.4	592.4	
11:25	25	13	225	7.23	21.7	595.1	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
EAST	11:28	POLY	250mL	1	300.0	ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-11-11

Well ID: EPPELE 641 Weather: Cloudy 80's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):	265'
Casing Diameter (in):	8"
Static Water Level (ft bmp):	56.82
Casing Volume (gal):	x3 =
Total Volume Purged (gal):	605

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
13:45	Pump On						
14:00	15	11	165	7.44	24.5	570.9	
14:15	30	11	330	7.20	23.1	560.3	
14:30	45	11	495	7.30	23.0	565.6	
14:40	55	11	605	7.27	23.5	563.1	
14:46		DRY					
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
EPPELE 641	14:55	POLY	250mL	1	300.0	Ø	Y
DUP20110711	10:30	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [ ] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other: Purged til dry. then sampled

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-12-11

Well ID: FLEMING Weather: Cloudy 80's, Humid

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp): 364.72

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
							k

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [ ] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments: WLO

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 8-25-11

Well ID: FULT7 Weather: Sunny 90's

ADWR No: Sampler: BSD

WELL DATA

Well Depth (ft bis): 300

Casing Diameter (in): 6"

Static Water Level (ft bmp): ?

Casing Volume (gal): 350 x3 = 1050

Total Volume Purged (gal): 1050

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
14:50	Pump On						
15:10	20	10	200	6.95	78.9	910	
15:30	40	10	400	7.00	75.9	960	
15:50	60	10	600	6.29	78.4	920	
16:10	80	10	800	6.24	74.1	940	
16:30	100	10	1000	6.45	74.0	940	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
FULT7	16:35	Poly	250mL	1	3000	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☒ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☒ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-15-11

Well ID: GARNER 557 Weather: SUNNY 90's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp): 195.25

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
							k

WATER LEVEL MEASUREMENT COLLECTION

- ☒ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: WLO

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-15-11

Well ID: GARNER 635 Weather: Sunny 80's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):	680
Casing Diameter (in):	5"
Static Water Level (ft bmp):	198.07
Casing Volume (gal):	492 x3 = 1476
Total Volume Purged (gal):	

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
11:15	Pump On						
11:45	30	14	420	7.05	25.3	455.7	
12:15	60	14	840	7.34	26.2	461.6	
12:45	90	14	1260	7.24	25.3	456.4	
12:55	100	14	1400	7.19	25.0	457.4	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
GARNER-635	13:05	Poly	250mL	1	300	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-12-11

Well ID: GOAR RANCH Weather: Partly cloudy, 80's Humid

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp): 188.24

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
							k

WATER LEVEL MEASUREMENT COLLECTION

- ☒ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: GLO

CLEAR CREEK ASSOCIATES

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Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:	HOBAN	Date:	8-31-11
Well ID:	1385 Purdy lane	Weather:	Sunny - 95
ADWR No:		Sampler:	Christopher L Sherman

WELL DATA

Well Depth (ft bls):	300
Casing Diameter (in):	
Static Water Level (ft bmp):	167.76
Casing Volume (gals):	135
3 Casing Volumes (gals):	405

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
(5)	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1010							
1015	5	17.6	88	6.66	22.0	1769	
1025	15	17.6	264	6.61	22.2	1789	
1040	30	17.6	528	6.64	22.2	1789	
1130	80	17.6	1408	6.64	22.3	1792	lot vol Clear-up

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered
	1130						
1385 - Purdy lane							

Additional Comments: Pump Set at 220'

Hoban House - Purdy lane 17

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 8-26-11

Well ID: HOWARD | Weather: Sunny 80's

ADWR No: | Sampler: BSD

WELL DATA

Well Depth (ft bls):	200
Casing Diameter (in):	6"
Static Water Level (ft bmp):	154.79
Casing Volume (gal):	70 x3 = 210
Total Volume Purged (gal):	

