

**THIRD QUARTER 2013
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
COPPER QUEEN BRANCH**
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Bisbee, Arizona 85603

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October 18, 2013

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October 18, 2013

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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 2013 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 (and subsequent modifications). The Work Plan was initially 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 wells outside of and within one mile of the sulfate plume for the purposes 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 sulfate plume consists 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 geologic map (Hayes and Landis, 1964) of the study area and well locations where data reported herein have been collected. The well locations are identified by name on Figure 2. Table 2 lists the sampling status of wells scheduled under the groundwater monitoring program for sampling in the third quarter 2013 and any additional wells where data was collected outside of the program. This is the first report in which Table 2 includes wells that are not part of the groundwater monitoring plan. The modification of Table 2 was made to make it easier to identify all sampling and water level data collected for the quarter. The collection of groundwater samples was conducted by CQB and Clear Creek personnel. Groundwater sampling and analysis methods used by CQB and Clear Creek are described in the Quality Assurance Project Plan (QAPP) contained in Appendix F of the Work Plan (HGC, 2008). Results of groundwater monitoring are in Section 2.

The monitoring purpose listed on Table 2 was updated in the third quarter 2013 to reflect the current well usage. Drinking water supply wells are monitored under the Well Inventory and all other wells monitor the plume extent.

A capped well, THOMPSON 151, and drinking water well, THOMPSON 341, were identified in the Naco area in the second quarter 2013. The wells were surveyed and added to the groundwater monitoring schedule in the third quarter 2013. The survey data are included in Appendix A.

2. GROUNDWATER MONITORING RESULTS

2.1 Results of Monitoring

Analytical results and groundwater elevation data for the third quarter 2013 are tabulated in Tables 3 and 4, respectively, along with information previously collected under the Mitigation Order. Figure 3 shows the concentrations of dissolved sulfate in the well water samples. The highest sulfate concentration measured at co-located wells was used for concentration contouring. Figure 4 shows groundwater elevations in the third quarter 2013. Groundwater elevations were calculated using depth to water measurements made under static (non-pumping) conditions whenever possible. The most recent measuring point elevation data for each well was used to calculate groundwater elevations in Table 4. At wells with multiple samples or water levels during the third quarter 2013, the most recent data are shown on the figures.

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, analytical laboratory reports, and groundwater sampling forms for samples collected by Clear Creek and CQB during the third quarter 2013 are included in Appendices B, C, and D, respectively. As determined by the data verification review, the analytical results for samples collected in the third quarter 2013 are of acceptable quality for use in activities conducted pursuant to the Mitigation Order.

3. FINDINGS

In the third quarter of 2013, groundwater samples were collected from 83 wells and depth to water measurements were collected in 82 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 2013 and historical groundwater monitoring are described below.

- Sulfate concentration data indicate that the plume extends from the vicinity of the former evaporation pond (Figure 2) southwest to the vicinity of Naco and south to the vicinity of Bisbee Junction (Figure 3). The groundwater monitoring data indicate that the sulfate plume extends over an oblong area of approximately 2 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 extent of the sulfate plume and the sulfate contours as drawn on Figure 3 are based on both historical and current sulfate concentration data. Historical sulfate concentration data are available in this report and in the Aquifer Characterization Report (Clear Creek, 2010).
- Comparison of the third quarter 2013 sulfate concentrations with previous quarters indicates no large scale change in the plume geometry (represented by the position of the 250 mg/L sulfate concentration contour) since the Mitigation Order sampling began in 2008, although concentration contours within the plume have been modified to reflect current concentrations.
- Figure 5 shows sulfate concentrations through time at public drinking water supply wells. Sulfate concentrations have remained relatively stable over time at AWC-02, AWC-04, AWC-05, NWC-02, and NWC-06. The sulfate concentration at AWC-03 increased to between 60 and 70 mg/L in 2013. There is an increasing trend in the sulfate concentrations in NWC-04 since March 2008; however the concentrations are highly variable from month to month. The concentration has ranged between 200 and 225 mg/L in 2013.
- Groundwater elevations decrease from east to west across the study area, indicating westerly groundwater flow (Figure 4).
- Figures 6 and 7 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 rate of decline measured in the basin fill through the most recent quarter sampled is 1.55 feet per year in BMO-2010-3B, which has declined 4.64 feet between July 2010 and July 2013. Groundwater elevations in most BMO monitor wells screened in bedrock have also declined over time. The maximum rate of decline measured in the bedrock through the most recent quarter sampled is 4.98 feet per year in BMO-2010-2M which has declined 14.63 feet between

September 2010 and August 2013. Water level declines range from 0.8 to 3.0 feet per year in BMO-2008-1G, BMO-2008-5M, BMO-2008-6M, BMO-2008-7M, BMO-2008-8M, BMO-2008-9M, BMO-2008-13M, BMO-2010-1M, and BMO-2010-3M. The groundwater elevations in bedrock wells BMO-2008-10GL, BMO-2008-10GU, and BMO-2008-11G display increasing trends.

4. 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.
- 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.
- Hayes, P.T. and E.R. Landis. 1964. Geologic Map of the Southern Part of the Mule Mountains, Arizona. United States Geological Survey Miscellaneous Geologic Investigations Map-418.
- 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 Number	Semiannual Sampling First Quarter	Quarterly Sampling Second Quarter	Annual Sampling Third Quarter	Quarterly Sampling Fourth Quarter
ANDERSON 396	613396	✓	✓	✓	✓
ANDERSON 458	221458	✓	✓	✓	✓
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	219957	✓	✓	✓	✓
BMO-2010-2M	219958	✓	✓	✓	✓
BMO-2010-3B	219970	✓	✓	✓	✓
BMO-2010-3M	219969	✓	✓	✓	✓
BMO-2012-1M	221388	✓	✓	✓	✓
BOOTH	914931	✓	✓	✓	✓
CHAMBERS	629807	✓	✓	✓	✓
COB MW-1	903992			✓	
COB MW-2	903984	✓		✓	
COB MW-3	906823			✓	
COB WL	593116			✓	
COOPER	623564	✓	✓	✓	✓

TABLE 1
Schedule for Water Quality Sampling and Water Level Monitoring

Well Name	ADWR 55 Registry Number	Semiannual Sampling First Quarter	Quarterly Sampling Second Quarter	Annual Sampling Third Quarter	Quarterly Sampling Fourth Quarter
COOPER C	637069	✓	✓	✓	✓
DODSON	644927	✓	✓	✓	✓
DOUGLASS 791	592791	WLO		WLO	
DOUGLASS 792	592792	WLO		WLO	
DURAZO	NR	✓	✓	✓	✓
EAST	599796	✓	✓	✓	✓
ECHAVE	219449	✓	✓	✓	✓
EPPELE 641	805641	✓	✓	✓	✓
FLEMING	218386	WLO		WLO	
FRANCO 101	500101	✓	✓	✓	✓
FRANCO 383	221383	✓	✓	✓	✓
FULTZ	212447	✓	✓	✓	✓
GARNER 557	558557	WLO		WLO	
GARNER 635	587635	✓	✓	✓	✓
GGOOSE 547	628547	✓		✓	
GOAR RANCH	610695	WLO		WLO	
HOBAN	805290	✓	✓	✓	✓
HOWARD NR	NR	✓	✓	✓	✓
HOWARD 312	221312	✓	✓	✓	✓
KEEFER	209744	✓	✓	✓	✓
MARCELL	NR	✓	✓	✓	✓
MCCONNELL 265	539265	✓	✓	✓	✓
MCCONNELL 459	221459	✓	✓	✓	✓
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 395	613395	✓	✓	✓	✓
PIONKE 517	221517	✓	✓	✓	✓
POOL	509518	✓	✓	✓	✓

TABLE 1
Schedule for Water Quality Sampling and Water Level Monitoring

Well Name	ADWR 55 Registry Number	Semiannual Sampling First Quarter	Quarterly Sampling Second Quarter	Annual Sampling Third Quarter	Quarterly Sampling Fourth Quarter
RAMIREZ	216425	✓	✓	✓	✓
RAY	803772	✓	✓	✓	✓
ROGERS 596	573596	✓	✓	✓	✓
ROGERS 803	641803	✓	✓	✓	✓
ROGERS E	216018	✓	✓	✓	✓
RUIZ	531770	✓	✓	✓	✓
SCHWARTZ	210865	✓	✓	✓	✓
STEPHENS	808560	WLO		WLO	
SUNBELT	201531	WLO		WLO	
SWAN	NR	✓		✓	
THOMPSON 151	612151	WLO		WLO	
THOMPSON 341	218341	✓	✓	✓	✓
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 802	641802	✓	✓	✓	✓
WEISKOPF 897	221897	✓	✓	✓	✓
ZANDER	205126	✓	✓	✓	✓

Notes:

35-71891 = ADWR 35 Database

ADWR = Arizona Department of Water Resources

NR = No Record

WLO = Water Level Only

TABLE 2
Summary of Groundwater Monitoring Program for Third Quarter 2013

Well Name	ADWR 55 Registry Number	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
ANDERSON 396	613396	Anderson	Plume	236	Y	N	Water level measured in July 2013. Unable to collect water quality sample because well is not operational.
ANDERSON 458	221458	Anderson	Well Inventory	734	Y	Y	Water quality sample collected in July 2013.
ASLD 435	616435	AZ State Land	Regional	340	Y	N	Well is not part of the groundwater monitoring plan. Water level measured in September 2013.
AWC-02	616586	Arizona Water Company	Well Inventory	330	Y	Y	Water quality sample collected in July 2013.
AWC-03	616585	Arizona Water Company	Well Inventory	269	Y	Y	Water quality sample collected in July 2013.
AWC-04	616584	Arizona Water Company	Well Inventory	250	Y	Y	Water quality sample collected in July 2013.
AWC-05	590620	Arizona Water Company	Well Inventory	1183	Y	Y	Water quality sample collected in July 2013.
BANKS 986	647986	Banks	Well Inventory	435	N	Y	Water quality sample collected in July 2013. Unable to measure water level because wellhead is inaccessible.
BANKS 987	647987	Banks	Plume	339	Y	N	Well identified for water level measurements only. Water level measured in July 2013.
BARTON 919	644919	Barton	Plume	130	Y	N	Well identified for water level measurements only. Water level measured in July 2013.
BF-01	539783	Copper Queen Branch	Plume	400	N	N	Well abandoned April 2013.
BIMA	577927	Bisbee Municipal Airport	Well Inventory	465	N	Y	Water quality sample collected in July 2013. Unable to measure water level because of obstruction in well.
BMO-2008-1G	909474	Copper Queen Branch	Plume	310	Y	Y	Water quality sample collected in August 2013.
BMO-2008-3B	909147	Copper Queen Branch	Plume	260	Y	Y	Water quality sample collected in August 2013.
BMO-2008-4B	910096	Copper Queen Branch	Plume	610	Y	Y	Water quality sample collected in September 2013.
BMO-2008-5B	909653	Copper Queen Branch	Well Inventory	285	Y	Y	Water quality sample collected in August 2013.
BMO-2008-5M	909552	Copper Queen Branch	Plume	450	Y	Y	Water quality sample collected in August 2013.
BMO-2008-6B	909146	Copper Queen Branch	Plume	265	Y	Y	Water quality sample collected in August 2013.
BMO-2008-6M	909019	Copper Queen Branch	Plume	450	Y	Y	Water quality sample collected in August 2013.
BMO-2008-7M	908794	Copper Queen Branch	Plume	670	Y	Y	Water quality sample collected in August 2013.
BMO-2008-8B	910097	Copper Queen Branch	Plume	480	Y	Y	Water quality sample collected in August 2013.
BMO-2008-8M	909711	Copper Queen Branch	Plume	1210	Y	Y	Water quality sample collected in August 2013.
BMO-2008-9M	909255	Copper Queen Branch	Plume	775	Y	Y	Water quality sample collected in August 2013.

TABLE 2
Summary of Groundwater Monitoring Program for Third Quarter 2013

Well Name	ADWR 55 Registry Number	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
BMO-2008-10GL	909435	Copper Queen Branch	Plume	810	Y	Y	Water quality sample collected in August 2013.
BMO-2008-10GU	909272	Copper Queen Branch	Plume	449	Y	Y	Water quality sample collected in August 2013.
BMO-2008-11G	909434	Copper Queen Branch	Plume	760	Y	Y	Water quality sample collected in August 2013.
BMO-2008-13B	909551	Copper Queen Branch	Plume	474	Y	Y	Water quality sample collected in September 2013.
BMO-2008-13M	909760	Copper Queen Branch	Plume	1030	Y	Y	Water quality sample collected in September 2013.
BMO-2010-1M	219957	Copper Queen Branch	Plume	540	Y	Y	Water quality sample collected in August 2013.
BMO-2010-2M	219958	Copper Queen Branch	Plume	370	Y	Y	Water quality sample collected in August 2013.
BMO-2010-3B	219970	Copper Queen Branch	Plume	330	Y	Y	Water quality sample collected in July 2013.
BMO-2010-3M	219969	Copper Queen Branch	Plume	532	Y	Y	Water quality sample collected in July 2013.
BMO-2012-1M	221388	Copper Queen Branch	Plume	396	Y	Y	Water quality sample collected in August 2013.
BOOTH	914931	Booth	Well Inventory	240	N	Y	Water quality sample collected in July 2013. Unable to measure water level because wellhead is inaccessible.
CHAMBERS	629807	Chambers	Well Inventory	245	N	Y	Water quality sample collected in July 2013. Unable to measure water level because wellhead is inaccessible.
COB MW-1	903992	City of Bisbee	Plume	420	Y	Y	Water quality sample collected in July 2013.
COB MW-2	903984	City of Bisbee	Plume	170	Y	Y	Water quality sample collected in July 2013.
COB MW-3	906823	City of Bisbee	Plume	269	Y	Y	Water quality sample collected in July 2013.
COB WL	593116	City of Bisbee	Plume	150	Y	Y	Water quality sample collected in July 2013.
COLLINS	565260	Collins	Regional	320	Y	Y	Well is not part of the groundwater monitoring plan. Water quality sample collected in July 2013.
COOPER	623564	Cooper	Well Inventory	325	N	Y	Water quality sample collected in July 2013. Unable to measure water level because wellhead is inaccessible.
COOPER C	637069	Copper Queen Branch	Plume	220	Y	Y	Water quality sample collected in August 2013.
DODSON	644927	Dodson	Well Inventory	200	Y	Y	Water quality sample collected in July 2013.
DOUGLASS 791	592791	Douglass	Plume	200	Y	N	Well identified for water level measurements only. Water level measured in July 2013.
DOUGLASS 792	592792	Douglass	Plume	200	Y	N	Well identified for water level measurements only. Water level measured in July 2013.
DURAZO	NR	Durazo	Plume	ND	N	N	Well is not operational. Unable to measure water level because wellhead is inaccessible.
EAST	599796	East	Well Inventory	125	Y	Y	Water quality sample collected in July 2013.

TABLE 2
Summary of Groundwater Monitoring Program for Third Quarter 2013

Well Name	ADWR 55 Registry Number	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
ECHAVE	219449	Echave	Well Inventory	345	N	Y	Water quality sample collected in July 2013. Unable to measure water level because of obstruction in well.
EPPELE 641	805641	Eppelle	Well Inventory	265	Y	Y	Water quality sample collected in July 2013.
FLEMING	218386	Fleming	Plume	400	Y	N	Well identified for water level measurements only. Water level measured in July 2013.
FRANCO 101	500101	Franco	Plume	200	Y	N	Water level measured in July 2013. Unable to collect water quality sample because well is not operational.
FRANCO 383	221383	Franco	Well Inventory	711	Y	Y	Water quality sample collected in July 2013.
FULTZ	212447	Fultz	Well Inventory	300	N	N	Water quality sample not collected per owner request. Unable to measure water level due to obstruction in well.
GARNER 557	558557	Garner	Plume	300	Y	N	Well identified for water level measurements only. Water level measured in July 2013.
GARNER 635	587635	Garner	Well Inventory	680	Y	Y	Water quality sample collected in July 2013.
GGOOSE 547	628547	Copper Queen Branch	Plume	800	N	N	Well abandoned October 2012.
GOAR RANCH	610695	Goar	Plume	250	Y	N	Well identified for water level measurements only. Water level measured in September 2013.
HOBAN	805290	Copper Queen Branch	Plume	316	Y	Y	Water quality sample collected in August 2013.
HOWARD NR	NR	Howard	Plume	200	Y	Y	Water quality sample collected in July 2013.
HOWARD 312	221312	Howard	Well Inventory	980	Y	Y	Water quality sample collected in July 2013.
KEEFER	209744	Keefer	Well Inventory	245	Y	Y	Water quality sample collected in July 2013.
LADD 251	520251	Ladd	Regional	280	Y	N	Well is not part of the groundwater monitoring plan. Water level measured in September 2013.
LADD 538	503538	Ladd	Regional	282	Y	N	Well is not part of the groundwater monitoring plan. Water level measured in September 2013.
LADD 837	519837	AZ State Land	Regional	460	Y	N	Well is not part of the groundwater monitoring plan. Water level measured in September 2013.
LADD 977	642977	Ladd	Regional	165	Y	N	Well is not part of the groundwater monitoring plan. Water level measured in September 2013.
MARCELL	NR	Marcell	Well Inventory	220	N	Y	Water quality sample collected in July 2013. Unable to measure water level because there is no port in the wellhead.
MCCONNELL 265	539265	McConnell	Plume	216	N	Y	Water quality sample collected in July 2013. Unable to measure water level due to obstruction in well.
MCCONNELL 459	221459	McConnell	Well Inventory	863	Y	Y	Water quality sample collected in July 2013.
METZLER	35-71891	Metzler	Plume	351	Y	N	Water level measured in July 2013. Unable to collect water quality sample because well is not operational.
MOORE	538847	Moore	Well Inventory	220	N	Y	Water quality sample collected in July 2013. Unable to measure water level because wellhead is inaccessible.
NESS	509127	Ness	Well Inventory	812	N	Y	Water quality sample collected in July 2013. Unable to measure water level because of obstruction in well.

TABLE 2
Summary of Groundwater Monitoring Program for Third Quarter 2013

Well Name	ADWR 55 Registry Number	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
NOTEMAN	212483	Bailey	Well Inventory	400	N	Y	Water quality sample collected in July 2013. Unable to measure water level because wellhead is inaccessible.
NSD-02	527587	Naco Sanitary District	Regional	120	Y	N	Well is not part of the groundwater monitoring plan. Water level measured in September 2013.
NSD-03	527586	Naco Sanitary District	Regional	100	Y	N	Well is not part of the groundwater monitoring plan. Water level measured in September 2013.
NWC-02	562944	Naco Water Company	Well Inventory	312	N	Y	Water quality sample collected in July 2013. Unable to measure water level because well was pumping.
NWC-03	203321	Naco Water Company	Well Inventory	312	N	N	Well abandoned in first quarter 2013.
NWC-03 CAP	627684	Naco Water Company	Plume	179	Y	N	Well identified for water level measurements only. Water level measured in July 2013.
NWC-04	551849	Naco Water Company	Well Inventory Sulfate Trend	795	N	Y	Water quality samples collected in July, August, and September 2013. Unable to measure water level because of obstruction in well.
NWC-06	575700	Naco Water Company	Well Inventory	410	N	Y	Water quality sample collected in July 2013. Unable to measure water level because well was pumping.
OSBORN	643436	Osborn	Well Inventory	258	N	Y	Water quality sample collected in July 2013. Unable to measure water level because wellhead is inaccessible.
PALMER	578819	Palmer	Well Inventory	220	N	Y	Water quality sample collected in July 2013. Unable to measure water level because wellhead is inaccessible.
PANAGAKOS	35-76413	Panagakos	Well Inventory	200	Y	Y	Water quality sample collected in July 2013.
PARRA	576415	Parra	Plume	355	N	Y	Water quality sample collected in July 2013. Unable to measure water level because wellhead is inaccessible.
PIONKE 395	613395	Pionke	Plume	300	Y	N	Water level measured in July 2013. Unable to collect water quality sample because well is not operational.
PIONKE 517	221517	Pionke	Well Inventory	604	Y	Y	Water quality sample collected in July 2013.
POOL	509518	Pool	Well Inventory	313	N	N	Unable to contact well owner for access.
RAMIREZ	216425	Ramirez	Well Inventory	300	N	Y	Water quality sample collected in July 2013. Unable to measure water level because of obstruction in well.
RAY	803772	Ray	Well Inventory	100	Y	Y	Water quality sample collected in July 2013.
ROGERS 596	573596	Rogers, David	Plume	290	Y	N	Well is turned off. Rogers residence uses ROGERS 803. Water level measured in July 2013.
ROGERS 803	641803	Rogers, David	Well Inventory	140	N	Y	Water quality sample collected in July 2013. Unable to measure water level because wellhead is inaccessible.
ROGERS E	216018	Rogers, Ernest	Well Inventory	290	Y	Y	Water quality sample collected in July 2013.
RUIZ	531770	Ruiz	Well Inventory	312	Y	Y	Water quality sample collected in July 2013.
SCHWARTZ	210865	Schwartz	Well Inventory	305	Y	Y	Water quality sample collected in July 2013.
STEPHENS	808560	Stephens	Plume	NR	Y	N	Well identified for water level measurements only. Water level measured in July 2013.
SUNBELT	201531	Sunbelt Marketing, Inc.	Plume	380	N	N	Well identified for water level measurements only. Well level was not measured due to well being dry.

TABLE 2
Summary of Groundwater Monitoring Program for Third Quarter 2013

Well Name	ADWR 55 Registry Number	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
SWAN	NR	Swan	Well Inventory	NR	Y	Y	Water quality sample collected in July 2013.
THOMPSON 151	612151	Thompson	Plume	NR	Y	N	Well identified for water level measurements only. Water level measured in August 2013.
THOMPSON 341	218341	Thompson	Well Inventory	285	N	Y	Water quality sample collected in August 2013. Unable to measure water level because there is no port in the wellhead.
TM-02A	522574	Copper Queen Branch	Plume	925	Y	Y	Water quality sample collected in July 2013.
TM-06 MILLER	522695	Miller	Plume	200	Y	Y	Water quality sample collected in August 2013.
TM-07	522576	Copper Queen Branch	Plume	350	N	Y	Water quality sample collected in August 2013. Unable to measure water level because of obstruction in sounding port.
TM-10 USBP	522696	USBP	Regional	290	Y	Y	Well is not part of the groundwater monitoring plan. Water quality sample collected in July 2013.
TM-15 MILLER	522699	Miller	Plume	325	N	Y	Water quality sample collected in September 2013. Unable to measure water level because of obstruction in sounding port.
TM-16	522578	Copper Queen Branch	Plume	115	Y	Y	Water quality sample collected in August 2013.
TM-19A	522580	Copper Queen Branch	Plume	700	Y	Y	Water quality sample collected in September 2013.
TM-42	562554	Copper Queen Branch	Plume	250	Y	Y	Water quality sample collected in August 2013.
TVI 236	802236	Turquoise Valley, Inc.	Well Inventory	222	Y	Y	Water quality sample collected in July 2013.
TVI 713	567713	Turquoise Valley, Inc.	Well Inventory	200	Y	N	Well identified for water level measurements only. Water level measured in July 2013.
TVI 875	568875	Turquoise Valley, Inc.	Plume	330	N	Y	Water quality sample collected in July 2013. Unable to measure water level because wellhead is inaccessible.
WEED	544535	Weed	Well Inventory	320	N	Y	Water quality sample collected in July 2013. Unable to measure water level because there is no port in the wellhead.
WEISKOPF 802	641802	Weiskopf	Plume	200	Y	Y	Water quality sample collected in July 2013.
WEISKOPF 897	221897	Weiskopf	Well Inventory	947	Y	Y	Water quality sample collected in July 2013.
ZANDER	205126	Zander	Well Inventory	280	Y	Y	Water quality sample collected in July 2013.

Notes:

35-71891 = ADWR 35 Database

ADWR = Arizona Department of Water Resources

bls = below land surface

N = No

ND = No Data

NR = No Record

Y = Yes

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
ANDERSON 396	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
		10/11/11	6.65	21.2	1230	543
		2/1/12	7.28	11.8	1360	551
		4/25/12	7.10	23.9	1380	657
		7/12/12	6.89	24.9	1520	667
		10/10/12	7.40	24	1414	574
ANDERSON 458	221458	9/9/12	8.34	25.9	406.3	31
		10/10/12	8.13	23.8	412.3	30.3
		1/17/13	8.06	23.7	416.0	30.9
		4/15/13	8.19	23.5	402.7	32.3
		7/18/13	8.18	24.3	401.9	23.0
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
		10/13/11	6.72	25.1	464.6	17.4
		10/13/11 DUP	6.72	25.1	464.6	17.4
		2/2/12	7.20	20.8	479.5	19.4
		4/24/12	7.23	23.0	430	15.5
		7/5/12	7.25	22.1	437.1	10.1
		10/18/12	7.48	21.6	473.6	13.0
		2/5/13	7.54	19.3	448.9	18.0
		4/11/13	7.53	22.1	471.3	17.2
		7/25/13	7.35	22.1	460.5	14.7

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		10/13/11	6.69	23.8	463.6	48.8
		2/2/12	7.39	20.7	504.8	47.7
		4/24/12	7.28	22.1	450	51.8
		7/5/12	7.32	21.7	474.3	50.7
		10/18/12	7.44	21.3	477.4	51.3
AWC-04	616584	2/5/13	7.73	19.2	481.2	55
		4/11/13	7.51	22.2	486.4	66.1
		7/16/13	7.61	21.5	489.6	63.6
		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
		10/13/11	6.38	24.0	619.7	27.6
		2/2/12	6.97	20.1	637.6	27.2
		4/24/12	7.10	22.1	570	25.2
		7/5/12	7.03	21.6	568.0	28.2
		7/5/12 DUP	7.03	21.6	568.0	28.1
		10/18/12	7.20	20.8	606.7	26.6
		2/5/13	7.29	19.7	616.8	26.9
		4/11/13	7.38	21.7	595.4	26.2
		7/16/13	7.30	21.0	585.7	27.0

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	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
		10/13/11	6.82	26.0	427.5	19
		2/2/12	7.35	21.4	427.9	19.5
		4/24/12	7.18	21.4	430	15.4
		7/5/12	7.24	22.6	432.1	19.1
		10/18/12	7.66	22.6	436.1	20.1
		2/5/13	7.57	20.2	437.7	20.1
		4/11/13	7.54	21.2	444.5	20.3
		7/16/13	7.56	21.3	454.5	18.0
		7/16/13 DUP	7.56	21.3	454.5	17.7
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
		10/12/11	7.88	21.2	1551	172
		1/31/12	7.69	20.2	1017	64.3
		1/31/2012 DUP	7.69	20.2	1017	64.9
		4/11/12	7.77	22.0	1025	64.0
		7/6/12	7.66	23.7	940	78.6
		7/6/12 DUP	7.66	23.7	940	77.9
		10/4/12	7.73	22.0	845.4	62.6
		1/18/13	7.82	21.9	832.4	70.5
		4/8/13	7.87	20.7	861.7	62.9
		7/9/13	8.04	22.9	769.1	67.9
BF-01	539783	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
		2/1/12	6.18	19.8	2910	1480
		8/14/12	6.00	21.5	3000	1500

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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	M	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
		10/10/11	6.5	24.1	1520	322
		2/3/12	6.48	18.5	1540	312
		4/23/12	6.57	23.9	1790	303
		7/10/12	6.06	23.7	1200	301
		11/29/12	6.51	20.6	1664	310
		3/13/13	7.29	19.8	1175	317
		4/10/13	6.64	13.9	1569	308
		7/8/13	6.62	28.0	1580	301
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
		2/8/12	7.02	20.2	869	116
		8/14/12	6.97	21.9	959	120
		2/14/13	7.09	21.2	986	112
		8/14/13	6.96	21.6	1009	120
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
		2/23/12	6.92	21.0	695	173
		7/10/12	7.02	21.5	651	150
		2/15/13	6.63	20.4	692	163
		8/27/13	7.1	21.1	725	170

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		2/23/12	7.21	22.3	354	10.5
		8/15/12	6.96	23.6	380	9.5
		1/15/13	7.63	22.7	370.2	10.3
		1/15/13 DUP	7.63	22.7	370.2	9.5
		4/15/13	7.75	23.0	368.2	11.2
		9/18/13	7.69	23.4	384.6	9.84
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
		12/7/11	6.95	19.9	730	213
		2/3/12	7.16	20.2	726	215
		4/18/12	6.96	21.7	712	192
		7/10/12	6.87	21.5	726	218
		10/16/12	6.69	21.4	712	207
		2/7/13	7.40	21.4	771.4	229
		2/12/13	6.49	20.7	752	227
BMO-2008-5M	909552	5/15/13	7.01	21.8	742	220
		8/20/13	7.00	21.7	792	226
		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
		12/7/11	7.1	21.2	601	129
		2/3/12	6.99	21.5	589	130
		4/18/12	6.71	22.4	587	120
		7/10/12	6.82	22.4	592	135
		10/16/12	6.86	21.9	591	134
		2/12/13	6.65	21.6	610	139
		5/15/13	6.73	22.4	603	135
		8/20/13	7.18	22.5	640	138

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (μS/cm)	Sulfate, dissolved (mg/L)
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
		12/7/11	7.28	20.8	330	21.8
		2/3/12	7.28	20.1	346	23.0
		4/18/12	7.25	21.4	336	19.7
		7/10/12	6.86	21.2	328	21.9
		10/16/12	6.79	21.5	342	19.9
		2/12/13	6.87	20.7	339	16.2
		5/15/13	6.87	21.2	297	12.7
		8/20/13	7.36	21.5	310	10.6
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
		12/7/11	6.94	21.3	710	200
		2/3/12	7.03	21.2	720	206
		4/18/12	7.01	21.4	701	188
		7/10/12	6.67	21.4	702	208
		10/16/12	6.89	21.8	708	207
		2/12/13	6.71	20.5	740	204
		5/8/13	7.01	21.9	726	212
		8/20/13	6.99	21.7	772	213
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
		1/30/12	7.16	22.0	454	26.4
		7/11/12	7.18	22.7	455	28.1
		2/15/13	7.23	21.8	471	25.8
		8/28/13	7.15	22.9	494	27.7
		8/28/13 DUP	7.15	22.9	494	27.8

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		1/30/12	6.22	21.2	2880	1480
		1/30/12 DUP	6.22	21.2	2880	1480
		7/12/12	6.41	21.1	2860	1440
		2/13/13	6.25	20.7	2830	1330
		8/12/13	6.38	21.3	2780	1420
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
		1/30/12	7.36	23.9	565	77.6
		7/12/12	7.15	24.2	554	73.1
		7/12/12 DUP	7.15	24.2	554	73.2
		2/14/13	7.1	24.3	565	64.9
BMO-2008-9M	909255	8/12/13	7.19	24.6	585	65.0
		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
		2/1/12	7.54	22.4	516	67.4
		7/12/12	7.68	24.2	513	68.9
		2/13/13	7.37	23.8	531	68.2
BMO-2008-10GL	909435	8/12/13	7.47	24.2	553	71.1
		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
		2/2/12	6.45	24.8	1600	624
		7/13/12	6.71	25.7	1571	545
		2/18/13	6.45	25.4	1530	498
		2/18/13 DUP	6.45	25.4	1530	494
BMO-2008-10GU	909272	8/13/13	6.57	25.5	1586	520
		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
		2/1/12	6.09	19.2	3820	1870
		8/19/13	6.10	21.0	3630	1780

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (μS/cm)	Sulfate, dissolved (mg/L)
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
		1/31/12	7.41	24.1	328	11.9
		8/14/12	7.35	24.6	337	12.3
		2/13/13	7.54	24.2	343	11.9
		8/27/13	7.48	24.9	363	12.2
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
		2/9/12	6.68	20.3	2180	1060
		7/11/12	6.55	21.2	2190	1080
		2/27/13	6.54	20.3	2160	1090
		9/4/13	6.57	20.8	2070	1050
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
		2/6/12	8.47	23.2	1300	ND
		8/13/12	8.75	24.2	1311	397
		2/15/13	8.8	22.4	1280	383
		9/6/13	8.81	23.8	1300	402
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
		12/13/11	7.63	21.3	713	149
		2/8/12	7.69	22.0	605	158
		4/24/12	7.08	23.4	701	150
		7/9/12	6.37	24.3	715	161
		10/17/12	7.40	23.9	699	154
		2/13/13	7.09	22.2	712	152
BMO-2010-2M	219958	5/8/13	7.12	22.5	725	160
		8/15/13	7.39	23.5	767	156
		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
		12/13/11	6.59	20.3	2140	984
		1/30/12	6.41	21.4	2180	989
		4/18/12	6.48	21.2	2170	893
		7/9/12	6.41	21.8	2190	1030
		10/17/12	6.60	21.3	2200	998
		2/13/13	6.45	21.0	2190	962
		5/8/13	6.42	21.0	2160	996
		8/15/13	6.58	21.2	2157	978

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		10/13/11	7.63	23.4	411.2	15.9
		2/2/12	7.52	20.4	400.2	16.9
		2/2/2012 DUP	7.52	20.4	400.2	17.1
		4/24/12	7.30	21.8	390	16.0
		7/5/12	7.51	22.4	419.1	15.7
		10/18/12	7.58	21.6	411.9	17.0
		1/16/13	7.58	20.8	420.5	17.4
		4/16/13	7.65	21.2	415.1	17.5
		7/23/13	7.67	21.8	420.0	19.8
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
		10/13/11	7.73	23.6	375.8	10.5
		2/2/12	7.68	22.0	367.1	10.6
		4/24/12	7.49	23.9	370	10.1
		7/5/12	7.66	23.7	381.8	10.3
		10/18/12	7.71	23.3	379.9	10.4
		1/16/13	7.68	22.1	383.1	10.0
		4/16/13	7.83	22.3	383.7	10.2
		4/16/2013 DUP	7.83	22.3	383.7	10.2
		7/23/13	7.80	23.4	386.0	10.7
BMO-2012-1M	221388	11/13/12	7.55	21.3	933.7	231
		2/27/13	6.97	22.4	793	205
		5/8/13	6.77	22.9	814	197
		8/14/13	7.09	22.9	858	202
BOOTH	914931	1/5/13	7.67	18.5	574.3	91.4
		6/14/13	7.61	51.1	604.2	95
		6/14/13 DUP	7.61	51.1	604.2	92.5
		7/17/13	7.75	23.2	497.6	75.0
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
CHAMBERS	629807	7/21/10	7.56	25.6	423.7	33.1
		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
		10/12/11	7.33	22.6	425.8	7.8
		2/6/12	7.43	21.8	434.6	9.08
		4/23/12	7.46	22.7	460	8.84
		7/17/12	7.31	22.4	410	8.41
		10/8/12	7.44	22.4	430.0	10.1
		1/10/13	7.57	21.5	440.8	9.64
		4/18/13	7.49	21.7	434.1	9.78
		7/15/13	7.40	22.7	434.6	9.81
		7/15/13 DUP	7.40	22.7	434.6	10.2

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	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
		7/12/12	6.74	23.4	1760	805
		2/5/13	6.95	21.5	1773	877
		7/11/13	7.17	21.4	1858	842
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
		1/31/12	7.53	20.3	466.6	30.0
		7/12/12	7.36	21.2	630	29.2
		1/9/13	7.48	20.0	473.5	35.8
		7/25/13	7.34	20.9	485.4	40.6
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
		7/12/12	7.34	21.4	450	39.5
		2/5/13	7.60	20.4	476.4	65.1
		2/5/13 DUP	7.60	20.4	476.4	64.7
		7/25/13	7.42	21.4	485.0	66.6

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		7/12/12	7.07	23.2	1060	92.0
		2/5/13	7.91	21.5	1057	98.3
		7/25/13	7.23	22.7	1074	97.6
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
		7/17/13	6.97	21.6	1409	519
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
		7/1/11	7.45	24.2	426.5	32.1
		11/22/11	7.86	20.6	426.1	33.7
		2/1/12	7.97	21.8	429.2	34.1
		4/10/12	7.41	22.4	426.8	32.5
		7/18/12	7.45	22.9	430	33.4
		10/9/12	7.70	22.1	432.8	34.3
		1/11/13	7.76	21.5	434.1	32.7
		4/10/13	7.72	21.1	427.5	31
		7/11/13	7.65	23.2	432.5	31.9

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		2/1/12	7.13	20.5	2024	867
		4/25/12	6.83	21.5	1960	817
		7/11/12	6.48	22.8	2030	834
		10/10/12	6.98	21.2	1985	863
		2/27/13	6.58	20.9	1805	821
DODSON	644927	5/8/13	6.41	20.7	1744	798
		8/13/13	6.69	21.2	1739	756
		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
		10/10/11	6.79	20.9	1280	50.9
		10/10/11 DUP	6.79	20.9	1280	49.6
		1/31/12	7.17	20.3	1454	50.4
DURAZO	NR	4/12/12	7.06	20.6	1492	45.4
		7/11/12	7.10	21.5	1790	54.0
		10/4/12	7.27	20.6	1626	48.7
		1/18/13	7.27	20.2	1743	51.8
		1/18/13 DUP	7.27	20.2	1743	51.6
		4/9/13	7.33	19.6	1886	74.4
		7/9/13	7.39	21.0	1825	53.6
		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
		10/12/11	7.23	24.9	1000	396
		2/7/12	7.26	25.3	1152	404
		4/12/12	7.41	21.8	1101	407

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		10/12/11	7.31	21.4	599.7	15.1
		10/12/11 DUP	7.31	21.4	599.7	15.1
		1/31/12	7.24	20.0	610	12.8
		4/11/12	7.53	20.6	609.3	14.6
		7/9/12	7.20	21.1	580	14.2
		10/4/12	7.49	20.4	623.8	15.0
		1/17/13	7.46	20.0	613.0	13.1
		4/9/13	7.54	19.6	597.7	12.2
		7/9/13	7.46	21.2	603.6	12.1
ECHAVE	219449	2/1/12	7.39	20.7	390.0	26.7
		4/23/12	7.50	22.5	440.0	26.4
		7/17/12	7.44	22.2	430	26.1
		10/9/12	7.69	21.9	404.7	26.1
		10/9/12 DUP	7.69	21.9	404.7	26.0
		1/18/13	7.61	21.7	408.5	25.4
		5/14/13	7.74	22.2	400.2	25.2
		7/17/13	7.81	22.1	406.4	24.3
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
		10/12/11	7.38	20.9	500.0	19.6
		1/31/12	7.68	19.9	560.8	18.2
		4/11/12	7.74	20.6	563.8	19.5
		4/11/2012 DUP	7.74	20.6	563.8	19.6
		7/6/12	7.60	21.7	560	18.8
		10/3/12	7.84	20.7	558.8	19.5
		1/17/13	7.76	19.1	559.6	18.8
		4/8/13	7.71	20.4	564.1	17.5
		4/8/2013 DUP	7.71	20.4	564.1	17.4
		7/9/13	7.66	21.9	570.1	17.5
FLEMING	218386	7/15/10	6.98	24.2	1390	573
FRANCO 101	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 Number	Sample Date	pH (SU)	Temp (deg C)	SC (μS/cm)	Sulfate, dissolved (mg/L)
FRANCO 383	221383	9/13/12	7.66	25.0	1005	318
		10/5/12	7.63	24.4	1002	324
		11/13/12	7.67	19.8	988.2	349
		12/3/12	7.54	19.4	1001	332
		1/15/13	7.52	13.5	1010	333
		2/6/13	7.55	18.9	1004	353
		3/7/13	7.4	20.5	979.9	338
		4/10/13	7.7	20.4	1000	335
FULTZ	212447	7/10/13	7.69	25.7	1018	335
		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
		10/12/11	7.22	21.7	870	48.5
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
		10/11/11	7.57	24.2	400.0	38
		2/2/12	7.38	22.7	469.5	39.2
		4/13/12	7.62	24.0	460.0	33.5
		7/1/12	7.52	24.9	520	37.7
		7/11/12 DUP	7.52	24.9	520	37.2
		10/5/12	8.09	23.1	472.9	39.1
		1/11/13	7.83	23.7	470.8	38.7
		4/15/13	7.79	23.4	471.5	40
		7/10/13	7.90	25.0	469.5	36.7
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

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
HARDT	NR	2/1/12	6.57	24.1	559	42.0
		2/5/13	7.15	17.5	670.6	17.7
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
		12/14/11	6.68	20.2	1870	944
		2/1/12	6.74	20.9	1900	993
		4/19/12	6.81	21.5	1805	868
		7/11/12	6.86	21.4	1906	1110
		10/17/12	6.74	22.0	1846	1040
		2/15/13	6.64	20.7	1934	954
		5/8/13	6.6	21.4	1903	1060
		8/13/13	6.85	21.6	1925	1030
HOWARD NR	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
		10/11/11	7.1	21.0	1220	545
		10/11/11 DUP	7.1	21.0	1220	538
		2/1/12	7.29	20.6	1367	630
		4/13/12	6.99	21.2	1508	632
		9/13/12	7.12	21.9	1576	699
		10/16/12	7.06	21.1	1417	576
		2/6/13	7.06	20.3	1499	679
		4/9/13	7.38	19.4	1319	521
		7/12/13	7.40	21.6	1430	590
HOWARD 312	221312	8/14/12	8.35	26.3	629.3	69.2
		10/16/12	8.18	26.6	648.3	68.1
		2/6/13	8.18	24.1	650.3	71.9
		4/9/13	8.2	24.3	621	67.5
		7/12/13	8.25	26.8	624.9	67.9