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C) °F	Specific Conductance (µS/cm)	Comments
8:10	Pump On						
8:15	5	15	75	7.20	73.1	950	
8:20	10	15	150	7.20	72.7	1150	
8:25	15	15	225	7.15	71.8	1150	
8:30	20	15	300	7.11	73.8	1160	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
HOWARD	8:35	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-18-11

Well ID: KEEFER Weather: SUNNY 80s

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls): 245

Casing Diameter (in): 6"

Static Water Level (ft bmp): 140.39

Casing Volume (gal): 154 x3 = 462

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
11:35	Pump On						
11:45	10	12	120	7.14	24.8	487.7	
11:55	20	12	240	7.07	22.1	480.7	
~~12:05~~ 12:05	30	12	360	7.15	23.3	493.2	
12:18	40	12	480	7.19	23.2	492.5	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
KEEFER	12:18	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No:	055038	Client:	Freeport Copper Queen Branch
Task No:	1.0	Date:	8-26-11
Well ID:	MARCELL	Weather:	Sunny 80's
ADWR No:		Sampler:	BSD

WELL DATA

Well Depth (ft bls):	220	**Casing Capacity**	
		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	?	2	0.16
		4	0.65
Static Water Level (ft bmp):	200?	5	1.02
		6	1.47
Casing Volume (gal):	x3 = 160?	8	2.61
		10	4.08
Total Volume Purged (gal):	240?	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (μS/cm)	Comments
8:50	Pump On						
9:00	10	8.5	85	6.97	75.6	1440	
9:05	15	8.5	125 ~~8.8~~	7.03	75.6	1440	
9:10	20	8.5	170	7.02	75.8	1420	
9:15	25	8.5	210	7.25	77.3	1400	
9:20	30	8.5	265	7.12	77.1	1390	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 μS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
MARCELL	~~9:15~~	Poly	250ml	1	300.0	Ø	y
	9:25						

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☒ No water level measurement collected. No access ~~to~~ at wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☒ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: Mrs M. thinks water was at 200. Old well = 140 ft deep. Assuming that as water depth and 5" well ≈ 80 gal/cv. DTW @ Weiskopf = 146'

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CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 9-26-11

Well ID: Marcell | Weather: Sunny 80's

ADWR No: NA | Sampler: BSD

WELL DATA

Well Depth (ft bls):	~220
Casing Diameter (in):	~~~6~~ 6"
Static Water Level (ft bmp):	~180
Casing Volume (gal):	68 x3 = 205
Total Volume Purged (gal):	250

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
11:45	Pump On						
11:50	5	10	50	6.56	24.0	1558	
11:55	10	10	100	6.53	22.9	1511	
12:00	15	10	150	6.68	23.7	1503	
12:05	20	10	200	6.63	22.1	1502	
12:12							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Marcell	12:10	Poly	250mL	1	300.0	ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other: No water level No port in well head

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other: Purged 3 Vol based on drilling water level

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-12-11

Well ID: McCONNELL 265 Weather: Partly Cloudy 80's Humid

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):	216
Casing Diameter (in):	6
Static Water Level (ft bmp):	160.77
Casing Volume (gal):	85 x3 = 255
Total Volume Purged (gal):	~~285~~ 300

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
14:25	Pump On						
14:35	10	12	120	6.60	24.3	1687	
14:40	15	12	180	6.59	23.9	1689	
14:45	20	12	240	6.60	23.7	1702	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
McCONNELL 265	14:50	Poly	250mL	1	300.00	Ø	Y *

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 7-12-11

Well ID: METZLER | Weather: partly cloudy 90's Humid

ADWR No: | Sampler: BJD

WELL DATA

Well Depth (ft bls):	351
Casing Diameter (in):	6
Static Water Level (ft bmp):	289.98
Casing Volume (gal):	90 x3 = 270
Total Volume Purged (gal):	

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
16:10	Pump On						
16:20	10	6	60	6.90	24.1	973.2	
16:30	20	6	120	6.97	22.7	983.5	
16:40	30	6	180	7.01	22.3	990.3	
16:50	40	6	240	7.07	22.3	993.0	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
METZLER	17:00	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: ~~Clear~~ 7-13-11

Well ID: MOORE Weather: Clear, 90's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls): 220'

Casing Diameter (in): 6"

Static Water Level (ft bmp):

Casing Volume (gal): x3 =

Total Volume Purged (gal): 209

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
14:10	Pump On						
14:15	5	11	55	24.9	6.82	419.5	
14:20	10	11	110	23.6	6.79	420.3	
14:25	15	11	165	23.2	6.91	423.4	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
MOORE	14:29	poly	250mL	1	300.0	0	~~N~~ Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☒ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☒ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-12-11

Well ID: 1.0 NESS Weather: SUNNY 70's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):	812
Casing Diameter (in):	5"
Static Water Level (ft bmp):	597.71
Casing Volume (gal):	220 x3 = 660
Total Volume Purged (gal):	630

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
8:15	Pump On						
8:30	15	10	150	7.38	25.4	528.5	
8:45	30	10	300	7.46	25.6	526.7	
9:00	45	10	450	7.58	25.9	521.3	
9:15	60	10	600	7.48	26.3	520.0	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NESS	9:18	Poly	250mL	1	300.0	Ø	Y *

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments: Well is pump since got on site

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 7-11-11

Well ID: NOTEMAN | Weather: Sunny 80's Humid

ADWR No: | Sampler: BJD

WELL DATA

Well Depth (ft bls): 470

Casing Diameter (in): 5"

Static Water Level (ft bmp): 46 N/A

Casing Volume (gal): x3 = ~~425~~ ~435

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
16:10	Pump On						
16:20	10	12.5	125	6.78	24.6	1396	
16:30	20	12.5	250	6.78	24.1	1405	
~~16:35~~							
16:40	30	12.5	375	6.88	24.1	1396	
16:50	40	12.5	500	6.78	23.9	1406	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NOTEMAN	16:53	Poly	250	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☒ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☒ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: Last available water level: 327.59'

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-15-11

Well ID: NCWC-02 Weather: Sunny 80's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp):

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
905				7.15	23.9	414.2	
9:10				7.08	22.7	416.2	
9:15				7.03	22.5	416.3	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NCWC-02	9:17	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☒ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☒ Other: Well has been running off and ON

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-15-11

Well ID: NWC-03 Weather: Sunny 80's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp):

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
08:20				6.93	22.5	1121	
08:25				6.91	22.0	1113	
08:30				6.91	21.8	1094	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NWC-03	08:32	Poly	250 mL	1	300.00	∅	~~y~~ n

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☒ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☒ Other: Well has been pumping >30 min

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-15-11

Well ID: NWC-03 CAP Weather: Sunny 80's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp): 134.42

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
							k

WATER LEVEL MEASUREMENT COLLECTION

- ☒ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: WLO

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-15-11

Well ID: NWC-02 04 Weather: Sunny 80's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp):

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
7:55				6.93	23.1	880.4	
8:00				6.93	23.4	876.2	
8:05				7.06	23.5	875.1	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NWC-02 NWC-04	8:06	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☒ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☒ Other: Well has been running

Additional Comments: Flowmeter is still offline

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 8-25-11

Well ID: NWC-04 Weather: Sunny 90's

ADWR No: Sampler: BSD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp):

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
~~12~~							
12:00				7.11	79.4	810	
12:05				7.14	78.7	810	
12:10				7.32	77.1	780	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NWC-04	12:15	Poly	250mL	1	300.0	Ø	~~Y~~ N

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☒ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☒ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: Well has been on and off all day

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: | Date: 9-26-11

Well ID: NWC-09 | Weather: Sunny

ADWR No: | Sampler: BSD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp):

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
10:30	well on			7.07	28.9	1001	
10:40				6.74	27.5	882.3	
10:50				6.50	25.9	869.2	
10:55				6.56	26.2	875.4	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NWC-09	11:05	Poly	250mL	1	300.0	0	Y *
DUP 20110926	13:00	Poly	250mL	1	300.0	0	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☒ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☒ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: Flow meter is broken from winter. No WL. Old sounder is stuck in well. Well is not running on arrival but has been on and off today.