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		10/11/11	7.39	20.7	486.9	7.98
		2/6/12	7.36	20.3	482.0	6.84
		4/23/12	7.23	21.6	500	7.14
		7/17/12	7.40	21.0	500	7.29
		10/9/12	7.58	20.1	506.6	8.47
		1/10/13	7.55	19.3	466.3	6.37
		4/18/13	7.58	20	475.9	7.3
		7/11/13	7.67	20.8	485.1	7.23
		7/11/13 DUP	7.67	20.8	485.1	7.24
MARCELL	NR	8/26/11	7.12	25.1	1390	669
		9/26/11	6.63	22.1	1502	638
		11/22/11	7.29	21.0	1536	687
		2/1/12	7.42	20.8	1557	705
		4/13/12	7.15	21.8	1560	668
		7/13/12	6.86	22.3	1730	650
		10/17/12	7.18	21.3	1546	660
		10/17/12 DUP	7.18	21.3	1546	657
		2/6/13	7.25	19.8	1553	714
		2/6/13 DUP	7.25	19.8	1553	714
		4/10/13	7.07	19.9	1578	695
		7/15/13	7.09	21.4	1617	724
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
		10/11/11	7.18	21.8	1590	845
		2/7/12	7.14	20.6	1842	847
		4/11/12	6.82	21.4	1781	833
		7/6/12	6.88	22.4	1827	851
		10/8/12	7.07	20.9	1862	934
		1/10/13	6.89	20.9	1854	902
		1/10/13 DUP	6.89	20.9	1854	889
		4/18/13	7.11	20.4	1889	884
		7/10/13	7.14	22.1	1897	898
MCCONNELL 459	221459	7/27/12	8.25	26.5	510.0	41
		10/8/12	8.12	25.3	517.3	43.4
		1/15/13	8.06	24.5	512.6	37.4
		4/10/13	8.14	23.5	487	35.5
		7/10/13	8.10	25.5	480.7	34.5

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	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
		10/12/11	7.27	22.1	910	301
		2/7/12	7.36	21.5	1019	326
		4/12/12	7.34	21.1	1009	320
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
		10/11/11	7.31	22.5	419.0	7.31
		1/31/12	7.35	21.7	430	7.21
		4/23/12	7.34	22.8	470	6.99
		4/23/12 DUP	7.34	22.8	470	7.05
		7/17/12	7.36	22.9	430	7.01
		7/17/12 DUP	7.36	22.9	430	6.99
		10/8/12	7.64	21.4	433.2	7.51
		1/10/13	7.50	20.8	439.9	7.16
		4/19/13	7.68	21.6	434.7	7.25
		7/11/13	7.56	22.9	442.2	7.14
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
		2/3/12	7.58	21.1	538.2	49.0
		7/10/12	7.20	26.8	380	40.1
		7/10/12 DUP	7.20	26.8	380	39.2
		1/9/13	7.57	19.1	549.6	53.9
		7/8/13	7.84	27.9	539.2	46.8

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		10/11/11	6.96	23.4	1250	286
		2/3/12	6.68	21.3	1370	301
		4/23/12	6.68	24.0	1580	291
		7/9/12	6.57	24.7	1360	265
		7/9/12 DUP	6.57	24.7	1360	265
		10/4/12	6.80	23.6	1412	287
		1/17/13	6.69	23.3	1417	288
		4/8/13	6.90	22.3	1409	280
		7/9/13	6.89	24.3	1400	278
NOTEMAN HOUSE	212483	2/3/12	7.06	13.5	1520	324
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
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
		10/13/11	7.45	21.9	370	7.31
		1/30/12	7.39	21.2	431.3	7.78
		4/25/12	7.42	22.4	370	8.42
		7/18/12	7.33	22.5	430	6.99
		10/10/12	7.58	21.7	423.9	7.46
		1/10/13	7.58	21.8	396.4	9.02
		4/17/13	7.64	21.2	426.2	7.52
		7/12/13	7.65	22.0	429.3	6.91
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
		10/13/11	7.23	21.6	960	353
		1/30/12	7.15	21.5	1061	379
		4/25/12	7.17	21.6	920	346
		4/25/12 DUP	7.17	21.6	920	347
		7/18/12	7.05	22.1	1080	354
		10/10/12	7.31	21.1	1029	354
		10/10/12 DUP	7.31	21.1	1029	353
		1/10/13	7.18	20.8	1051	370

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		10/13/11	7.46	23.3	770	198
		11/22/11	7.36	22.9	853.5	201
		12/8/11	7.33	22.3	872.2	207
		1/30/12	7.34	23.4	914.4	217
		2/17/12	7.45	22.9	898.1	203
		3/15/12	7.39	23.9	888.2	207
		4/25/12	7.16	23.4	870	204
		5/22/12	7.25	23.9	970	178
		6/6/12	7.27	24.4	1040	195
		7/18/12	7.25	23.7	880	205
		8/28/12	7.49	24.2	893.3	208
		9/13/12	7.40	23.9	883.7	205
		10/10/12	7.48	23.2	883.6	207
		11/13/12	7.56	21.7	849.8	211
		12/3/12	7.40	23.0	898.6	208
		1/10/13	7.37	22.2	903.1	210
		2/7/13	7.54	23.0	917.5	228
		3/7/13	7.49	22.4	892.4	222
		4/17/13	7.43	22.6	903.8	223
		5/14/13	7.53	23.2	881.7	214
		6/5/13	7.29	33.9	862.7	201
		7/12/13	7.29	23.5	897.2	211
		7/12/13 DUP	7.29	23.5	897.2	200
		8/9/13	7.43	23.5	898.6	207
		9/5/13	7.56	23.8	893.6	214

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
NWC-06	575700	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
		10/13/11	7.51	22.3	340	8.48
		1/30/12	7.47	22.1	402.7	8.44
		4/25/12	7.34	22.5	410	7.11
		7/18/12	7.39	22.8	380	8.60
		10/10/12	7.62	21.9	393.6	9.33
		1/10/13	7.47	21.3	429.2	7.55
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
		2/3/12	8.15	15.3	390	19.2
		1/8/13	7.88	10.5	544.4	20.4
PALMER	578819	7/8/13	7.56	39.2	510.3	19.2
		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
		10/11/11	7.85	22.0	510.4	17
		2/3/12	7.94	10.0	521.4	17.1
		4/11/12	7.52	18.7	519.8	17.3
		7/10/12	7.30	27.9	390	16.6
		10/3/12	8.09	25.7	526.7	17.6
		10/3/12 DUP	8.09	25.7	526.7	17.5
		1/9/13	7.9	17.5	532.8	16.8
		4/8/13	8.07	18.4	534.1	17
		7/17/13	7.74	22.3	531.0	17.2

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		2/6/12	6.98	20.8	1017	166
		2/29/12	7.09	20.3	1080	362
		3/15/12	7.02	21.4	1138	282
		4/12/12	6.90	20.9	1265	346
		4/12/2012 DUP	6.90	20.9	1265	352
		7/9/12	6.82	22.2	1140	292
		11/27/2012	7.51	20.1	1164	274
		2/6/2013	7.05	19.9	1054	212
		4/9/2013	7.24	19.7	1105	232
		7/10/2013	7.26	21.4	1218	329
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
		10/12/11	7.44	22.3	1070	406
		2/7/12	7.64	21.4	1212	428
		4/13/12	7.49	21.1	1204	402
		4/13/12 DUP	7.49	21.1	1204	390
		7/18/12	7.03	22.6	1210	418
		7/18/12 DUP	7.03	22.6	1210	419
		10/9/12	7.30	21.3	1209	428
		1/11/13	7.64	20.3	1217	413
		4/11/13	7.29	21.2	1206	427
		7/17/13	7.21	21.9	1212	411

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
PIONKE 395	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
		10/11/11	6.98	20.8	1100	502
		2/1/12	7.25	17.5	1230	481
		2/1/2012 DUP	7.25	17.5	1230	495
		4/12/12	7.17	22.1	1218	508
		7/11/12	6.59	22.9	1280	439
PIONKE 517	221517	10/17/12	7.16	22.3	1136	419
		9/18/12	7.91	23.4	395.8	14
		10/11/12	7.75	22.8	394.7	14.9
		1/9/13	7.79	22.6	389.9	14.3
		4/17/13	7.74	22.1	391.9	14.6
POOL	509518	7/16/13	7.84	22.9	391.5	13.9
		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
		10/12/11	7.40	23.3	412.7	8.55
		1/30/12	7.38	22.3	412.2	8.80
		4/10/12	7.40	23.2	404.5	8.70
		7/6/12	7.32	24.2	415.7	8.97
		10/8/12	7.61	22.5	412.0	9.14
		10/8/12 DUP	7.61	22.5	412.0	9.07
		1/17/13	7.52	22.2	409.6	8.82
		4/19/13	7.6	22.1	413.9	8.63
		7/15/13	7.58	23.6	416.2	8.19

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	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
		10/12/11	7.06	21.6	1250	130
		1/31/12	7.28	20.5	1360	131
		4/11/12	7.03	20.6	1359	131
		7/6/12	7.11	22.1	1430	129
		10/3/12	7.12	21.1	1464	130
		1/17/13	7.05	19.5	1527	126
		1/17/13 DUP	7.05	19.5	1527	140
		4/8/13	7.32	20	1476	131
		7/9/13	7.18	21.4	1451	128
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
		10/12/11	7.41	21.8	665.3	175
		1/30/12	7.40	20.0	580	171
		4/23/12	7.32	23.9	720	166
		7/13/12	7.26	24.0	820	171
		7/13/12 DUP	7.26	24.0	820	166
		10/10/12	7.41	24.3	671.4	177
		1/15/13	7.37	16.9	681.1	174
		4/15/13	7.57	23.8	698	190
		7/15/13	7.39	23.6	697.8	184

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (μS/cm)	Sulfate, dissolved (mg/L)
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
		10/13/11	7.52	22.2	370	5.99
		1/30/12	7.38	20.8	427.2	6.22
		4/10/12	7.37	22.1	421.8	6.31
		7/17/12	7.32	22.7	420	5.85
		10/17/12	7.55	21.7	429.0	6.04
		1/17/13	7.46	21.5	431.5	6.01
		4/18/13	7.63	21.3	433.5	6.26
		7/17/13	7.59	22.1	427.7	6.05
		7/17/13 DUP	7.59	22.1	427.7	6.28
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
		10/13/11	7.19	21.5	810	230
		2/7/12	7.28	20.7	915.6	230
		2/7/12 DUP	7.28	20.7	915.6	228
		4/13/12	7.04	21.1	896.5	203
		7/18/12	6.87	21.6	900	214
		10/9/12	7.18	21.4	890.6	229
		1/11/13	7.21	20.7	895.8	219
		1/11/2013 DUP	7.21	20.7	895.8	211
		4/11/13	7.26	21.9	876.8	229
		7/25/13	7.13	21.4	887.3	228

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		10/12/11	7.35	22.4	635.8	124
		2/6/12	7.32	21.3	629.7	116
		2/6/2012 DUP	7.32	21.3	629.7	114
		4/10/12	7.48	21.6	626.1	120
		7/16/12	7.31	21.9	710	117
		10/17/12	7.48	21.6	645	121
		3/13/13	7.57	20.7	623.6	118
		5/14/13	7.61	21.5	629.7	112
		7/15/13	7.49	22.1	770.2	198
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
		2/3/12	7.40	20.5	484.5	20.1
		2/3/12 DUP	7.40	20.5	484.5	19.5
		7/10/12	7.00	22.7	370	19.4
		1/11/13	7.38	20.0	489.0	19.3
		7/8/13	7.45	22.8	489.7	19.4
THOMPSON 341	218341	5/29/13	7.22	24.4	415.9	7.32
		8/9/13	7.57	22.2	420.0	7.62
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
		2/2/12	7.89	22.2	360	23.0
		8/14/12	7.65	24.6	366	23.4
		2/15/13	7.72	22.2	369	22.1
		8/27/13	7.72	24.7	414	23.5

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	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
		2/1/12	7.48	21.1	744	112
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
		7/9/12	6.82	20.8	505	33.5
		2/14/13	6.92	19.6	527	31.1
		8/19/13	7.21	19.9	556	32.5
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
		2/9/12	7.15	23.0	670	171
		8/13/12	6.83	21.7	415	25.4
		2/27/13	6.81	19.9	380	25.6
		8/28/13	7.36	21.2	369	25.0
		2/13/08	7.63	24.1	511	24.1
TM-08 SWAN	522817	5/14/08	7.44	24.4	480	12.6
		7/23/08	7.76	28.1	522	12.6
		12/8/11	6.95	19.6	381	16.8
TM-10 USBP	522696	3/15/12	7.85	20.2	382.3	15.1
		4/24/12	7.88	21.0	280	13.4
		4/24/2012 DUP	7.88	21.0	280	13.3
		9/13/12	8.09	21.1	407	13.3
		10/19/12	8.17	21.0	428.2	12.8
		3/7/13	8.33	21.2	415.1	12.7
		4/17/13	8.27	20.3	423.9	12.8
		7/23/13	8.16	21.4	426.1	13.2
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	18.6
		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
		7/10/12	7.04	23.7	379	14.9
		2/12/13	6.96	21.7	393	14.6
		9/4/13	7.20	22.8	412	14.8

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		7/9/12	6.95	21.0	1292	544
		8/15/13	6.86	20.3	1374	539
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
		2/2/12	7.13	22.5	498	62.2
		7/10/12	7.12	23.5	505	63.7
		2/15/13	6.74	23.2	522	60.1
		9/4/13	7.11	23.8	538	61.3
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
		2/9/12	6.76	20.5	1172	444
		7/11/12	6.72	21.1	1155	449
		2/12/13	6.69	20.2	1185	400
		8/28/13	6.89	21.3	1212	416
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
		7/16/12	7.30	21.1	500	36.3
		10/9/12	7.56	20.4	513.7	40.9
		7/18/13	7.38	20.9	514.4	42.4

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (μS/cm)	Sulfate, dissolved (mg/L)
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
		10/12/11	7.35	22.7	868.5	262
		2/3/12	7.20	20.5	850	299
		4/25/12	7.19	21.3	840	267
		7/16/12	7.13	22.2	860	261
		7/16/12 DUP	7.13	22.2	860	267
		10/9/12	7.39	20.9	882.8	281
		2/6/13	7.23	20.8	946.1	335
		4/10/13	7.35	20.9	907.6	296
		7/18/13	7.31	21.4	994.2	355
WALKER	200393	2/13/08	7.05	20.2	650	20
		7/23/08	7.25	20.7	740	45.4
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
		10/12/11	7.02	21.7	382.8	13.3
		2/6/12	7.60	21.4	385.0	13.5
		4/25/12	7.60	22.1	360	12.7
		7/5/12	7.64	21.7	385.8	12.9
		10/9/12	7.66	21.5	385.1	14.0
		2/7/13	7.7	21.4	389.7	14.0
		2/7/13 DUP	7.7	21.4	389.7	13.2
		4/10/13	7.76	20.6	383.9	13.0
		7/19/13	7.63	21.3	386.6	14.2

TABLE 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
WEISKOPF 802	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
		10/13/11	7.07	22.8	1299	539
		2/3/12	7.35	21.5	1363	583
		4/25/12	7.07	23.5	1300	575
		7/13/12	6.83	22.2	1530	552
		10/11/12	7.26	21.3	1369	572
		10/11/12 DUP	7.26	21.3	1369	577
		1/16/13	7.14	20.5	1298	523
		4/17/13	7.22	20.1	1337	558
		7/18/13	7.45	21.3	1131	420
WEISKOPF 897	221897	12/6/12	7.93	23.6	398.3	18.5
		1/16/13	7.88	23.1	398.9	18.2
		1/16/13 DUP	7.88	23.1	398.9	18.2
		4/17/13	7.86	22.6	394.4	19
		7/18/13	7.84	24.3	393.2	18.0
WMD-2011-03M	913037	2/2/12	6.66	22.0	1190	391
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
		10/12/11	7.35	22.2	426.2	6.38
		1/31/12	7.29	20.3	420	6.59
		4/10/12	7.49	21.9	420.1	6.90
		4/10/2012 DUP	7.49	21.9	420.1	6.65
		7/17/12	7.34	22.2	430	6.38
		10/8/12	7.58	20.8	431.4	7.03
		1/10/13	7.58	20.7	436.1	6.52
		4/18/13	7.65	20.8	436.7	6.66
		7/15/13	7.55	21.8	431.1	6.49

Notes:

35-71891 = ADWR 35 Database

ADWR = Arizona Department of Water Resources

deg C = degrees Celsius

DUP = Blind duplicate

M = Multi-Meter Malfunction

mg/L = milligrams per liter

ND = No Data

NR = No Record

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

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
ANDERSON 396	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
					10/11/11	150.19	4438.32
					2/1/12	150.19	4438.32
					4/25/12	150.69	4437.82
					7/12/12	151.34	4437.17
ANDERSON 458	221458	601118.690	3468826.284	4585.37	10/10/12	151.82	4433.55
					1/17/13	152.17	4433.20
					4/15/13	158.42	4426.95
					7/18/13	157.56	4427.81
					9/7/12	173.76	4411.61
ASLD 435	616435	593496.865	3468879.791	4471.34	6/27/13	250.85	4220.49
					9/24/13	250.85	4220.49
AWC-02	616586	598907.911	3468549.357	4547.64	8/27/08	121.12	4426.52
					4/8/08	116	4431.64
					10/23/08 ¹	115	4432.64
					4/22/09 ¹	118	4429.64
					10/9/09 ¹	117	4430.64
					4/23/10 ¹	119	4428.64
					4/11/13	127.64	4420.00
AWC-03	616585	599090.322	3468681.898	4539.52	7/25/13	128.89	4418.75
					8/27/08	119.40	4420.12
					4/8/08	112	4427.52
					10/23/08 ¹	106	4433.52
					4/22/09 ¹	114	4425.52
					10/9/09 ¹	116	4423.52
					4/23/10 ¹	116	4423.52
AWC-04	616584	598949.929	3468717.084	4540.48	4/11/13 ¹	125	4414.52
					7/16/13 ¹	126	4413.52
					8/18/08	112.56	4427.92
					4/8/08	108	4432.48
					10/23/08 ¹	111.31	4429.17
					4/22/09 ¹	110	4430.48
					10/9/09 ¹	110	4430.48
					4/23/10 ¹	109	4431.48
					4/11/13	120.93	4419.55
					7/16/13	123.76	4416.72

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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 ¹	289	4253.51
					4/23/10 ¹	278	4264.51
					4/11/13	229.56	4312.95
BANKS 987	647987	606981.921	3469206.175	4648.18	7/16/13	203.17	4339.34
					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
					10/12/11	237.34	4410.84
					1/31/12	228.95	4419.23
					4/11/12	219.39	4428.79
					7/6/12	232.59	4415.59
BARTON 919	644919	606243.850	3469076.689	4692.36	10/4/12	237.16	4411.02
					1/18/13	237.81	4410.37
					4/8/13	237.92	4410.26
					7/9/13	238.32	4409.86
					5/12/08	113.71	4578.65
					7/23/08	113.56	4578.80
BF-01	539783	604169.077	3472151.593	4835.23	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
					7/17/13	114.18	4578.18
					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
					2/1/12	347.84	4487.39
					8/13/12	343.95	4491.28

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
BMO-2008-1G	909474	606467.681	3471723.644	4805.10	1/19/11	391.47	4410.58
					4/4/11	395.22	4406.83
					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	2/8/12	70.33	4734.77
					8/14/12	71.73	4733.37
					2/14/13	72.95	4732.15
					8/14/13	73.82	4731.28
					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
					2/23/12	143.90	4440.07
					7/10/12	143.70	4440.27
					2/15/13	144.53	4439.44
					8/27/13	145.10	4438.87

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
					2/23/12	134.64	4438.53
					9/17/12	136.15	4437.02
					1/15/13	136.13	4437.04
BMO-2008-5B	909653	600438.159	3468994.715	4585.10	4/15/13	136.78	4436.39
					9/18/13	137.04	4436.13
					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
					12/7/11	148.45	4436.65
					2/3/12	148.47	4436.63
					4/18/12	149.02	4436.08
					7/10/12	148.65	4436.45
					10/16/12	149.91	4435.19
					2/7/13	149.94	4435.16
					2/12/13	150.06	4435.04
					5/15/13	150.55	4434.55
					8/20/13	150.82	4434.28

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (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
					12/7/11	150.30	4434.72
					2/3/12	150.05	4434.97
					4/18/12	150.70	4434.32
					7/10/12	151.65	4433.37
					10/16/12	151.77	4433.25
BMO-2008-6B	909146	600366.523	3469820.644	4627.44	2/12/13	152.00	4433.02
					5/15/13	152.42	4432.60
					8/20/13	152.76	4432.26
					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
					12/7/11	193.85	4433.59
					2/3/12	193.60	4433.84
					4/18/12	193.90	4433.54
					7/10/12	194.75	4432.69
					10/16/12	195.71	4431.73
					2/12/13	195.42	4432.02
					5/15/13	195.91	4431.53
					8/20/13	196.23	4431.21

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
					12/7/11	194.92	4431.98
					2/3/12	194.65	4432.25
					4/18/12	195.00	4431.90
					7/10/12	196.10	4430.80
					10/16/12	196.53	4430.37
BMO-2008-7M	908794	603099.165	3470029.283	4688.33	2/12/13	196.45	4430.45
					5/15/13	196.90	4430.00
					8/20/13	197.43	4429.47
					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
BMO-2008-8B	910097	604171.347	3471141.719	4753.25	2/14/11	241.26	4447.07
					7/15/11	241.81	4446.52
					1/30/12	242.44	4445.89
					7/11/12	243.0	4445.33
					2/15/13	243.8	4444.53
					8/28/13	244.32	4444.01
					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
					1/30/12	300.52	4452.73
					7/12/12	301.15	4452.10
					2/13/13	302.05	4451.20
					8/12/13	302.48	4450.77