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-15-11

Well ID: NWC-06 Weather: Sunny 80's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp):

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
8:45				7.22	23.1	387.0	
8:50				7.13	22.8	392.3	
8:55				7.09	22.9	394.3	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NWC-06	08:57	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☒ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☒ Other: Well has been pumping 730 min

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 7-12-11

Well ID: OSBORN | Weather: Cloudy 80's Humid

ADWR No: | Sampler: BJD

WELL DATA

Well Depth (ft bls):	258
Casing Diameter (in):	6"
Static Water Level (ft bmp):	74.60
Casing Volume (gal):	x3 =
Total Volume Purged (gal):	

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
				7.87	29.8	575.9	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
OSBORN	12:03	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: New Tank on-site. Well pump into Tank. Tank feeds hosebib. Sample from Tank.

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No:	055038	Client:	Freeport Copper Queen Branch
Task No:	1.0	Date:	7-12-11
Well ID:	PALMER	Weather:	Cloudy 80's Humid
ADWR No:		Sampler:	BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp):

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
✓	Pump On						
				7.65	26.6	517.6	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Palmer	9:47	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☒ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☒ Other: Sample from tank. No purge

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-14-11

Well ID: PANAGAKOS Weather: Sunny 90's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls): 200

Casing Diameter (in): 6"

Static Water Level (ft bmp): 173.78

Casing Volume (gal): 35 x3 = 105

Total Volume Purged (gal): 161

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
14:00	Pump On						
14:05	5	7	35	6.94	25.6	1007	
14:10	10	7	70	6.79	22.9	1032	
14:15	15	7	105	6.87	22.9	1065	
14:20	20	7	140	6.93	23.3	1070	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
PANAGAKOS	14:23	Poly	250mL	1	300.0	Ø	Y NK

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 8-25-11

Well ID: PANAGAKOS | Weather: Sunny Humid

ADWR No: | Sampler: BSD

WELL DATA

Well Depth (ft bls): 200

Casing Diameter (in): 6"

Static Water Level (ft bmp): 172.89

Casing Volume (gal): 40 x3 = 120

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
17:00	Pump On						
17:15	15	5	75	6.93	77.5	1290	
17:20	20	5	100	7.13	74.7	1170	
17:25	25	5	125	7.17	74.2	1170	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
PANAGAKOS	17:25	Poly	250 mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments: RESAMPLING due to low value.

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 7-12-11

Well ID: PARRA | Weather: Partly Cloudy, 90's, Humid

ADWR No: | Sampler: BJD

WELL DATA

Well Depth (ft bls):	355
Casing Diameter (in):	6"
Static Water Level (ft bmp):	/
Casing Volume (gal):	/ x3 =
Total Volume Purged (gal):	/ 200

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
15:30	Pump On						
15:35	5	10	50	6.73	25.7	1143	
15:40	10	10	100	6.73	~~23.6~~	1157	24.1
15:45	15	10	150	6.76	23.7	1156	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
PARRA	15:50	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☒ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☒ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 7-12-11

Well ID: PIONKE | Weather: Partly cloudy 80's Humid

ADWR No: | Sampler: BJD

WELL DATA

Well Depth (ft bls):	300
Casing Diameter (in):	6"
Static Water Level (ft bmp):	153.57
Casing Volume (gal):	217 x3 = 651
Total Volume Purged (gal):	650

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
16:00	Pump On						
16:20	20	5	100	7.20	26.2	1232	
16:40	40	5	200	7.17	25.4	1239	
17:00	60	5	300	7.25	25.3	1228	
17:20	80	5	400	7.29	24.4	1225	
17:40	100	5	500	7.35	24.0	1226	
18:00	120	5	600	7.30	23.8	1226	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
PIONKE	18:10	Pdy	2.5gL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments: Valve is stuck could not sample. 7-13-11
Sampling from spigot on the house

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No:	055038	Client:	Freeport Copper Queen Branch
Task No:	1.0	Date:	7-18-11
Well ID:	RAMIREZ	Weather:	Sunny 80's
ADWR No:		Sampler:	BJD

WELL DATA

Well Depth (ft bls):	300
Casing Diameter (in):	6"
Static Water Level (ft bmp):	162.39
Casing Volume (gal):	200 x3 = 600
Total Volume Purged (gal):	

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
10:15							
10:10	Pump On						
10:25	10	12	120	7.03	24.0	392.0	
10:35	20	12	240	7.17	24.0	400.8	
10:45	30	12	360	7.24	24.2	402.5	
10:55	40	12	480	7.21	24.9	401.0	
11:05	50	12	600	7.27	25.4	402.6	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
RAMIREZ	11:08	Poly	250m	1	300.0	Ø	Y*

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 7-11-11

Well ID: RAY | Weather: SUNNY - 80s, hum.d

ADWR No: | Sampler: BJD

WELL DATA

Well Depth (ft bls): 100

Casing Diameter (in): 6"

Static Water Level (ft bmp): 55.74

Casing Volume (gal): 65 x3 = 195

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
15:10	Pump On						
15:20	10	7	70	6.98	22.0	1355	
15:30	20	7	140	7.00	22.9	1360	
15:35	25	7	175	7.06	22.7	1355	
15:40	30	7	210	7.07	22.8	1345	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
RAY	15:43	Poly	250 mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-14-11

Well ID: ROGERS 596 Weather: SUNNY 90s

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp): 138.09

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
							k

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: WLO

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 7-14-11

Well ID: ROGERS 803 | Weather: SUNNY 90's

ADWR No: | Sampler: BJD

WELL DATA

Well Depth (ft bls): 140

Casing Diameter (in): ✓

Static Water Level (ft bmp): 138.09 @ ROGERS 596

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
14:55	Pump On						
15:00	5	7	35	7.27	24.6	643.9	
15:05	5	5	60	7.13	24.1	650.8	
15:10	5	5	85	7.12	23.5	653.5	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
ROGERS 803	15:14	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☑ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☒ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 7-18-11

Well ID: ROGERS E | Weather: SUNNY 80s

ADWR No: | Sampler: BJD

WELL DATA

Well Depth (ft bls): 290

Casing Diameter (in): 6"

Static Water Level (ft bmp):

Casing Volume (gal): x3 = ~610

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
09:15	Pump On						
09:25	10	13	130	7.19	23.3	423.1	
09:35	20	13	260	7.24	23.4	418.9	
09:45	30	13	390	7.19	23.4	418.0	
09:55	40	13	520	~~7.12~~	24.3	418.5	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
ROGERS E	1005	Poly	250 mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☒ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☒ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: 15.57 = Last available WL

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 8-26-11

Well ID: RUI7 Weather: Sunny, Humid, 80's

ADWR No: Sampler: BSD

WELL DATA

Well Depth (ft bls): 312

Casing Diameter (in): 6"

Static Water Level (ft bmp):

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
10:22	Pump On						
10:26	4	6	24	6.82	79.4	820	
10:30	8	6	48	6.88	76.7	800	
10:34	12	6	72	6.85	72.7	800	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
RUI7	10:38	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☒ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☒ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-18-11

Well ID: SCHWARTZ Weather: SUNNY 80s

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):	305
Casing Diameter (in):	6"
Static Water Level (ft bmp):	127.67
Casing Volume (gal):	26.5 x3 = 80.0
Total Volume Purged (gal):	