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
					1/30/12	301.60	4450.85
					7/12/12	302.45	4450.00
BMO-2008-9M	909255	604668.669	3471121.675	4762.61	2/14/13	303.07	4449.38
					8/12/13	303.60	4448.85
					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
BMO-2008-10GL	909435	605264.072	3471702.043	4792.21	7/15/11	290.95	4471.66
					2/1/12	293.44	4469.17
					7/12/12	294.65	4467.96
					2/13/13	296.67	4465.94
					8/12/13	297.63	4464.98
					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
					2/2/12	511.34	4280.87
					7/13/12	510.90	4281.31
					2/18/13	509.91	4282.30
					8/13/13	509.32	4282.89

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (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
					2/1/12	326.51	4466.94
BMO-2008-11G	909434	603800.995	3472626.482	4844.67	7/13/12	328.7	4464.75
					8/19/13	283.97	4509.48
					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	1/31/12	569.83	4274.84
					8/14/12	569.70	4274.97
					2/13/13	568.75	4275.92
					8/27/13	566.50	4278.17
					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
					2/9/12	209.78	4439.43
					7/11/12	210.60	4438.61
					2/27/13	211.40	4437.81
					9/4/13	212.15	4437.06

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
					2/6/12	210.90	4436.25
					8/13/12	211.42	4435.73
BMO-2010-1M	219957	605581.263	3469935.750	4718.55	2/15/13	212.13	4435.02
					9/6/13	212.52	4434.63
					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
					12/13/11	222.86	4495.69
					2/8/12	222.97	4495.58
					4/24/12	223.87	4494.68
					7/9/12	225.05	4493.50
					10/17/12	225.63	4492.92
					2/13/13	226.85	4491.70
BMO-2010-2M	219958	605685.549	3470564.646	4746.16	5/8/13	227.45	4491.10
					8/15/13	228.10	4490.45
					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
					12/13/11	270.98	4475.18
					1/30/12	271.50	4474.66
					4/18/12	272.31	4473.85
					7/9/12	273.20	4472.96
					10/17/12	274.27	4471.89
					2/13/13	275.52	4470.64
BMO-2010-3B	219970	599977.962	3468347.363	4550.59	5/8/13	276.05	4470.11
					8/15/13	278.76	4467.40
					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
					10/13/11	117.72	4432.87
					2/2/12	117.18	4433.41
					4/24/12	117.92	4432.67
					7/5/12	118.84	4431.75
					10/18/12	119.13	4431.46
					1/16/13	118.89	4431.70
					4/16/13	119.36	4431.23
					7/23/13	120.02	4430.57

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
					10/13/11	120.67	4429.86
					2/2/12	119.91	4430.62
					4/24/12	120.93	4429.60
					7/5/12	122.05	4428.48
					10/18/12	122.06	4428.47
					1/16/13	121.86	4428.67
BMO-2012-1M	221388	606097.384	3469746.747	4719.76	4/16/13	122.26	4428.27
					7/23/13	122.97	4427.56
					11/13/12	231.90	4487.86
					2/27/13	233.20	4486.56
BOOTH	914931	601132.466	3468049.945	4568.21	5/8/13	233.97	4485.79
					8/14/13	233.96	4485.80
BURKE	212268	602230.087	3473029.816	4856.30	1/15/13	131.47	4436.74
					4/19/13	132.04	4436.17
					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
COB MW-1	903992	603153.259	3469889.889	4683.26	4/28/09	603.70	4252.60
					8/19/09	602.66	4253.64
					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
					7/12/12	238.24	4445.02
					2/5/13	239.11	4444.15
					7/11/13	239.67	4443.59

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
					1/31/12	128.04	4438.17
					7/12/12	129.58	4436.63
COB MW-3	906823	599169.225	3468726.000	4538.63	1/9/13	129.28	4436.93
					7/25/13	130.21	4436.00
					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
COB WL	593116	606357.506	3472502.012	4832.06	7/14/11	132.41	4406.22
					7/12/12	133.89	4404.74
					2/5/13	123.68	4414.95
					7/25/13	129.05	4409.58
					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
					7/12/12	78.85	4753.21
					2/5/13	82.41	4749.65
					7/25/13	81.36	4750.70

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
COOPER C	637069	601349.987	3468913.011	4599.14	7/20/10	292.21	4441.51
					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
					10/13/11	159.81	4439.33
					2/1/12	159.80	4439.34
					4/25/12	160.26	4438.88
DODSON	644927	605594.560	3469063.772	4686.34	7/12/12	160.88	4438.26
					10/10/12	161.10	4438.04
					2/27/13	161.40	4437.74
					5/8/13	161.70	4437.44
					8/13/13	162.07	4437.07
					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
					10/10/11	93.11	4593.23
					1/31/12	93.68	4592.66
					4/12/12	94.19	4592.15
					10/4/12	97.80	4588.54
					1/18/13	99.73	4586.61
					4/9/13	98.09	4588.25
					7/9/13	98.38	4587.96

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
					1/30/12	27.72	4675.55
					4/11/12	29.99	4673.28
					7/5/12	32.67	4670.60
DOUGLASS 792	592792	607607.541	3469829.115	4681.73	1/9/13	27.24	4676.03
					7/8/13	32.70	4670.57
					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	87.8	4593.93
					7/12/11	88.38	4593.35
					1/30/12	88.92	4592.81
					4/11/12	89.18	4592.55
					7/5/12	95.64	4586.09
					1/9/13	82.60	4599.13
					7/8/13	83.66	4598.07

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (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
					10/12/11	63.64	4562.37
					1/31/12	63.82	4562.19
					4/11/12	65.72	4560.29
ECHAVE	219449	599701	3470168	4648	7/9/12	70.50	4555.51
					10/4/12	73.34	4552.67
EPPELE 641	805641	607165.354	3469229.942	4642.86	1/17/13	75.04	4550.97
					4/9/13	78.05	4547.96
					7/9/13	78.37	4547.64
					2/1/12	216.71	4431.29
					1/18/13	218.41	4429.59
					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
					10/12/11	37.62	4605.24
					1/31/12	46.80	4596.06
					4/11/12	52.07	4590.79
					7/6/12	62.39	4580.47
					10/3/12	71.66	4571.20
					1/17/13	59.73	4583.13
					4/8/13	83.98	4558.88
					7/9/13	92.84	4550.02

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
					2/3/12	370.84	4322.84
					7/9/12	373.86	4319.82
FRANCO 101	500101	602848.756	3468830.905	4636.75	1/18/13	373.96	4319.72
					7/17/13	374.88	4318.80
FRANCO 383	221383	602817.854	3468831.563	4636.88	4/10/13	196.05	4440.70
					7/10/13	196.19	4440.56
					9/13/12	195.19	4441.69
					10/5/12	195.00	4441.88
					12/3/12	196.70	4440.18
					1/15/13	196.30	4440.58
					2/6/13	195.62	4441.26
					3/7/13	196.20	4440.68
FULTZ	212447	607153.306	3469063.892	4642.92	4/10/13	196.25	4440.63
					7/10/13	196.13	4440.75
					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
GARNER 557	558557	602659.240	3468962.415	4638.45	1/25/10	53.45	4589.47
					4/20/10	63.82	4579.10
					7/14/10	119.86	4523.06
					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
					10/11/11	195.72	4442.73
					2/2/12	196.09	4442.36
					4/13/12	196.30	4442.15
					7/11/12	196.72	4441.73
					10/5/12	197.08	4441.37
					1/11/13	197.51	4440.94
					4/15/13	197.76	4440.69
					7/10/13	197.87	4440.58

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
					10/11/11	197.75	4442.99
					2/2/12	199.50	4441.24
					4/13/12	200.40	4440.34
					7/11/12	199.15	4441.59
					10/5/12	202.71	4438.03
					1/11/13	199.38	4441.36
					4/15/13	200.53	4440.21
					7/10/13	200.13	4440.61
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
					2/1/12	651.72	4272.59

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (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
					2/6/12	189.02	4442.11
					9/13/12	190.08	4441.05
HOBAN	805290	601705.848	3468880.329	4607.60	1/11/13	190.48	4440.65
					9/18/13	191.21	4439.92
					2/27/08	163.05	4444.55
					5/7/08	163.28	4444.32
					7/14/08	163.87	4443.73
					10/16/08	163.95	4443.65
					1/28/09	163.82	4443.78
					4/15/09	164.16	4443.44
					7/14/09	164.59	4443.01
					10/15/09	165.00	4442.60
					3/2/10	165.32	4442.28
					5/18/10	165.71	4441.89
					7/20/10	166.17	4441.43
					10/19/10	166.45	4441.15
					8/31/11	167.76	4439.84
					12/14/11	168.13	4439.47
					2/1/12	168.09	4439.51
					4/19/12	168.32	4439.28
					7/11/12	169.10	4438.50
					10/17/12	169.40	4438.20
					2/15/13	169.70	4437.90
					5/8/13	169.95	4437.65
					8/13/13	170.31	4437.29

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
HOWARD NR	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
					10/11/11	155.02	4438.89
					2/1/12	155.08	4438.83
					4/13/12	155.40	4438.51
					9/13/12	156.29	4437.62
					10/16/12	156.43	4437.48
HOWARD 312	221312	601308.920	3468772.630	4594.9356	2/6/13	193.74	4401.20
					4/9/13	195.30	4399.64
					7/12/13	198.27	4396.67
					8/14/12	188.36	4406.58
					10/16/12	193.33	4401.61
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
					10/11/11	141.68	4430.35
					2/6/12	139.27	4432.76
					4/23/12	139.76	4432.27
					7/17/12	140.69	4431.34
					10/9/12	141.00	4431.03
LADD 251	520251	594788.933	3470348.534	4443.83	1/10/13	140.80	4431.23
					4/8/13	141.32	4430.71
					7/11/13	141.81	4430.22
					3/22/13	221.32	4222.51
					6/14/13	221.78	4222.05
					9/24/13	219.60	4224.23

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
LADD 538	505538	596790.675	3469638.573	4527.05	2/9/10	253.10	4273.95
					4/28/10	253.83	4273.22
					7/28/10	254.05	4273.00
					12/8/10	252.87	4274.18
					3/17/11	252.76	4274.29
					6/24/11	288.00	4239.05
					9/29/11	276.58	4250.47
					12/16/11	250.68	4276.37
					2/15/12	253.80	4273.25
					6/11/12	258.90	4268.15
					9/26/12	255.76	4271.29
					12/19/12	249.43	4277.62
					3/22/13	250.51	4276.54
LADD 837	519837	594757.700	3470817.194	4470.11	6/27/13	270.00	4257.05
					9/24/13	250.80	4276.25
					2/9/10	262.80	4207.31
					4/28/10	262.65	4207.46
					7/28/10	265.75	4204.36
					12/8/10	262.38	4207.73
					3/17/11	262.65	4207.46
					6/24/11	262.51	4207.60
					9/29/11	262.28	4207.83
					12/16/11	264.32	4205.79
					2/15/12	262.24	4207.87
					6/11/12	264.04	4206.07
					9/26/12	261.75	4208.36
LADD 977	642977	597619.168	3468714.011	4513.40	12/19/12	261.94	4208.17
					3/27/13	266.68	4203.43
					6/14/13	261.51	4208.60
					9/24/13	261.38	4208.73
					3/17/11	82.32	4431.08
					6/24/11	84.00	4429.40
					9/29/11	83.62	4429.78
					12/16/11	84.8	4428.60
					2/15/12	84.67	4428.73
					6/11/12	85.7	4427.70
					9/26/12	84.96	4428.44
					12/19/12	86.27	4427.13
					3/22/13	85.18	4428.22
					6/14/13	86.54	4426.86
					9/24/13	82.66	4430.74

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
					10/11/11	161.17	4439.53
					2/7/12	161.31	4439.39
					4/11/12	161.57	4439.13
					7/6/12	162.36	4438.34
					10/8/12	162.43	4438.27
					1/10/13	162.57	4438.13
					4/18/13	163.08	4437.62
MCCONNELL 459	221459	601471.708	3468840.682	4601.55	7/27/12	170.50	4431.05
					10/8/12	166.81	4434.74
					1/15/13	166.32	4435.23
					4/10/13	166.79	4434.76
					7/19/13	167.53	4434.02
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
					10/12/11	290.47	4438.06
					2/7/12	290.92	4437.61
					4/12/12	291.15	4437.38
					7/18/12	291.37	4437.16
					10/4/12	291.63	4436.90
					1/11/13	292.15	4436.38
					4/11/13	292.29	4436.24
					7/17/13	292.43	4436.10

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (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	2/3/12	591.24	4169.99
					1/9/13	551.35	4209.88
					5/13/08	339.77	4460.91
					8/27/08	344.34	4456.34
NSD-02	527587	598820.051	3468821.474	4531.38	11/22/08	322.26	4478.42
					2/25/09	327.54	4473.14
					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
					12/7/11	104.41	4426.97
					3/6/12	104.30	4427.08
					12/14/12	107.24	4424.14
NSD-03	527586	598070.538	3468694.259	4518.28	3/22/13	107.20	4424.18
					6/24/13	113.50	4417.88
					9/23/13	105.00	4426.38
					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
					12/7/11	89.30	4428.98
					3/6/12	89.24	4429.04
NWC-02	562944	600177.435	3467474.673	4600.44	12/14/12	90.83	4427.45
					3/22/13	88.65	4429.63
					6/24/13	91.70	4426.58
					9/23/13	86.88	4431.40
					10/27/08	160.51	4439.93
NWC-03	203321	601153.857	3468350.838	4574.99	4/29/09 ²	160.5	4439.94
					9/10/09 ²	155	4445.44
					4/2010 ²	131	4469.44
					3/1/2013 ²	131	4469.44
					11/3/08	131.48	4443.51
					4/29/09 ²	130	4444.99
					9/10/09 ²	126	4448.99
					10/9/09 ⁵	125	4449.99

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
NWC-03 CAP	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
					10/13/11	134.73	4438.09
					1/31/12	134.50	4438.32
					4/25/12	135.09	4437.73
					7/18/12	135.73	4437.09
					10/10/12	135.97	4436.85
					1/10/13	135.60	4437.22
NWC-04	551849	605829.808	3469071.959	4690.77	12/2/08	352.11	4338.66
					4/29/09 ²	328	4362.77
					9/10/09 ²	324	4366.77
					4/2010 ²	216	4474.77
					3/1/2013 ²	216	4474.77
NWC-06	575700	599822.821	3467749.954	4592.50	4/29/09 ²	156	4436.50
					9/10/09 ²	155	4437.50
					10/9/09 ²	148	4444.50
					4/2010 ²	140	4452.50
					3/1/13 ²	140	4452.50
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
					2/3/12	74.57	4637.38
					7/9/12	74.63	4637.32

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
					2/6/12	169.09	4522.31
					2/29/12	169.32	4522.08
					3/15/12	169.64	4521.76
					4/12/12	168.85	4522.55
					7/9/12	170.38	4521.02
					11/27/12	169.82	4521.58
					1/18/13	169.12	4522.28
					2/6/13	168.76	4522.64
					4/9/13	167.79	4523.61
					7/10/13	168.51	4522.89
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 395	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
					10/11/11	153.87	4438.26
					2/1/12	153.92	4438.21
					4/12/12	154.35	4437.78
					7/11/12	154.97	4437.16
					10/17/12	155.31	4436.82
					1/9/13	155.25	4436.88
					4/17/13	155.76	4436.37
					7/18/13	156.09	4436.04
PIONKE 517	221517	600909.967	3468866.654	4587.20792	9/18/12	152.00	4435.21
					10/11/12	152.15	4435.06
					1/9/13	152.23	4434.98
					4/17/13	152.58	4434.63
					7/16/13	153.11	4434.10

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
RAMIREZ	216425	599730.649	3467584.363	4596.61	7/14/10	206.58	4432.51
					10/20/10	206.74	4432.35
					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	10/12/11	163.04	4433.57
					4/10/12	163.22	4433.39
					7/6/12	163.85	4432.76
					10/8/12	164.38	4432.23
					4/19/13	164.96	4431.65
					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
					10/12/11	53.63	4594.28
					1/31/12	53.21	4594.70
					4/11/12	54.50	4593.41
					7/6/12	58.75	4589.16
					10/3/12	60.98	4586.93
					1/17/13	56.57	4591.34
					4/18/13	56.32	4591.59
					7/9/13	60.30	4587.61

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
					10/12/11	138.09	4439.26
					1/30/12	137.91	4439.44
					4/23/12	138.61	4438.74
					7/13/12	139.65	4437.70
					10/10/12	139.55	4437.80
					1/15/13	139.23	4438.12
ROGERS 750 ³	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
					10/13/11	153.79	4436.87
					1/30/12	153.56	4437.10
					4/10/12	154.13	4436.53
					7/17/12	155.10	4435.56
RUIZ	531770	602857.357	3471424.219	4735.18	1/17/13	154.56	4436.10
					4/18/13	155.66	4435.00
					7/17/13	155.71	4434.95
					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
					4/13/12	298.47	4436.71
					1/11/13	299.39	4435.79
					4/11/13	299.72	4435.46
					7/25/13	300.06	4435.12

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
SCHWARTZ	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
					10/12/11	127.51	4436.98
					2/6/12	127.34	4437.15
					4/10/12	127.78	4436.71
					7/16/12	128.84	4435.65
STEPHENS	808560	606981.766	3469072.799	4651.22	10/17/12	128.98	4435.51
					3/13/13	128.81	4435.68
					5/14/13	129.60	4434.89
					7/15/13	129.05	4435.44
					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
					1/31/12	55.65	4595.57
					7/9/12	10.69	4640.53
					1/18/13	10.50	4640.72
					7/10/13	58.16	4593.06

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
					2/3/12	Dry	<4426
					7/9/12	Dry	<4426
					9/13/12	Dry	<4426
					1/17/13	Dry	<4426
					7/9/13	Dry	<4426
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
					2/3/12	37.86	4678.73
					7/10/12	40.39	4676.20
THOMPSON 151	612151	599543.561	3467387.294	4597.62	1/9/13	38.51	4678.08
					7/8/13	42.26	4674.33
TM-02A	522574	604152.059	3472008.794	4808.43	8/9/13	167.86	4429.76
					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
					2/2/12	346.94	4461.49
					8/13/12	344.53	4463.90
					2/14/13	343.50	4464.93
					8/27/13	343.84	4464.59

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
TM-06 MILLER	522695	606055.975	3468376.658	4707.88	7/7/10	131.25	4766.60
					2/1/12	135.04	4762.81
					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
TM-10 USBP	522696	601586.268	3471816.397	4741.18	7/21/11	159.88	4548.00
					7/9/12	161.40	4546.48
					2/14/13	161.05	4546.83
					8/19/13	161.30	4546.58
					3/15/12	279.30	4461.88
					4/24/12	279.03	4462.15
					9/13/12	278.30	4462.88
TM-16	522578	605588.075	3469842.199	4717.71	10/19/12	277.45	4463.73
					3/7/13	276.55	4464.63
					4/17/13	276.42	4464.76
					7/23/13	275.99	4465.19
					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
					7/9/12	72.55	4645.16
					8/15/13	61.42	4656.29

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
					2/2/12	203.84	4442.03
					7/11/12	204.75	4441.12
					10/16/12	205.02	4440.85
TM-42	562554	603698.271	3469104.903	4666.67	2/15/13	205.30	4440.57
					9/4/13	205.73	4440.14
					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
TVI 236	802236	600552.215	3467978.431	4561.98	7/2/10	213.52	4453.15
					7/12/11	214.62	4452.05
					7/11/12	216.10	4450.57
					2/12/13	216.55	4450.12
					8/28/13	217.38	4449.29
					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
					7/16/12	127.81	4434.17
					10/9/12	128.45	4433.53
					7/18/13	127.38	4434.60

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (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
					10/12/11	130.33	4436.89
					2/3/12	130.01	4437.21
					4/25/12	131.33	4435.89
					7/16/12	131.97	4435.25
					10/9/12	132.16	4435.06
WEISKOPF 802	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
					10/13/11	148.30	4438.59
					2/1/12	148.23	4438.66
					4/25/12	148.82	4438.07
WEISKOPF 897	221897	601096.780	3468647.358	4585.70	7/13/12	149.79	4437.10
					10/11/12	149.73	4437.16
					1/16/13	149.49	4437.40
					4/17/13	150.16	4436.73
WMD-2011-03M	913037	605360.830	3470671.273	4746.28	7/18/13	150.15	4435.55
					2/2/12	226.66	4519.62

TABLE 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (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
					10/12/11	149.50	4431.44
					1/31/12	149.31	4431.63
					4/10/12	149.64	4431.30
					7/17/12	150.63	4430.31
					10/8/12	150.92	4430.02
					1/10/13	150.89	4430.05
					4/18/13	151.36	4429.58
					7/15/13	152.14	4428.80

Notes:

35-71891 = ADWR 35 Database

ADWR = Arizona Department of Water Resources

ft amsl = feet above mean sea level

NR = No Record

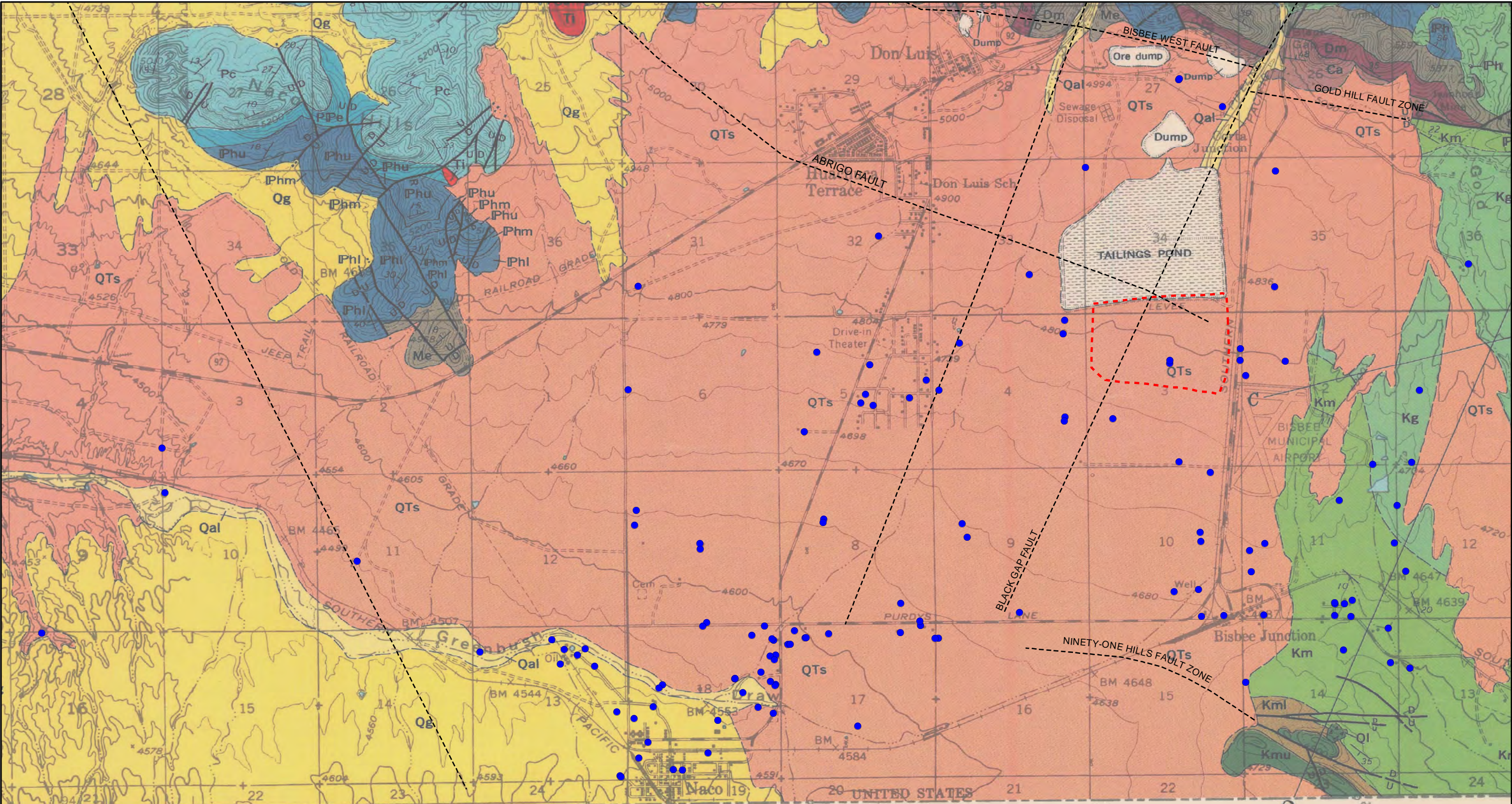
UTM = Universal Transverse Mercator Zone 12, North American Datum 1983 (NAD83)

¹ Depth to Water measurement provided by Arizona Water Company

² Depth to Water measurement provided by Naco Water Company

³ Well previously identified as ROGERS 803

FIGURES



Legend

● Monitoring Location

▭ Former Evaporation Ponds

— Faults (dashed where inferred)

Geologic Unit - Hayes and Landis (1964)

Basin Fill

- Qal - Quaternary Alluvium
- Qg - Quaternary Gravel
- QTs - Quaternary Tertiary sediment
- Ti - Tertiary Intrusive

- Kc - Cintura Formation (not shown)
- Kmu - Upper Mural Limestone
- Kml - Lower Mural Limestone
- Km - Morita Formation
- Pc - Colina Limestone
- PPe - Earp Formation
- Phu, Phm, Phl - Horquilla Limestone

Undifferentiated Bisbee Group

Paleozoic Sedimentary Formations

See Figure 2 for Monitor Location Names

Scale (Feet)

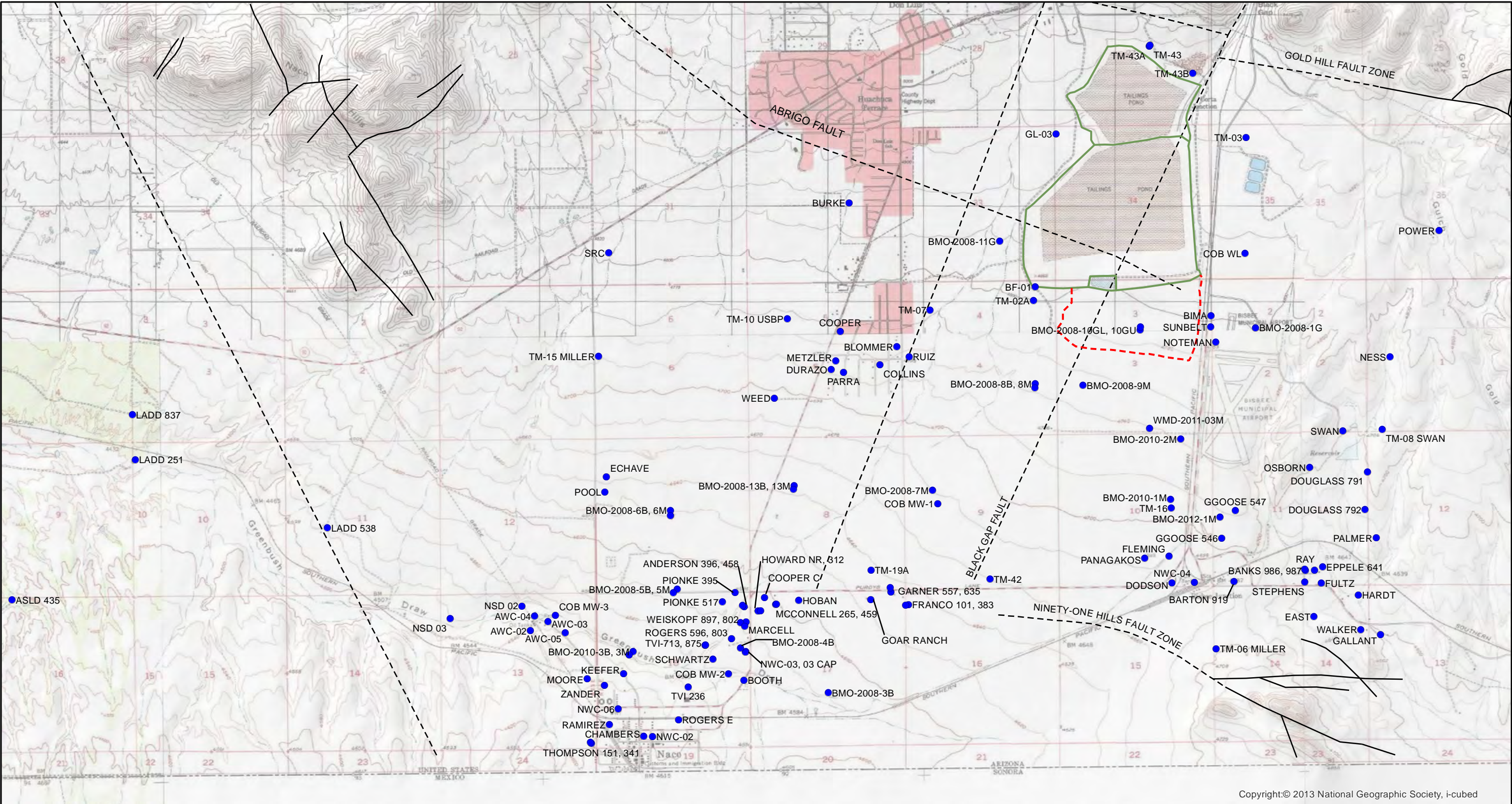
0 3,000 6,000

Projection: UTM Zone 12N NAD83

Geology reprinted from Hayes and Landis (1964)

USGS Miscellaneous Geologic Investigations I-418

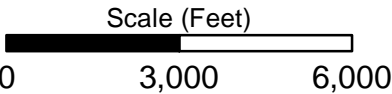
Date	9/25/13	File ID	055038-336
<p>FIGURE 1 GEOLOGIC MAP WITH MONITORING LOCATIONS</p>			



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Legend

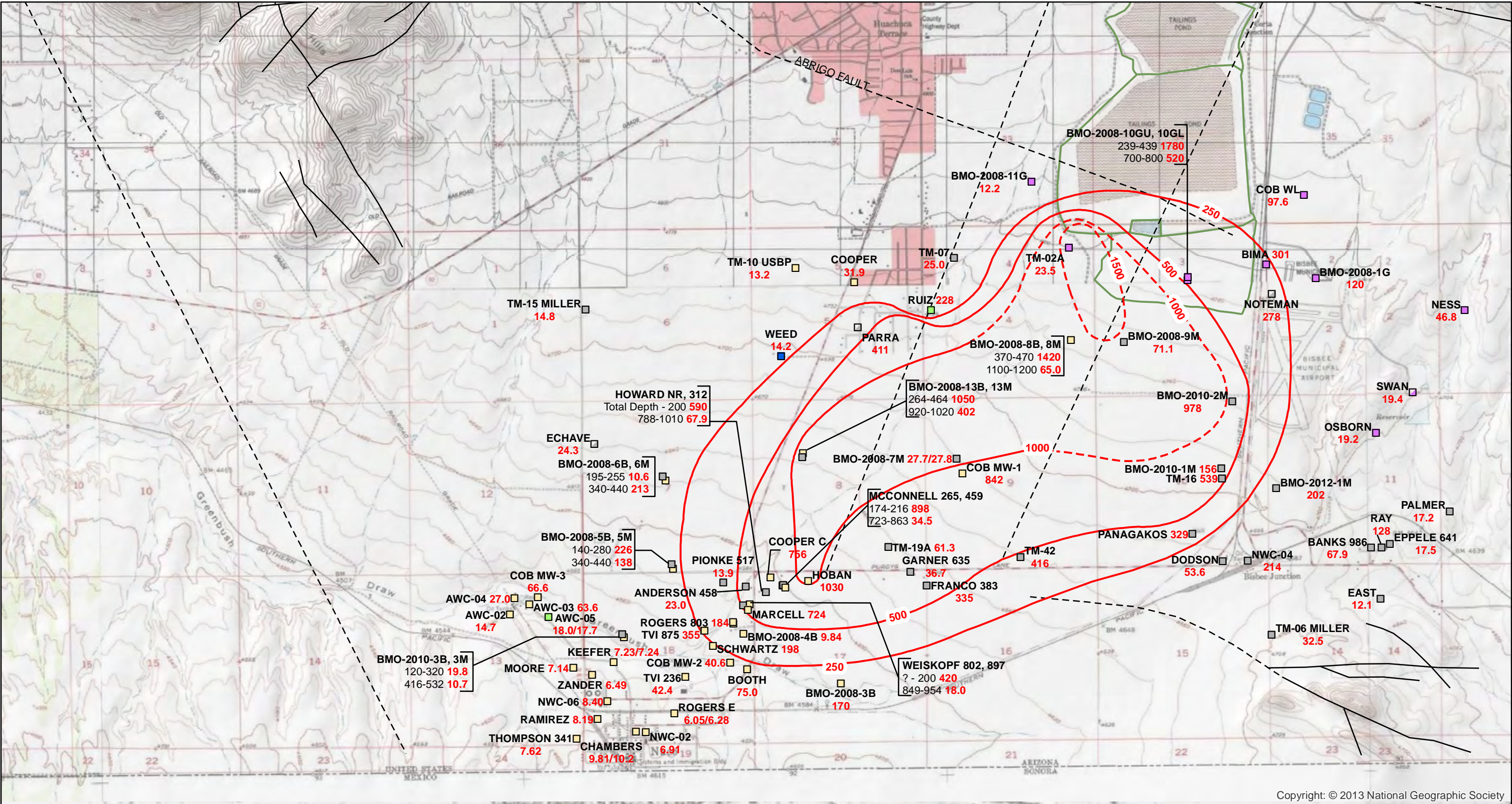
- Monitoring Location
- ▤ Former Evaporation Ponds
- ▭ CTSA Facility
- Faults (dashed where inferred)



Projection: UTM Zone
12N NAD83

Date	9/25/13	File ID	055038-324

FIGURE 2
MONITORING LOCATIONS



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Legend

Well ID
SO4 Concentration (mg/L)

SO4 Concentration Contours
(dashed where inferred)

Faults (dashed where inferred)

CTSA Facility

Co-located Wells

Well ID
Screen (ft bgs): Sulfate Levels (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)

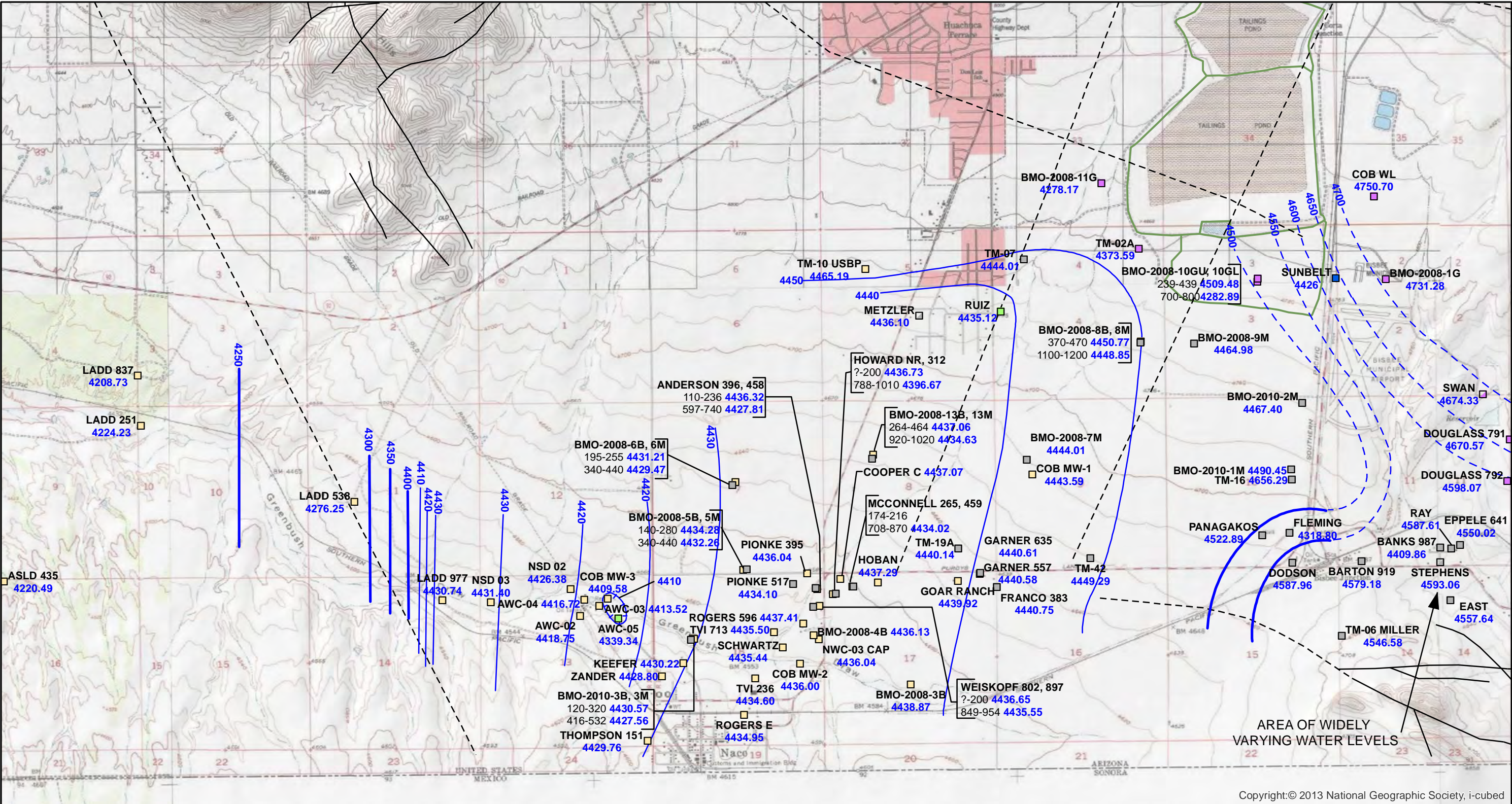
0 3,000 6,000

Notes:

Projection: UTM Zone
12N NAD83
mg/L = milligrams per liter

Date	9/25/13	File ID	055038-333

FIGURE 3
SULFATE CONCENTRATIONS IN
GROUNDWATER FOR
THIRD QUARTER 2013



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Legend

■ RAY 4587.61 Well ID
Groundwater Elevation (ft amsl)

Groundwater Elevation Contours (10 ft)
Groundwater Elevation Contours (50 ft) (dashed where inferred)
Faults (dashed where inferred)
CTSA Facility

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

NOTE: AWC wells were turned off for a minimum of 4 hours prior to measuring the water levels. No attempt was made to determine if there was residual drawdown.

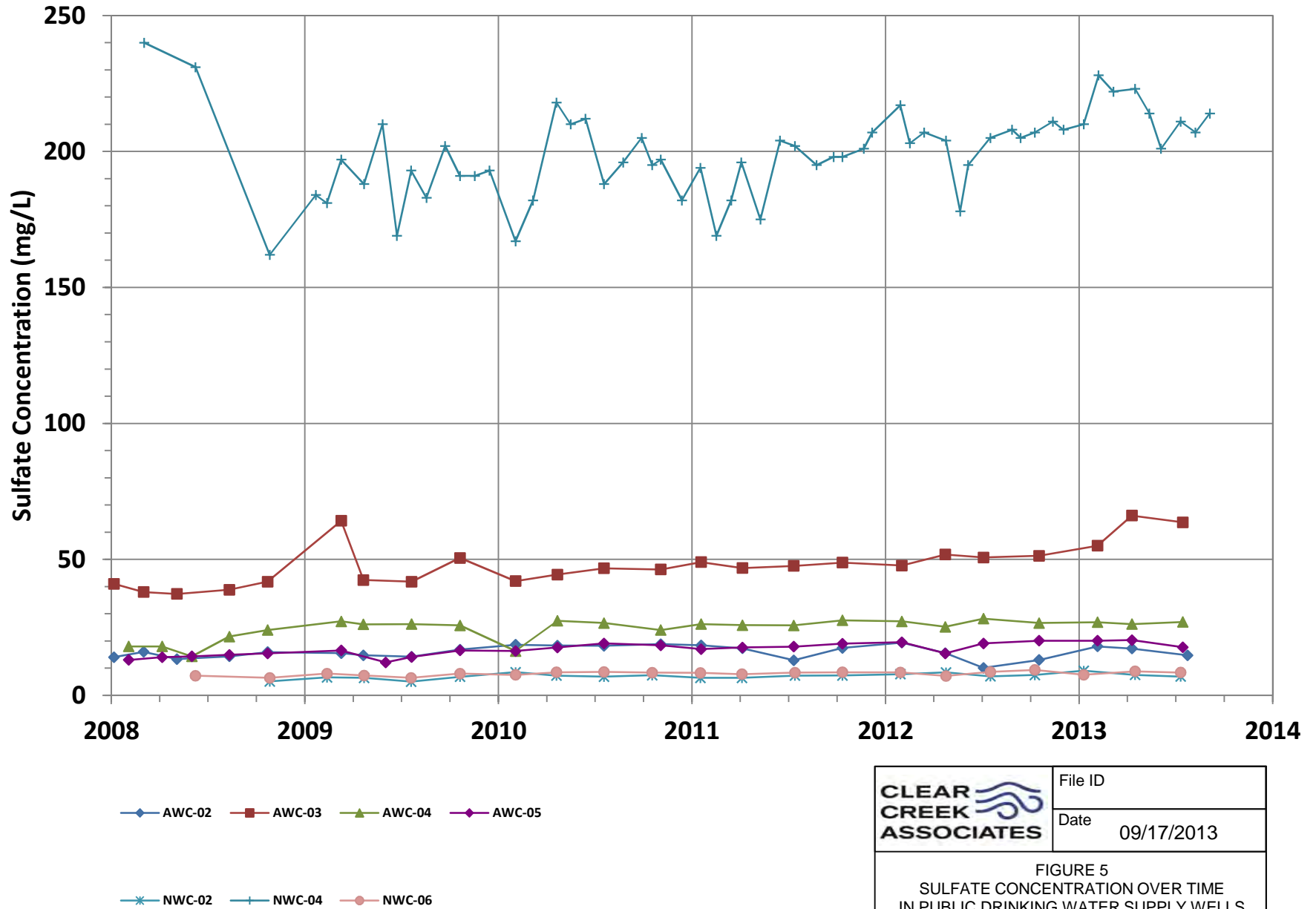
Scale (Feet)