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
12:30	Pump On						
12:50	20	10	200	7.15	24.2	605.2	
13:10	40	10	400	7.32	22.7	611.6	
13:30	60	10	600	7.34	22.8	615.4	
13:50	80	10	800	7.36	23.7	612.4	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
SCHWARTZ	13:55	Poly	250mL	1	300.0	Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-11-11

Well ID: STEPHENS Weather: Sunny, Humid 80's

ADWR No: Sampler: BJD

WELL DATA

		Casing Capacity	
Well Depth (ft bls):		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):		2	0.16
		4	0.65
Static Water Level (ft bmp):	54.44	5	1.02
		6	1.47
Casing Volume (gal):	x3 =	8	2.61
		10	4.08
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
							k

WATER LEVEL MEASUREMENT COLLECTION

- ☒ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 8-25-11

Well ID: SUNBELT Weather: Sunny

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):

Casing Diameter (in):

Static Water Level (ft bmp): DRY

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
							k

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: LLO

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 7-12-11 ~~80's Humid~~

Well ID: SWAN | Weather: 80's Humid

ADWR No: | Sampler: BJD

WELL DATA

Well Depth (ft bls):	98'
Casing Diameter (in):	4
Static Water Level (ft bmp):	39.32
Casing Volume (gal):	39 x3 = 117
Total Volume Purged (gal):	

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
10:20	Pump On						
10:23	3	13	39	7.04	24.7	472.3	
10:25	5	13	65	7.01	23.4	474.3	
10:28	8	13	104	7.01	22.7	477.2	
10:30	10	13	130	7.05	22.4	478.2	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
SWAN	10:32	Poly	250ml	1	300.0	300.0	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments: Big increase in discharge rate. Usually around 6-7gpm

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-13-11

Well ID: TM-2A Weather: Sunny - 75

ADWR No: Sampler: Christopher L Sharmon

WELL DATA

Well Depth (ft bls): 925

Casing Diameter (in): 4

Static Water Level (ft bmp): 348.14

Casing Volume (gal): 375 x3 = 1125

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0620	Pump On						
0625	5	7.5	37	7.86	24.5	353	
0720	60	5.5	450	7.90	24.7	341	
0820	120	5.5	780	7.91	24.8	346	
0850	150	3.3	945	7.90	24.9	348	
0915	175	3.3	1027	7.92	24.8	349	
0928						350	Broke Suction
							531.05
1040	Pump on						Pump Off Sampled
1050				7.90	24.8	350	

7-14-11

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TM 2A	1050	Plastic	250mL	1	EPA 300.0	Ice	k

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [ ] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [x] Other: Pumped well dry - waited 25 hrs Sounded well within 80% recovery and sampled

Additional Comments:

577

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-21-11

Well ID: TM-6 Weather: Partly Cloudy - 78°

ADWR No: Sampler: Christopher L Sherman

WELL DATA

Well Depth (ft bls):	200'
Casing Diameter (in):	4"
Static Water Level (ft bmp):	159.88
Casing Volume (gal):	41 x3 = 123
Total Volume Purged (gal):	

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0905	Pump On						
0910	5	11.5	57	7.08	20.0	520	
0915	10	11.5	115	7.10	20.1	514	
0920	15	11.5	172	7.10	20.1	516	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TM-6	0920	Plastic	250m	1	EPA 300.0	Ice	Yes

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

40.2

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-21-11

Well ID: TM-7 Weather: Partly Cloudy 95

ADWR No: Sampler: Christopher L/Sherman

WELL DATA

Well Depth (ft bls):	350
Casing Diameter (in):	4"
Static Water Level (ft bmp):	NA
Casing Volume (gal):	NA x3 =
Total Volume Purged (gal):	NA

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1000	Pump On						
1002	2	10	20	6.60	21.5	543	
1012							
1014	4	10	40	6.91	21.4	390	
1024							
1026	6	10	60	6.89	21.4	400	
1036							
1038	8	10	80	6.90	21.4	402	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TM-7	1038	Plastic	250mL	1	EPA 300	Ice	~~Y~~ N

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☒ Other: SWL below Sampling tube

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☒ Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-12-11

Well ID: TM-15 miller Weather: Partly Cloudy 95°

ADWR No: Sampler: Christopher L Sherman

WELL DATA

Well Depth (ft bls):	325
Casing Diameter (in):	4"
Static Water Level (ft bmp):	NA
Casing Volume (gal):	NA x3 =
Total Volume Purged (gal):	NA

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1315	Pump On						
1325	10	7	70	7.31	23.2	383	
1335	20	7	140	7.34	23.2	380	
1345	30	7	210	7.36	23.2	380	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TM-15-miller	1345	Plastic	250ml	1	EPA-3020	ICC	Yes

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☒ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☒ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-14-11

Well ID: TM-16 Weather: Partly cloudy 75

ADWR No: Sampler: Clark Stapley & Shannon

WELL DATA

Well Depth (ft bls):	115
Casing Diameter (in):	4
Static Water Level (ft bmp):	80.41
Casing Volume (gal):	23 x3 = 16
Total Volume Purged (gal):	315

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0820	Pump On						
0825	5	21	105	6.99	20.5	1289	
0830	10	21	210	6.98	20.4	1280	
0835	15	21	315	6.97	20.5	1285	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TM-16	0835	Plastic	250 mL	1	EPH 300.0	Ice	Yes
DUP 071411	0835	Plastic	250mL	1	EPH 300.0	Ice	Yes

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments: Duplicate

34.6

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-15-11

Well ID: TM-19A Weather: Partly cloudy 92

ADWR No: Sampler: Christopher Sherman

WELL DATA

Well Depth (ft bls):	700
Casing Diameter (in):	4"
Static Water Level (ft bmp):	203.3
Casing Volume (gal):	322.8 x3 =
Total Volume Purged (gal):	968.4

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1720	Pump On						
1725	5	33	165	7.10	23.8	511	
1735	15	33	495	7.11	24.0	496	
1745	25	33	825	7.13	24.0	501	
1755	35	33	1155	7.11	24.1	499	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TM-19A	1755	Plastic	250ml	1	EPA 300.0	ICE	YES k

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

496.7

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: Date: 7-12-11

Well ID: TM-42 Weather: Partly Cloudy - 92

ADWR No: Sampler: Christopher L Stumm

WELL DATA

Well Depth (ft bls):	250'
Casing Diameter (in):	5
Static Water Level (ft bmp):	214.62
Casing Volume (gal):	36.1 x3 = 108.3
Total Volume Purged (gal):	120

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1045	Pump On						
1055	10	1	10	6.80	21.9	1200	
1115	30	1	30	6.81	22.2	1210	
1145	60	1	60	6.82	22.2	1213	
1215	90	1	90	6.81	22.0	1215	
1245	120	1	120	6.83	22.0	1205	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TM-42	1245	Plastic	250mL	1	EPA 300.0	Ice	Yesk

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

35.4

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-15-11

Well ID: TV1236 Weather: Sunny 90s

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls): 722

Casing Diameter (in): 12"

Static Water Level (ft bmp): 127.23

Casing Volume (gal): 600 x3 = 1800

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
10:30	Pump On						
10:35	5	100	500	6.93	24.5	505.8	
10:40	10	100	1000	6.74	22.5	498.1	
10:45	15	100	1500	6.80	22.4	499.6	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TV1236	10:48	POly	250mL	1	300.0	Ø	Y
						Ø	Y

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7/15/11

Well ID: TVI 713 Weather:

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls):	
Casing Diameter (in):	
Static Water Level (ft bmp):	131.51
Casing Volume (gal):	x3 =
Total Volume Purged (gal):	