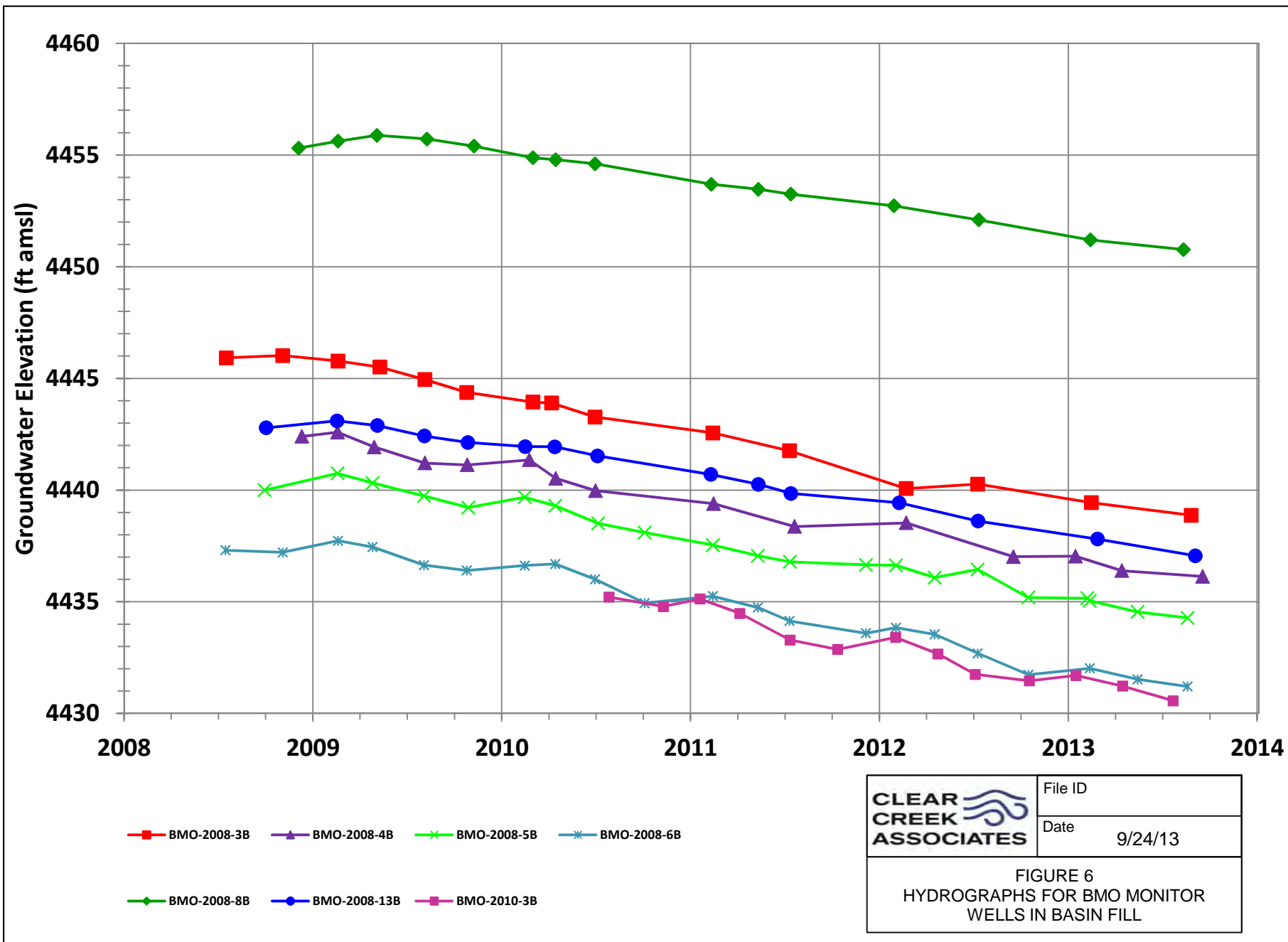
0 3,000 6,000

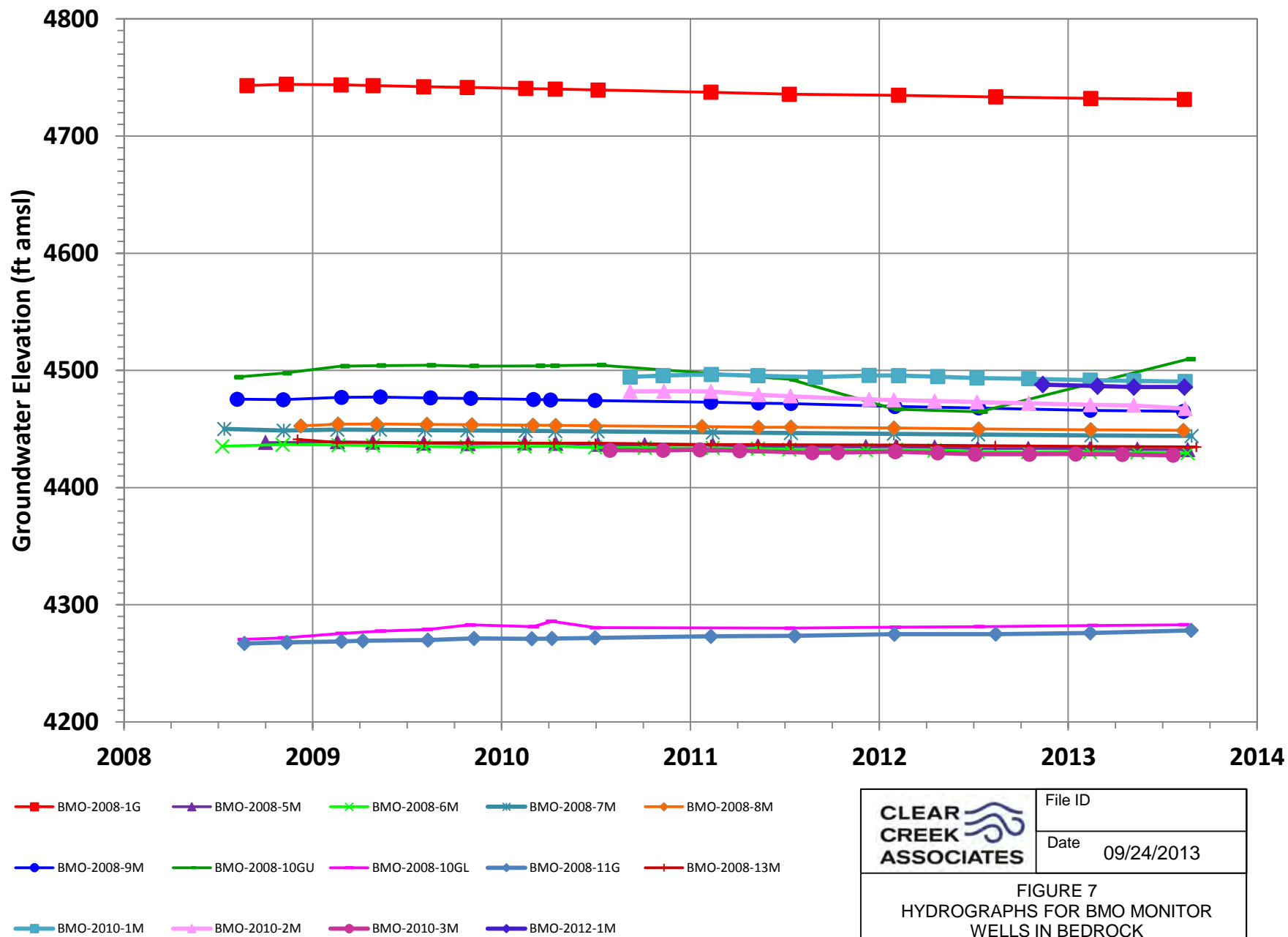
Projection: UTM Zone 12N NAD83
ft amsl = feet above mean sea level
bls = below land surface
Groundwater elevation contours are based on first quarter 2013 data and adjusted with current data.

Date	9/25/13	File ID	055038-334

FIGURE 4
GROUNDWATER ELEVATIONS
FOR THIRD QUARTER 2013







APPENDIX A
SURVEY DATA

APPENDIX A
Survey Data

Point ID	ADWR 55 Number	Survey Location	Northing (UTM meters)	Easting (UTM meters)	Measuring Point Elevation (meters)	Measuring Point Elevation (feet)
THOMPSON 151	612151	Top of Casing	3467387.294	599543.561	1401.358	4597.623
THOMPSON 341	218341	Top of Casing	3467396.849	599532.241	1401.087	4596.732

All coordinates listed in UTM Zone 12N Geoid 09 (Meters)

Data Provided by CQB

APPENDIX B

DATA VERIFICATION REPORT

APPENDIX B

DATA VERIFICATION REPORT

THIRD QUARTER 2013

GROUNDWATER MONITORING REPORT

Prepared for:

FREEPORT-MCMORAN CORPORATION
COPPER QUEEN BRANCH
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Prepared by:

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October 18, 2013

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B.1 SVL and Turner Laboratory Comparison

FIGURE

B.1 SVL and Turner Laboratory Deviation

1. INTRODUCTION

This report summarizes the data verification review of groundwater samples collected and analyzed during the third quarter 2013 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 (CQB, 2010 and ADEQ, 2010). Analytical results for groundwater samples collected for this project during the third quarter 2013 were provided to Clear Creek by SVL Analytical, Inc. (SVL) of Kellogg, Idaho for preparation of the third quarter 2013 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.

A laboratory comparison was conducted on select samples from the second quarter 2013 as an elective, additional measure of data quality insurance. Turner Laboratories (Turner) of Tucson, Arizona were contracted to analyze duplicate samples from the second quarter 2013 sampling campaign. The comparison of sulfate results between SVL and Turner are discussed in Section 6.0 of this data verification review, and provided on Table B.1 and Figure B.1.

The laboratory reports for the third quarter 2013 samples including COC forms, laboratory correspondence, QC summaries, data qualifiers, and internal QA/QC tests performed by the laboratory are in Appendix C. Based on the results of laboratory control samples, matrix spike/recovery and blank spikes, SVL did not advise any modifications regarding the usability and data validation status of the laboratory test results. The analytical results for 102 samples collected by Clear Creek and CQB in third quarter 2013 are contained in 12 reports with the SVL laboratory identification numbers listed in the following table.

SVL ID	WELLS REPORTED
	Number of wells sampled: 83 Number of well samples collected (including duplicates and multiple samples from one well): 91 Number of duplicate samples collected: 6 Number of field and equipment blanks collected: 11 Total number of samples collected: 102
W3G0485	NWC-04
W3G0290	FRANCO 383, PANAGAKOS, BANKS 986, DODSON, EAST, NOTEMAN, RAY, EPPELE 641, NESS, SWAN, OSBORN, BIMA, MCCONNELL 265, GARNER 635, MCCONNELL 459, COB MW-1, COOPER
W3G0486	MOORE, KEEFER, DUP20130711, EQB20130712, NWC-06, FB20130712, DUP20130712, PARRA, ECHAVE, ZANDER, EQB20130715, FB20130716, PIONKE 517, EQB20130716, ROGERS E, CHAMBERS, RAMIREZ, HOWARD NR, NWC-02
W3G0482	COLLINS, PALMER, BOOTH, DUP20130717, AWC-05, AWC-03, DUP20130715, DUP20130716, FB20130715, HOWARD 312, WEISKOPF 802, ANDERSON 458, MARCELL, AWC-04, SCHWARTZ, ROGERS 803, WEISKOPF 897
W3G0770	BMO-2010-3M, EQB20130723, FB20130723, BMO-2010-3B, TM-10 USBP, WEED, TVI 875, TVI 236, COB MW-2, AWC-02, RUIZ, EQB20130725, FB20130725, COB-WL, COB MW-3
W3H0297	NWC-04, THOMPSON
W3H0426	BMO-2008-8M, BMO-2008-8B, BMO-2008-9M, BMO-2008-10GL, COOPER C, HOBAN, BMO-2008-1G, BMO-2012-1M, TM-16, BMO-2010-1M, BMO-2010-2M
W3H0616	BMO-2008-10GU, TM-6, BMO-2008-6M, BMO-2008-6B, BMO-2008-5M, BMO-2008-5B
W3H0789	BMO-2008-11G, BMO-2008-3B, TM-42, EQB-082813, BMO-2008-7M, DUP-082813, TM-7, TM-2A
W3H0426b	NWC-04
W3I0181	BMO-2008-13B, TM-19A, TM-15, BMO-2008-13M
W3I0472	BMO-2008-4B

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 [$\mu\text{S}/\text{cm}$], and temperature in degrees Celsius [$^{\circ}\text{C}$]),
- Collection of groundwater samples for water quality analysis,
- Collection of groundwater QA and QC 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 (where there are no known obstructions or lack of wellhead access to prevent static water level measurement) 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. Because it is not always possible to ascertain how long the pump had been off prior to water level measurements (for wells equipped with pumps), some water levels may be affected by residual drawdown. 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

An attempt was made to collect groundwater samples from wells designated in the groundwater monitoring program approved by ADEQ (ADEQ, 2010). Construction and location information for the wells sampled for water quality and water level measurements is listed in Tables 2 and 4 of the main text.

2.2.1 Pre-Sampling Field Activities

On each day of sampling, the pH¹ and SC² multipurpose meter 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 microSiemens/centimeter for specific conductance as described in Section 4.2.1.2 of the QAPP.

During this monitoring period 91 groundwater samples (duplicate and multiple samples included) were collected for analysis from 83 wells. Groundwater samples were collected by filtering the sample into a 250 milliliter bottle using a clean filtration apparatus and one disposable 0.45-micron filter. All bottles were provided by the laboratory and maintained in a clean and secure work area until used in the field.

¹ Field pH meters were calibrated using a three point calibration

² Field SC meters were calibrated using standard stock solutions

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 placed in a bag without ice to prevent the label from getting soaked with water and rubbing off or becoming illegible.

3. SAMPLE HANDLING

All third quarter 2013 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. Laboratory reports include 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 eleven days of sample collection and the time between sample collection and receipt of samples by SVL was two to twelve 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 is equal to or less than the target MDL identified in the QAPP.

Lab	Method	MDL (mg/L)	RL (mg/L)	Target MDL ¹ (mg/L)
SVL	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 and spike duplicate samples were analyzed for 10 percent of the samples analyzed. The spike samples were prepared by adding a sulfate spike to one randomly chosen sample out of every ten samples analyzed. Spike recoveries for most analyses were between 90 and 110 percent. Instances in which analytical spike recoveries were high or unusable are qualified with an “M1”, or “M3” flag, respectively. The “M1” flag was used on reports W3H0789, W3H0616, W3H0426, W3G0482-1, and W3G0770. The “M3” qualifier was used on reports W3H0789, W3H0616, W3H0426, W3G0482-1, W3G0770, W3G0482, W3G0486, W3G0290, and W3G0485. In all cases where a qualifier was used, the method control sample recovery was checked to ensure that it was acceptable. The method 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 for laboratory duplicate samples, 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 2013, one field sample (SCHWARTZ) was re-analyzed by SVL at the request of Clear Creek Associates based on comparison to historical results. The July 15, 2013 sample concentration was reported as 198 mg/L which was the highest reported concentration at that well since the third quarter 2008. The sample was reanalyzed twice on August 15, 2013 with concentrations reported as 198 mg/L and 190 mg/L, however the reanalysis was completed outside of the hold time of 28 days. The original sample result was confirmed and is reported in tables and figures.

4.5.5 Blank Samples

During the third quarter 2013, 11 blank samples were collected, including five field blanks (FB20130712, FB20130715, FB20130716, FB20130723, and FB20130725) and six field equipment blanks (EQB20130712, EQB20130715, EQB20130716, EQB20130723, EQB20130725, and EQB-082313). None of the blank samples collected in the third quarter 2013 had sulfate concentrations above the reporting limit of 0.30 mg/L. The results demonstrate that the sulfate concentrations reported in the third quarter 2013 were not affected by sample collection and sample handling procedures. Field and equipment blank samples were collected in accordance with procedures described in Section 4.2.1.5 of the QAPP. Field and equipment 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.

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 2013 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 and by measuring the water level multiple times before recording the result.

For the QA/QC of analytical data, 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 6 field filtered duplicate samples (DUP20130711, DUP20130712, DUP20130715, DUP20130716, DUP201307117, and DUP-082813) were collected by Clear Creek and CQB for analysis. The collection of 6 duplicate samples meets the QA/QC method and quantity goal stated in Section 4.2.1.5 of the QAPP.

Sulfate results for the 6 duplicate samples collected are provided in the table below. The range of RPD values was between 0.14 and 5.35 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 met for the analytical data.

SVL Project No.	Well ID	Duplicate ID	Sample (mg/l)	Duplicate (mg/l)	RPD
W3G0485 & W3G0486	NWC-04	DUP20130712	211	200	5.35%
W3G0486	KEEFER	DUP20130711	7.23	7.24	0.14%
W3G0486 & W3G0482	ROGERS E	DUP201307117	6.1	6.28	3.73%
W3G0482	AWC-05	DUP20130716	18	17.7	1.68%
W3G0482	CHAMBERS	DUP20130715	9.81	10.2	3.90%
W3H0789	BMO-2008-7M	DUP-082813	27.7	27.8	0.36%

mg/L = milligrams per liter

RPD = Relative Percent Difference

For the QA/QC of water level monitoring, precision was met by measuring the water level repeatedly until readings were within 0.03 feet of one another. Readings within that range were obtained from all wells where groundwater measurements were collected, so the DQI for precision is met.

5.2 Bias

Bias is a systematic distortion of measurements causing consistent errors in one direction. Bias is managed in this data set by the consistent application of standardized sample collection and analysis procedures. As discussed in Section 4.5.5, none of the blank samples had measurable concentrations of sulfate indicating that the sampling collection and analysis procedures did not contribute sulfate to the results.

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. As discussed in Section 4.5.5, none of the blank samples had measurable concentrations of sulfate indicating that the sampling collection and analysis procedures did not contribute sulfate to the results. Water level measurements for the third quarter 2013 were compared to previous quarters to ensure that the

measurements were within the expected ranges. Based on this information, the overall accuracy of the data is judged sufficient for the purpose of aquifer characterization.

5.4 Representativeness

All samples and water level measurements were taken from locations specified in the revised groundwater monitoring program (ADEQ, 2010) following sampling procedures specified in the QAPP. Therefore, they provide a good representation of groundwater quality at the sampled locations. The sampling procedures are representative of groundwater quality at the sampled locations because no sulfate was detected in the field or equipment blanks. The analytical data are 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 satisfy the QA/QC criteria for this project. The completeness of analytical results is 100 percent, which exceeds the minimum 90 percent completeness in Section 3.3.6 of the QAPP.

5.7 Sensitivity

The analytical method used to analyze the samples meets the MDL requirements specified in Table F.2 of the QAPP. The water level sounder was accurate to 0.01 feet as specified in Section 4 of the QAPP. Therefore, the analytical sensitivity is considered acceptable for use in aquifer characterization.

6. INTER-LABORATORY COMPARISON

The inter-laboratory comparison described below was conducted as an additional QA step, to independently verify the results from SVL, which is the laboratory that is routinely used for groundwater monitoring. Second quarter 2013 samples analyzed by SVL were reported in July 2013 (Clear Creek, 2013). Additional analysis for select second quarter 2013 samples was conducted by Turner Laboratories of Tucson, Arizona (Turner). The Turner data were not analyzed in time to include in the second quarter monitoring report. Turner is licensed with the Arizona Department of Health Services (license number AZ0066). The laboratory reports from Turner for the second quarter 2013 duplicate samples including COC forms, laboratory correspondence, QC summaries, data qualifiers, and internal QA/QC tests performed by the laboratory are in Appendix C.

Second quarter 2013 samples reported here were collected by Clear Creek and delivered directly to Turner for analysis. The samples are serial duplicates of the samples sent to SVL and reported in the second quarter 2013. The serial duplicate samples submitted to Turner were collected by filling a second 250 milliliter sample container from the filtered discharge immediately after the collection of the first container for submittal to SVL. Laboratory reports include the date and time the samples were received by Turner. As noted on the analytical data reports from Turner, all of the sample bottles were received intact, properly preserved, and in good condition. The samples were received and analyzed by Turner within the established holding time for dissolved sulfate analysis in accordance with United States Environmental Protection Agency (EPA) Method 300.0.

The analytical results for 52 samples collected by Clear Creek in the second quarter 2013 are contained in 3 reports with laboratory identification numbers listed in the following table

TURNER ID	WELLS REPORTED
Total number of samples analyzed: 52	
13D0620	GARNER 635, ANDERSON 458, ROGERS 803, BMO-2008-4B
13D0612	WEED, MCCONNELL459, HOWARD NR, HOWARD 312, EPPELE 641, NOTEMAN, PALMER, COOPER, PARRA, TVI815, BIMA, BANKS 986, RAY, MARCELL, AWC-02, AWC-03, RUIZ, FRANCO 383, EAST, DODSON, PANAGAKOS, CHAMBERS, ROGERS E, KEEFER, PIONKE517, WEISKOPF 897, WEISKOPF 802, TM-10, AWC-04, MCCONNELL 265, MOORE, ZANDER, NWC002, NWC-04, NWC-06, BMO-2013-3B, BMO-2010-3M, RAMIREZ, AWC-05, FB20130410, DUP20130408, EQB20130410, EQB20130417, FB20130417, DUP20130416
13E0496	SCHWARTZ, ECHAVE, NWC-04

The MDL and RL of the analytical method used by Turner 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.

Lab	Method	MDL (mg/L)	RL (mg/L)	Target MDL ¹ (mg/L)
Turner	EPA 300.0	0.13	5.0	10

mg/L = milligrams per liter

¹ Target MDL from Table F.2 of QAPP

During the second quarter 2013 sampling 52 duplicate samples were collected for analysis by Turner in order to evaluate and confirm the results from SVL. The RPD was calculated for each set of samples (Table B.1) except for samples with at least one result below the reporting limit of the respective laboratories. The RPDs range from 0.00% to 31.11%. The RPD for WEISKOPF 897 was 31.11%, which exceeds the 20% limit stated in section 3.3.1 of the QAPP. SVL results were slightly higher than Turner results in 43 samples, lower than Turner results in three samples, and equal to Turner results in five samples. Figure B.1 shows a comparison between the results from each laboratory.

The results of inter-laboratory comparison show that there are no significant discrepancies between sulfate concentrations reported by SVL and Turner. Figure B.1 indicates a good correspondence between the SVL and Turner analyses, with a linear trendline of the data having a correlation coefficient of 0.9979. The slight bias for SVL's concentrations to be greater than Turner's is indicated by the trendline slope of 0.9609.

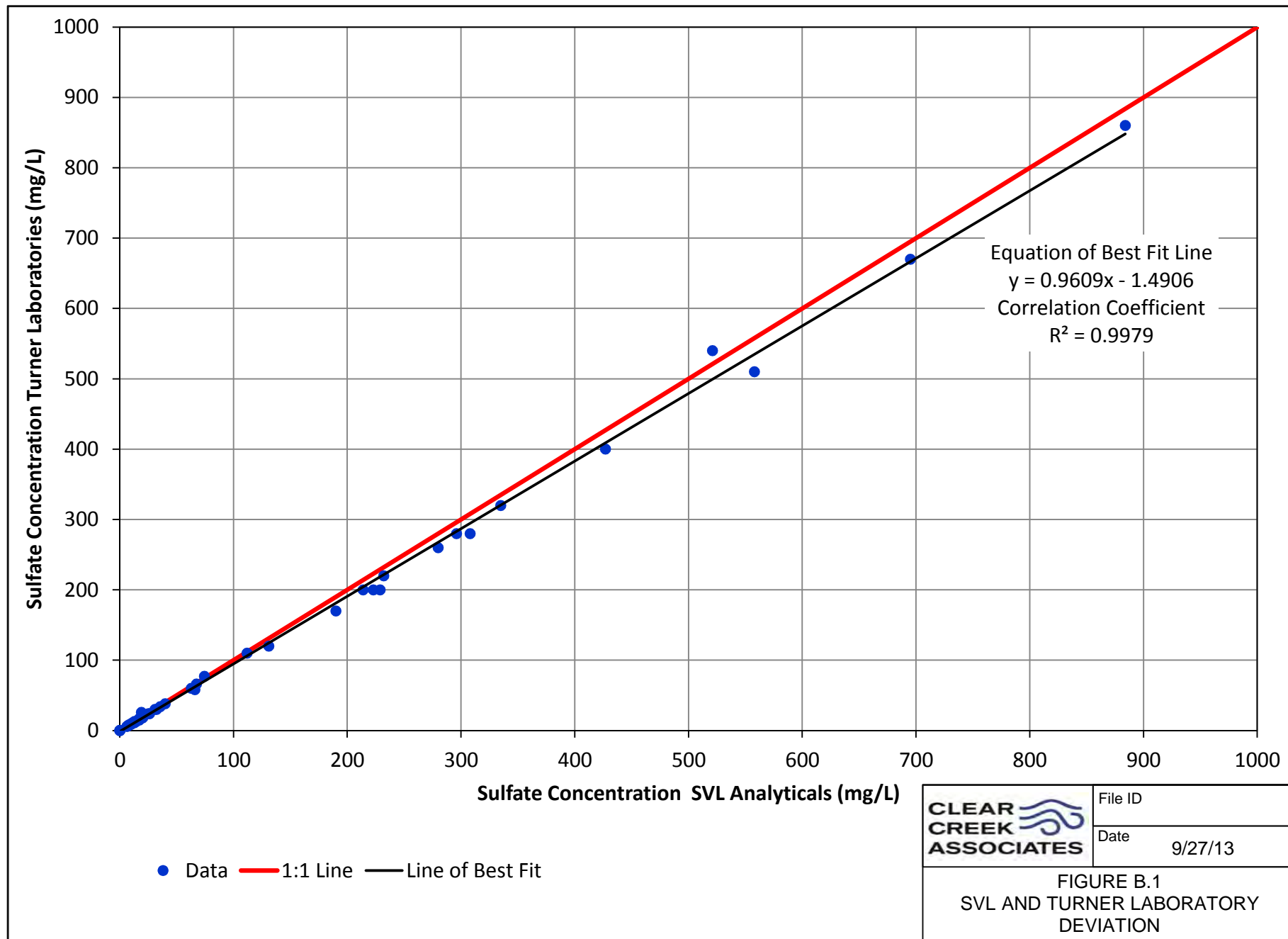
7. REFERENCES

- 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.
- Clear Creek Associates. 2013. Second Quarter 2013 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. July 10, 2013.
- 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. 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.

Table B.1
SVL and Turner Laboratory Comparison

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	SVL Sulfate, dissolved (mg/L)	Turner Sulfate Dissolved (mg/L)	RPD%	Abosolute Difference	Difference (SVL-Turner)
ANDERSON 458	221458	4/15/13	8.19	23.5	402.7	32.3	30	7.38%	2.30	2.3
AWC-02	616586	4/11/13	7.53	22.1	471.3	17.2	15	13.66%	2.20	2.2
AWC-03	616585	4/11/13	7.51	22.2	486.4	66.1	58	13.05%	8.10	8.1
AWC-04	616584	4/11/13	7.38	21.7	595.4	26.2	24	8.76%	2.20	2.2
AWC-05	590620	4/11/13	7.54	21.2	444.5	20.3	18	12.01%	2.30	2.3
BANKS 986	647986	4/8/13	7.87	20.7	861.7	62.9	60	4.72%	2.90	2.9
BIMA	577927	4/10/13	6.64	13.9	1569	308	280	9.52%	28.00	28.0
BMO-2008-4B	910096	4/15/13	7.75	23.0	368.2	11.2	11	1.80%	0.20	0.2
BMO-2010-3B	219970	4/16/13	7.65	21.2	415.1	17.5	16	8.96%	1.50	1.5
BMO-2010-3M	219969	4/16/13	7.83	22.3	383.7	10.2	9.5	7.11%	0.70	0.7
		4/16/2013 DUP	7.83	22.3	383.7	10.2	9.4	8.16%	0.80	0.8
CHAMBERS	629807	4/18/13	7.49	21.7	434.1	9.78	9.1	7.20%	0.68	0.7
COOPER	623564	4/10/13	7.72	21.1	427.5	31.0	30	3.28%	1.00	1.0
DODSON	644927	4/9/13	7.33	19.6	1886	74.4	77	3.43%	2.60	-2.6
EAST	599796	4/9/13	7.54	19.6	597.7	12.2	< 5	NA	NA	NA
ECHAVE	219449	5/14/13	7.74	22.2	400.2	25.2	24	4.88%	1.20	1.2
EPPELE 641	805641	4/8/13	7.71	20.4	564.1	17.5	17	2.90%	0.50	0.5
		4/8/2013 DUP	7.71	20.4	564.1	17.4	17	2.33%	0.40	0.4
FRANCO 383	221383	4/10/13	7.70	20.4	1000	335	320	4.58%	15.00	15.0
GARNER 635	587635	4/15/13	7.79	23.4	471.5	40.0	38	5.13%	2.00	2.0
HOWARD NR	NR	4/9/13	7.38	19.4	1319	521	540	3.58%	19.00	-19.0
HOWARD 312	221312	4/9/13	8.20	24.3	621.0	67.5	66	2.25%	1.50	1.5
KEEFER	209744	4/18/13	7.58	20.0	475.9	7.30	6.8	7.09%	0.50	0.5
MARCELL	NR	4/10/13	7.07	19.9	1578	695	670	3.66%	25.00	25.0
MCCONNELL 265	539265	4/18/13	7.11	20.4	1889	884	860	2.75%	24.00	24.0
MCCONNELL 459	221459	4/10/13	8.14	23.5	487.0	35.5	34	4.32%	1.50	1.5
MOORE	538847	4/19/13	7.68	21.6	434.7	7.25	7	3.51%	0.25	0.3
NOTEMAN	212483	4/8/13	6.9	22.3	1409	280	260	7.41%	20.00	20.0
NWC-02	562944	4/17/13	7.64	21.2	426.2	7.52	6.9	8.60%	0.62	0.6
NWC-04	551849	4/17/13	7.43	22.6	903.8	223	200	10.87%	23.00	23.0
		5/14/13	7.53	23.2	881.7	214	200	6.76%	14.00	14.0
NWC-06	575700	4/17/13	7.66	21.1	404.1	8.82	8.2	7.29%	0.62	0.6
PALMER	578819	4/8/13	8.07	18.4	534.1	17.0	16	6.06%	1.00	1.0
PANAGAKOS	35-76413	4/9/2013	7.24	19.7	1105	232	220	5.31%	12.00	12.0
PARRA	576415	4/11/13	7.29	21.2	1206	427	400	6.53%	27.00	27.0
PIONKE 517	221517	4/17/13	7.74	22.1	391.9	14.6	13	11.59%	1.60	1.6
RAMIREZ	216425	4/19/13	7.6	22.1	413.9	8.63	8.3	3.90%	0.33	0.3
RAY	803772	4/8/13	7.32	20.0	1476	131	120	8.76%	11.00	11.0
ROGERS 803	641803	4/15/13	7.57	23.8	698.0	190	170	11.11%	20.00	20.0
ROGERS E	216018	4/18/13	7.63	21.3	433.5	6.26	6	4.24%	0.26	0.3
RUIZ	531770	4/11/13	7.26	21.9	876.8	229	200	13.52%	29.00	29.0
SCHWARTZ	210865	5/14/13	7.61	21.5	629.7	112	110	1.80%	2.00	2.0
TM-10 USBP	522696	4/17/13	8.27	20.3	423.9	12.8	11	15.13%	1.80	1.8
TVI 875	568875	4/10/13	7.35	20.9	907.6	296	280	5.56%	16.00	16.0
WEED	544535	4/10/13	7.76	20.6	383.9	13	13	0.00%	0.00	0.0
WEISKOPF 802	641802	4/17/13	7.22	20.1	1337	558	510	8.99%	48.00	48.0
WEISKOPF 897	221897	4/17/13	7.86	22.6	394.4	19.0	26	31.11%	7.00	-7.0
ZANDER	205126	4/18/13	7.65	20.8	436.7	6.66	6.3	5.56%	0.36	0.4
EQB20130410	-	4/10/13	-	-	-	< 0.30	< 5	NA	0.00	0.00
EQB20130417	-	4/17/13	-	-	-	< 0.30	< 5	NA	0.00	0.00
FB20130410	-	4/10/13	-	-	-	< 0.30	< 5	NA	0.00	0.00
FB20130417	-	4/17/13	-	-	-	< 0.30	< 5	NA	0.00	0.00
MINIMUM								0.00%	0.00	-19.00
MAXIMUM								31.11%	48.00	48.00
SVL = Turner										5
SVL higher than Turner										43
SVL lower than Turner										3
Slope of Best Fit Line										0.961311847
Correlation Coefficient										0.998921235

Notes:
ADWR = Arizona Department of Water Resources
DUP = Blind duplicate
mg/L = milligrams per liter
NR = No Record
SC = Specific Conductance
SU = Standard Units
µS/cm = microsiemens per centimeter
NA = Not Available. Unable to calculate as the Turner sulfate result is below the minimum detection limit.



APPENDIX C
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 OrderWork Order: **W3G0290**

Reported: 26-Jul-13 09:38

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
FRANCO 383	W3G0290-01	Ground Water	10-Jul-13 11:54	VH	12-Jul-2013
PANAGAKOS	W3G0290-02	Ground Water	10-Jul-13 09:59	VH	12-Jul-2013
BANKS 986	W3G0290-03	Ground Water	09-Jul-13 17:02	VH	12-Jul-2013
DODSON	W3G0290-04	Ground Water	09-Jul-13 15:21	VH	12-Jul-2013
EAST	W3G0290-05	Ground Water	09-Jul-13 14:09	VH	12-Jul-2013
NOTEMAN	W3G0290-06	Ground Water	09-Jul-13 13:14	VH	12-Jul-2013
RAY	W3G0290-07	Ground Water	09-Jul-13 11:11	VH	12-Jul-2013
EPPL 641	W3G0290-08	Ground Water	09-Jul-13 09:46	VH	12-Jul-2013
NESS	W3G0290-09	Ground Water	08-Jul-13 13:43	VH	12-Jul-2013
SWAN	W3G0290-10	Ground Water	08-Jul-13 14:21	VH	12-Jul-2013
OSBORN	W3G0290-11	Ground Water	08-Jul-13 15:00	VH	12-Jul-2013
BIMA	W3G0290-12	Ground Water	08-Jul-13 15:46	VH	12-Jul-2013
MCCONNELL 265	W3G0290-13	Ground Water	10-Jul-13 16:24	VH	12-Jul-2013
GARNER 635	W3G0290-14	Ground Water	10-Jul-13 14:57	VH	12-Jul-2013
MCCONNELL 459	W3G0290-15	Ground Water	10-Jul-13 17:30	VH	12-Jul-2013
COB MW-1	W3G0290-16	Ground Water	11-Jul-13 12:56	VH	12-Jul-2013
COOPER	W3G0290-17	Ground Water	11-Jul-13 13:34	VH	12-Jul-2013

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.



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **FRANCO 383**

Sampled: 10-Jul-13 11:54

SVL Sample ID: **W3G0290-01 (Ground Water)**

Sample Report Page 1 of 1

Received: 12-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	335	mg/L	3.00	0.66	10	W330111	AEW	07/23/13 18:35	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



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: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **PANAGAKOS**

Sampled: 10-Jul-13 09:59

SVL Sample ID: **W3G0290-02 (Ground Water)**

Sample Report Page 1 of 1

Received: 12-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
--------	---------	--------	-------	----	-----	----------	-------	---------	----------	-------

Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	329	mg/L	3.00	0.66	10	W330111	AEW	07/23/13 18:46	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **BANKS 986**

Sampled: 09-Jul-13 17:02

SVL Sample ID: **W3G0290-03 (Ground Water)**

Sample Report Page 1 of 1

Received: 12-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	67.9	mg/L	1.50	0.33	5	W330111	AEW	07/23/13 18:57	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **DODSON**

Sampled: 09-Jul-13 15:21

SVL Sample ID: **W3G0290-04 (Ground Water)**

Sample Report Page 1 of 1

Received: 12-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	53.6	mg/L	1.50	0.33	5	W330111	AEW	07/23/13 19:08	D2
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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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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **EAST**

SVL Sample ID: **W3G0290-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 09-Jul-13 14:09

Received: 12-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	12.1	mg/L	0.30	0.07		W330111	AEW	07/23/13 19:19	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **NOTEMAN**

Sampled: 09-Jul-13 13:14

SVL Sample ID: **W3G0290-06 (Ground Water)**

Sample Report Page 1 of 1

Received: 12-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	278	mg/L	3.00	0.66	10	W330111	AEW	07/23/13 19:30	D2
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Kirby Gray
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **RAY**

Sampled: 09-Jul-13 11:11

SVL Sample ID: **W3G0290-07 (Ground Water)**

Sample Report Page 1 of 1

Received: 12-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	128	mg/L	3.00	0.66	10	W330111	AEW	07/23/13 19:41	D2
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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: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **EPPLE 641**

Sampled: 09-Jul-13 09:46

SVL Sample ID: **W3G0290-08 (Ground Water)**

Received: 12-Jul-13

Sample Report Page 1 of 1

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	17.5	mg/L	0.30	0.07		W330111	AEW	07/23/13 20:14	
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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **NESS**

Sampled: 08-Jul-13 13:43

SVL Sample ID: **W3G0290-09 (Ground Water)**

Sample Report Page 1 of 1

Received: 12-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	46.8	mg/L	1.50	0.33	5	W330111	AEW	07/23/13 20:25	D1
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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **SWAN**

Sampled: 08-Jul-13 14:21

SVL Sample ID: **W3G0290-10 (Ground Water)**

Sample Report Page 1 of 1

Received: 12-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	19.4	mg/L	0.30	0.07		W330111	AEW	07/23/13 20:36	
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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 - Bisbee
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **OSBORN**

Sampled: 08-Jul-13 15:00

SVL Sample ID: **W3G0290-11 (Ground Water)**

Sample Report Page 1 of 1

Received: 12-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	19.2	mg/L	0.30	0.07		W330111	AEW	07/23/13 20:47	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **BIMA**

Sampled: 08-Jul-13 15:46

SVL Sample ID: **W3G0290-12 (Ground Water)**

Sample Report Page 1 of 1

Received: 12-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	301	mg/L	3.00	0.66	10	W330111	AEW	07/23/13 20:58	D2
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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 - Bisbee
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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **MCCONNELL 265**

Sampled: 10-Jul-13 16:24

SVL Sample ID: **W3G0290-13 (Ground Water)**

Sample Report Page 1 of 1

Received: 12-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	898	mg/L	15.0	3.30	50	W330111	AEW	07/23/13 21:09	D2
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Freeport McMoRan - Bisbee
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **GARNER 635**

Sampled: 10-Jul-13 14:57

SVL Sample ID: **W3G0290-14 (Ground Water)**

Sample Report Page 1 of 1

Received: 12-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	36.7	mg/L	1.50	0.33	5	W330111	AEW	07/23/13 21:20	D1
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **MCCONNELL 459**

Sampled: 10-Jul-13 17:30

SVL Sample ID: **W3G0290-15 (Ground Water)**

Sample Report Page 1 of 1

Received: 12-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	34.5	mg/L	0.30	0.07		W330111	AEW	07/23/13 21:31	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **COB MW-1**

Sampled: 11-Jul-13 12:56

SVL Sample ID: **W3G0290-16 (Ground Water)**

Received: 12-Jul-13

Sample Report Page 1 of 1

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	842	mg/L	15.0	3.30	50	W330111	AEW	07/23/13 21:42	D2
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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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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0290**

Reported: 26-Jul-13 09:38

Client Sample ID: **COOPER**

Sampled: 11-Jul-13 13:34

SVL Sample ID: **W3G0290-17 (Ground Water)**

Sample Report Page 1 of 1

Received: 12-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	31.9	mg/L	0.30	0.07		W330111	AEW	07/23/13 21:53	
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Kirby Gray
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Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W3G0290**

Reported: 26-Jul-13 09:38

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W330111	23-Jul-13	
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Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	9.77	10.0	97.7	90 - 110	W330111	23-Jul-13	
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Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	339	330	10.0	R > 4S	90 - 110	W330111	23-Jul-13	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	126	116	10.0	96.7	90 - 110	W330111	23-Jul-13	D2,M3

Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	339	339	10.0	0.0	20	W330111	23-Jul-13	D2,M3
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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

SVL holds the following certifications:

AZ:0538, CA:2080, FL(NELAC):E87993, ID:ID00019 & ID00965 (Microbiology), NV:ID000192007A, WA:C573

Work order Report Page 19 of 19



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0482**

Reported: 26-Aug-13 16:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
COLLINS	W3G0482-01	Ground Water	17-Jul-13 13:24	VH	19-Jul-2013
PALMER	W3G0482-02	Ground Water	17-Jul-13 11:26	VH	19-Jul-2013
BOOTH	W3G0482-03	Ground Water	17-Jul-13 10:29	VH	19-Jul-2013
DUP20130717	W3G0482-04	Ground Water	17-Jul-13 18:00	VH	19-Jul-2013
AWC-05	W3G0482-05	Ground Water	16-Jul-13 09:54	VH	19-Jul-2013
AWC-03	W3G0482-06	Ground Water	16-Jul-13 10:43	VH	19-Jul-2013
DUP20130715	W3G0482-07	Ground Water	15-Jul-13 18:00	VH	19-Jul-2013
DUP20130716	W3G0482-08	Ground Water	16-Jul-13 18:00	VH	19-Jul-2013
FB20130715	W3G0482-09	Ground Water	15-Jul-13 10:56	VH	19-Jul-2013
HOWARD 312	W3G0482-10	Ground Water	12-Jul-13 14:09	VH	19-Jul-2013
WEISKOPF 802	W3G0482-11	Ground Water	18-Jul-13 13:00	VH	19-Jul-2013
ANDERSON 458	W3G0482-12	Ground Water	18-Jul-13 10:00	VH	19-Jul-2013
MARCELL	W3G0482-13	Ground Water	15-Jul-13 16:59	VH	19-Jul-2013
AWC-04	W3G0482-14	Ground Water	16-Jul-13 11:26	VH	19-Jul-2013
SCHWARTZ	W3G0482-15	Ground Water	15-Jul-13 14:15	VH	19-Jul-2013
ROGERS 803	W3G0482-16	Ground Water	15-Jul-13 15:48	VH	19-Jul-2013
WEISKOPF 897	W3G0482-17	Ground Water	18-Jul-13 13:09	VH	19-Jul-2013

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

08/26/2013mab: Report reissued. Client requested SO4 reanalysis for sample -15.

Original result was confirmed.