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
							k

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: WLO

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 7-15-11

Well ID: TVI 875 | Weather:

ADWR No: | Sampler: BJD

WELL DATA

Well Depth (ft bls): 330

Casing Diameter (in): 8"

Static Water Level (ft bmp):

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
10:05	Pump On			6.83			
10:07	2	500	1000	~~7.13~~	22.8	791.6	
10:09	4	500	2000	6.77	22.8	816.0	
10:11	6	500	3000	6.75	22.2	791.9	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TVI 875	10:13	Poly	250mL	8	300.0	Ø	y

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☒ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☒ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: Pump was on all night

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 7-18-17

Well ID: WELL 0 | Weather: Cloudy 80s

ADWR No: | Sampler: BJD

WELL DATA

Well Depth (ft bls): 320

Casing Diameter (in):

Static Water Level (ft bmp): N/A

Casing Volume (gal): x3 =

Total Volume Purged (gal):

Casing Capacity

Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
14:10	Pump On			7.56			
14:30	20			~~7.35~~	23.7	378.8	
14:35	25			7.56	22.0	380.0	
14:40	30			7.56	22.0	379.3	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
	14:50						k

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead.
- ☐ No water level measurement collected. Obstruction in well.
- ☐ No water level measurement collected. Well is pumping.
- ☐ Other:

WELL PURGING INFORMATION

- ☐ Purged 3 well volumes and field parameters stabilized.
- ☐ Purged 3 well volumes based on previous water level and field paremeters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 | Client: Freeport Copper Queen Branch

Task No: 1.0 | Date: 8-26-11

Well ID: WEISKOPF | Weather: Sunny 80's

ADWR No: | Sampler: BSD

WELL DATA

Well Depth (ft bls):	200
Casing Diameter (in):	6"
Static Water Level (ft bmp):	148.06
Casing Volume (gal):	80 x3 = 240
Total Volume Purged (gal):	

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
9:35	Pump On						
9:45	10	8.5	85	6.97	75.8	1230	
9:55	20	8.5	170	7.05	74.4	1240	
10:05	30	8.5	255	6.83	74.3	1200	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
WEISKOPF	10:10	Poly	250mL	1	300.0	Ø	Y X

WATER LEVEL MEASUREMENT COLLECTION

- [X] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [X] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch

Task No: 1.0 Date: 7-13-11

Well ID: ZANDER Weather: Clear, 90's

ADWR No: Sampler: BJD

WELL DATA

Well Depth (ft bls): 280

Casing Diameter (in): 6"

Static Water Level (ft bmp): 148.91

Casing Volume (gal): 193 x3 = 579

Total Volume Purged (gal): 795

Casing Capacity	
Nominal Size (inches)	Gallons per Linear Foot
2	0.16
4	0.65
5	1.02
6	1.47
8	2.61
10	4.08

Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
14:45	Pump On						
15:05	20	13.5	270	6.96	25.0	406.8	
15:15	30	13.5	405	7.00	23.9	407.5	
15:25	40	13.5	540	7.40	23.3	408.7	
15:35	50	13.5	675	7.30	22.5	409.3	
15:40	55	13.5	743	7.29	22.9	410.1	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 µS/cm)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
ZANDER	~~15:48~~	Poly	250mL	1	300.0	Ø	Y N
	15:44						

WATER LEVEL MEASUREMENT COLLECTION

- [x] Water level measurement collected.
- [ ] No water level measurement collected. No access to wellhead.
- [ ] No water level measurement collected. Obstruction in well.
- [ ] No water level measurement collected. Well is pumping.
- [ ] Other:

WELL PURGING INFORMATION

- [x] Purged 3 well volumes and field parameters stabilized.
- [ ] Purged 3 well volumes based on previous water level and field paremeters stabilized.
- [ ] Purged well until field parameters stabilized.
- [ ] Other:

Additional Comments:

CLEAR CREEK ASSOCIATES