Original and reanalysis 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: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **COLLINS**

Sampled: 17-Jul-13 13:24

SVL Sample ID: **W3G0482-01 (Ground Water)**

Received: 19-Jul-13

Sample Report Page 1 of 1

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	519	mg/L	15.0	3.30	50	W331306	AEW	08/01/13 14:28	D2
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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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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **PALMER**

SVL Sample ID: **W3G0482-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 17-Jul-13 11:26

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	17.2	mg/L	0.30	0.07		W331306	AEW	08/01/13 14:38	
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Kirby Gray
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **BOOTH**

Sampled: 17-Jul-13 10:29

SVL Sample ID: **W3G0482-03 (Ground Water)**

Received: 19-Jul-13

Sample Report Page 1 of 1

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	75.0	mg/L	1.50	0.33	5	W331306	AEW	08/01/13 15:10	D2
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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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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **DUP20130717**

Sampled: 17-Jul-13 18:00

SVL Sample ID: **W3G0482-04 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	6.28	mg/L	1.50	0.33	5	W331306	AEW	08/01/13 15:20	D1
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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: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **AWC-05**

Sampled: 16-Jul-13 09:54

SVL Sample ID: **W3G0482-05 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	18.0	mg/L	0.30	0.07		W331306	AEW	08/01/13 15:31	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **AWC-03**

Sampled: 16-Jul-13 10:43

SVL Sample ID: **W3G0482-06 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	63.6	mg/L	1.50	0.33	5	W331306	AEW	08/01/13 15:41	D2
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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: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **DUP20130715**

Sampled: 15-Jul-13 18:00

SVL Sample ID: **W3G0482-07 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	10.2	mg/L	1.50	0.33	5	W331306	AEW	08/01/13 15:51	D1
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **DUP20130716**

Sampled: 16-Jul-13 18:00

SVL Sample ID: **W3G0482-08 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	17.7	mg/L	1.50	0.33	5	W331306	AEW	08/01/13 16:23	D1
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36 West Hwy 92
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **FB20130715**

Sampled: 15-Jul-13 10:56

SVL Sample ID: **W3G0482-09 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W331207	AEW	07/31/13 21:42	
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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: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **HOWARD 312**

Sampled: 12-Jul-13 14:09

SVL Sample ID: **W3G0482-10 (Ground Water)**

Received: 19-Jul-13

Sample Report Page 1 of 1

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	67.9	mg/L	15.0	3.30	50	W331306	AEW	08/01/13 16:33	D2
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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **WEISKOPF 802**

Sampled: 18-Jul-13 13:00

SVL Sample ID: **W3G0482-11 (Ground Water)**

Received: 19-Jul-13

Sample Report Page 1 of 1

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	420	mg/L	15.0	3.30	50	W331306	AEW	08/01/13 16:43	D2
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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 - Bisbee
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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **ANDERSON 458**

Sampled: 18-Jul-13 10:00

SVL Sample ID: **W3G0482-12 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	23.0	mg/L	0.30	0.07		W331306	AEW	08/01/13 16:54	
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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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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **MARCELL**

SVL Sample ID: **W3G0482-13 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Jul-13 16:59

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	724	mg/L	15.0	3.30	50	W331306	AEW	08/01/13 17:04	D2
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **AWC-04**

Sampled: 16-Jul-13 11:26

SVL Sample ID: **W3G0482-14 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	27.0	mg/L	0.30	0.07		W331306	AEW	08/01/13 17:15	
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36 West Hwy 92
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Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **SCHWARTZ**

Sampled: 15-Jul-13 14:15

SVL Sample ID: **W3G0482-15 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO ₄	198	mg/L	3.00	0.66	10	W331306	AEW	08/01/13 17:25	D2
EPA 300.0	Sulfate as SO ₄	198	mg/L	3.00	0.66	10	W331306	AEW	08/26/13 14:24	D2,H7,N10
EPA 300.0	Sulfate as SO ₄	190	mg/L	3.00	0.66	10	W331306	AEW	08/26/13 14:34	D2,H7,N10

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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **ROGERS 803**

Sampled: 15-Jul-13 15:48

SVL Sample ID: **W3G0482-16 (Ground Water)**

Received: 19-Jul-13

Sample Report Page 1 of 1

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	184	mg/L	3.00	0.66	10	W331306	AEW	08/01/13 17:36	D2
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Kirby Gray
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0482**

Reported: 26-Aug-13 16:46

Client Sample ID: **WEISKOPF 897**

Sampled: 18-Jul-13 13:09

SVL Sample ID: **W3G0482-17 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	18.0	mg/L	0.30	0.07		W331306	AEW	08/01/13 17:46	
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Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W3G0482**

Reported: 26-Aug-13 16:46

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO ₄	mg/L	<0.30	0.07	0.30	W331207	31-Jul-13	
Dissolved Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO ₄	mg/L	<0.30	0.07	0.30	W331306	01-Aug-13	

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 SO ₄	mg/L	10.1	10.0	101	90 - 110	W331207	31-Jul-13	
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO ₄	mg/L	10.0	10.0	100	90 - 110	W331306	01-Aug-13	

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 SO ₄	mg/L	2160	2180	10.0	R > 4S	90 - 110	W331207	31-Jul-13	D2,M3
EPA 300.0	Sulfate as SO ₄	mg/L	731	733	10.0	R > 4S	90 - 110	W331207	31-Jul-13	D2,M3
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO ₄	mg/L	28.2	17.2	10.0	110	90 - 110	W331306	01-Aug-13	
EPA 300.0	Sulfate as SO ₄	mg/L	29.0	18.0	10.0	110	90 - 110	W331306	01-Aug-13	

Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	RPD	RPD Limit	Batch ID	Analyzed	Notes
Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO ₄	mg/L	2150	2160	10.0	0.6	20	W331207	31-Jul-13	D2,M3
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO ₄	mg/L	28.2	28.2	10.0	0.1	20	W331306	01-Aug-13	



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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0482**

Reported: 26-Aug-13 16:46

Notes and Definitions

D1	Sample required dilution due to matrix.
D2	Sample required dilution due to high concentration of target analyte.
H7	Initial analysis was within holding time. Reanalysis was run past holding time.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The LCS was acceptable.
N10	After reanalysis 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 - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0485**

Reported: 26-Jul-13 09:28

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
NWC-04	W3G0485-01	Water	12-Jul-13 08:55	VH	19-Jul-2013

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 - Bisbee
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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0485**

Reported: 26-Jul-13 09:28

Client Sample ID: **NWC-04**

SVL Sample ID: **W3G0485-01 (Water)**

Sample Report Page 1 of 1

Sampled: 12-Jul-13 08:55

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	211	mg/L	3.00	0.66	10	W330111	AEW	07/24/13 00:06	D2
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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
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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W3G0485**

Reported: 26-Jul-13 09:28

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W330111	23-Jul-13	
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Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	9.77	10.0	97.7	90 - 110	W330111	23-Jul-13	
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Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	339	330	10.0	R > 4S	90 - 110	W330111	23-Jul-13	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	126	116	10.0	96.7	90 - 110	W330111	23-Jul-13	D2,M3

Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	339	339	10.0	0.0	20	W330111	23-Jul-13	D2,M3
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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



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Freeport McMoRan - Bisbee
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Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W3G0486**

Reported: 01-Aug-13 15:06

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
MOORE	W3G0486-01	Ground Water	11-Jul-13 15:34	VH	19-Jul-2013
KEEFER	W3G0486-02	Ground Water	11-Jul-13 16:51	VH	19-Jul-2013
DUP20130711	W3G0486-03	Ground Water	11-Jul-13 18:00	VH	19-Jul-2013
EQB20130712	W3G0486-04	Ground Water	12-Jul-13 09:45	VH	19-Jul-2013
NWC-06	W3G0486-05	Ground Water	12-Jul-13 09:55	VH	19-Jul-2013
FB20130712	W3G0486-06	Ground Water	12-Jul-13 10:05	VH	19-Jul-2013
DUP20130712	W3G0486-07	Ground Water	12-Jul-13 18:00	VH	19-Jul-2013
PARRA	W3G0486-08	Ground Water	17-Jul-13 14:20	VH	19-Jul-2013
ECHAVE	W3G0486-09	Ground Water	17-Jul-13 16:44	VH	19-Jul-2013
ZANDER	W3G0486-10	Ground Water	15-Jul-13 10:09	VH	19-Jul-2013
EQB20130715	W3G0486-11	Ground Water	15-Jul-13 10:51	VH	19-Jul-2013
FB20130716	W3G0486-12	Ground Water	16-Jul-13 14:59	VH	19-Jul-2013
PIONKE 517	W3G0486-13	Ground Water	16-Jul-13 15:25	VH	19-Jul-2013
EQB20130716	W3G0486-14	Ground Water	16-Jul-13 14:58	VH	19-Jul-2013
ROGERS, E	W3G0486-15	Ground Water	17-Jul-13 09:49	VH	19-Jul-2013
CHAMBERS	W3G0486-16	Ground Water	15-Jul-13 12:24	VH	19-Jul-2013
RAMIREZ	W3G0486-17	Ground Water	15-Jul-13 11:44	VH	19-Jul-2013
HOWARD NR	W3G0486-18	Ground Water	12-Jul-13 12:20	VH	19-Jul-2013
NWC-02	W3G0486-19	Ground Water	12-Jul-13 10:30	VH	19-Jul-2013

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 - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **MOORE**

Sampled: 11-Jul-13 15:34

SVL Sample ID: **W3G0486-01 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	7.14	mg/L	0.30	0.07		W331209	AEW	07/31/13 12:34	
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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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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **KEEFER**

Sampled: 11-Jul-13 16:51

SVL Sample ID: **W3G0486-02 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	7.23	mg/L	0.30	0.07		W331209	AEW	07/31/13 12:45	
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John Kern
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **DUP20130711**

Sampled: 11-Jul-13 18:00

SVL Sample ID: **W3G0486-03 (Ground Water)**

Received: 19-Jul-13

Sample Report Page 1 of 1

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	7.24	mg/L	0.30	0.07		W331209	AEW	07/31/13 12:56	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **EQB20130712**

Sampled: 12-Jul-13 09:45

SVL Sample ID: **W3G0486-04 (Ground Water)**

Received: 19-Jul-13

Sample Report Page 1 of 1

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W331149	AEW	07/30/13 19:34	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **NWC-06**

Sampled: 12-Jul-13 09:55

SVL Sample ID: **W3G0486-05 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	8.40	mg/L	0.30	0.07		W331209	AEW	07/31/13 13:07	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **FB20130712**

Sampled: 12-Jul-13 10:05

SVL Sample ID: **W3G0486-06 (Ground Water)**

Received: 19-Jul-13

Sample Report Page 1 of 1

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W331149	AEW	07/30/13 19:45	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **DUP20130712**

Sampled: 12-Jul-13 18:00

SVL Sample ID: **W3G0486-07 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	200	mg/L	7.50	1.65	25	W331209	AEW	07/31/13 13:18	D2
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **PARRA**

SVL Sample ID: **W3G0486-08 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 17-Jul-13 14:20

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	411	mg/L	7.50	1.65	25	W331209	AEW	07/31/13 13:29	D2
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36 West Hwy 92
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **ECHAVE**

Sampled: 17-Jul-13 16:44

SVL Sample ID: **W3G0486-09 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	24.3	mg/L	0.30	0.07		W331209	AEW	07/31/13 13:40	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **ZANDER**

SVL Sample ID: **W3G0486-10 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Jul-13 10:09

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	6.49	mg/L	0.30	0.07		W331209	AEW	07/31/13 14:13	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **EQB20130715**

Sampled: 15-Jul-13 10:51

SVL Sample ID: **W3G0486-11 (Ground Water)**

Received: 19-Jul-13

Sample Report Page 1 of 1

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W331149	AEW	07/30/13 19:56	
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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **FB20130716**

Sampled: 16-Jul-13 14:59

SVL Sample ID: **W3G0486-12 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W331209	AEW	07/31/13 14:24	
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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **PIONKE 517**

Sampled: 16-Jul-13 15:25

SVL Sample ID: **W3G0486-13 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	13.9	mg/L	0.30	0.07		W331209	AEW	07/31/13 18:06	
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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: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **EQB20130716**

Sampled: 16-Jul-13 14:58

SVL Sample ID: **W3G0486-14 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W331149	AEW	07/30/13 20:08	
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John Kern
Laboratory Director



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Freeport McMoRan - Bisbee
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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **ROGERS, E**

SVL Sample ID: **W3G0486-15 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 17-Jul-13 09:49

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	6.05	mg/L	0.30	0.07		W331209	AEW	07/31/13 14:46	
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Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **CHAMBERS**

Sampled: 15-Jul-13 12:24

SVL Sample ID: **W3G0486-16 (Ground Water)**

Received: 19-Jul-13

Sample Report Page 1 of 1

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	9.81	mg/L	0.30	0.07		W331209	AEW	07/31/13 14:57	
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Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **RAMIREZ**

Sampled: 15-Jul-13 11:44

SVL Sample ID: **W3G0486-17 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	8.19	mg/L	0.30	0.07		W331209	AEW	07/31/13 15:08	
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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: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **HOWARD NR**

SVL Sample ID: **W3G0486-18 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 12-Jul-13 12:20

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	590	mg/L	7.50	1.65	25	W331209	AEW	07/31/13 15:19	D2
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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: **W3G0486**

Reported: 01-Aug-13 15:06

Client Sample ID: **NWC-02**

SVL Sample ID: **W3G0486-19 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 12-Jul-13 10:30

Received: 19-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	6.91	mg/L	0.30	0.07		W331209	AEW	07/31/13 15:30	
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John Kern
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Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603**Project Name: Copper Queen Branch Sulfate Mitigation Order**Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO ₄	mg/L	<0.30	0.07	0.30	W331149	30-Jul-13	
Dissolved Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO ₄	mg/L	<0.30	0.07	0.30	W331209	31-Jul-13	

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 SO ₄	mg/L	9.88	10.0	98.8	90 - 110	W331149	30-Jul-13	
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO ₄	mg/L	9.90	10.0	99.0	90 - 110	W331209	31-Jul-13	

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 SO ₄	mg/L	61.2	50.7	10.0	105	90 - 110	W331149	30-Jul-13	D2,M3
EPA 300.0	Sulfate as SO ₄	mg/L	254	246	10.0	R > 4S	90 - 110	W331149	30-Jul-13	D2,M3
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO ₄	mg/L	11.6	1.04	10.0	106	90 - 110	W331209	31-Jul-13	
EPA 300.0	Sulfate as SO ₄	mg/L	139	126	10.0	R > 4S	90 - 110	W331209	31-Jul-13	D2,M3

Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	RPD	RPD Limit	Batch ID	Analyzed	Notes
Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO ₄	mg/L	61.0	61.2	10.0	0.3	20	W331149	30-Jul-13	D2,M3
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO ₄	mg/L	11.8	11.6	10.0	1.3	20	W331209	31-Jul-13	



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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3G0486**

Reported: 01-Aug-13 15:06

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



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 OrderWork Order: **W3G0770**

Reported: 13-Aug-13 11:28

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BMO-2010-3M	W3G0770-01	Ground Water	23-Jul-13 14:02	VH	31-Jul-2013
EQB20130723	W3G0770-02	Distilled water	23-Jul-13 11:17	VH	31-Jul-2013
FB20130723	W3G0770-03	Distilled water	23-Jul-13 11:18	VH	31-Jul-2013
BMO-2010-3B	W3G0770-04	Ground Water	23-Jul-13 10:36	VH	31-Jul-2013
TM-10 USBP	W3G0770-05	Ground Water	23-Jul-13 16:06	VH	31-Jul-2013
WEED	W3G0770-06	Ground Water	19-Jul-13 08:29	VH	31-Jul-2013
TVI 875	W3G0770-07	Ground Water	18-Jul-13 16:40	VH	31-Jul-2013
TVI 236	W3G0770-08	Ground Water	18-Jul-13 15:50	VH	31-Jul-2013
COB-2	W3G0770-09	Ground Water	25-Jul-13 11:45	VH	31-Jul-2013
AWC-02	W3G0770-10	Ground Water	25-Jul-13 10:07	VH	31-Jul-2013
RUIZ	W3G0770-11	Ground Water	25-Jul-13 12:43	VH	31-Jul-2013
EQB20130725	W3G0770-12	Distilled water	25-Jul-13 12:56	VH	31-Jul-2013
FB20130725	W3G0770-13	Distilled water	25-Jul-13 12:50	VH	31-Jul-2013
COB-WL	W3G0770-14	Ground Water	25-Jul-13 15:32	VH	31-Jul-2013
COB-3	W3G0770-15	Ground Water	25-Jul-13 10:58	VH	31-Jul-2013

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: **W3G0770**

Reported: 13-Aug-13 11:28

Client Sample ID: **BMO-2010-3M**

Sampled: 23-Jul-13 14:02

SVL Sample ID: **W3G0770-01 (Ground Water)**

Sample Report Page 1 of 1

Received: 31-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	10.7	mg/L	0.30	0.07		W332313	AEW	08/08/13 17:04	
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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: **W3G0770**

Reported: 13-Aug-13 11:28

Client Sample ID: **EQB20130723**

Sampled: 23-Jul-13 11:17

SVL Sample ID: **W3G0770-02 (Distilled water)**

Received: 31-Jul-13

Sample Report Page 1 of 1

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W332222	AEW	08/07/13 15:40	
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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: **W3G0770**

Reported: 13-Aug-13 11:28

Client Sample ID: **FB20130723**

Sampled: 23-Jul-13 11:18

SVL Sample ID: **W3G0770-03 (Distilled water)**

Sample Report Page 1 of 1

Received: 31-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W332222	AEW	08/07/13 15:50	
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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: **W3G0770**

Reported: 13-Aug-13 11:28

Client Sample ID: **BMO-2010-3B**

Sampled: 23-Jul-13 10:36

SVL Sample ID: **W3G0770-04 (Ground Water)**

Sample Report Page 1 of 1

Received: 31-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	19.8	mg/L	0.30	0.07		W332313	AEW	08/08/13 17:14	
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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: **W3G0770**

Reported: 13-Aug-13 11:28

Client Sample ID: **TM-10 USBP**

Sampled: 23-Jul-13 16:06

SVL Sample ID: **W3G0770-05 (Ground Water)**

Sample Report Page 1 of 1

Received: 31-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	13.2	mg/L	0.30	0.07		W332313	AEW	08/08/13 17:25	
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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: **W3G0770**

Reported: 13-Aug-13 11:28

Client Sample ID: **WEED**

Sampled: 19-Jul-13 08:29

SVL Sample ID: **W3G0770-06 (Ground Water)**

Sample Report Page 1 of 1

Received: 31-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	14.2	mg/L	0.30	0.07		W332313	AEW	08/08/13 17:35	
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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: **W3G0770**

Reported: 13-Aug-13 11:28

Client Sample ID: **TVI 875**

Sampled: 18-Jul-13 16:40

SVL Sample ID: **W3G0770-07 (Ground Water)**

Sample Report Page 1 of 1

Received: 31-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	355	mg/L	3.00	0.66	10	W332313	AEW	08/08/13 17:46	D2
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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: **W3G0770**

Reported: 13-Aug-13 11:28

Client Sample ID: **TVI 236**

SVL Sample ID: **W3G0770-08 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Jul-13 15:50

Received: 31-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	42.4	mg/L	0.30	0.07		W332313	AEW	08/08/13 17:56	
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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: **W3G0770**

Reported: 13-Aug-13 11:28

Client Sample ID: **COB-2**

SVL Sample ID: **W3G0770-09 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 25-Jul-13 11:45

Received: 31-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	40.6	mg/L	1.50	0.33	5	W332313	AEW	08/08/13 18:07	D1
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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: **W3G0770**

Reported: 13-Aug-13 11:28

Client Sample ID: **AWC-02**

SVL Sample ID: **W3G0770-10 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 25-Jul-13 10:07

Received: 31-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	14.7	mg/L	0.30	0.07		W332313	AEW	08/08/13 18:17	
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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: **W3G0770**

Reported: 13-Aug-13 11:28

Client Sample ID: **RUIZ**

SVL Sample ID: **W3G0770-11 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 25-Jul-13 12:43

Received: 31-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	228	mg/L	3.00	0.66	10	W332313	AEW	08/08/13 18:48	D2
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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: **W3G0770**

Reported: 13-Aug-13 11:28

Client Sample ID: **EQB20130725**

Sampled: 25-Jul-13 12:56

SVL Sample ID: **W3G0770-12 (Distilled water)**

Received: 31-Jul-13

Sample Report Page 1 of 1

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W332222	AEW	08/07/13 16:01	
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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: **W3G0770**

Reported: 13-Aug-13 11:28

Client Sample ID: **FB20130725**

Sampled: 25-Jul-13 12:50

SVL Sample ID: **W3G0770-13 (Distilled water)**

Received: 31-Jul-13

Sample Report Page 1 of 1

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W332222	AEW	08/07/13 16:11	
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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: **W3G0770**

Reported: 13-Aug-13 11:28

Client Sample ID: **COB-WL**

SVL Sample ID: **W3G0770-14 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 25-Jul-13 15:32

Received: 31-Jul-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	97.6	mg/L	1.50	0.33	5	W332313	AEW	08/08/13 18:59	D2
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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

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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: **W3G0770**

Reported: 13-Aug-13 11:28

Client Sample ID: **COB-3**

Sampled: 25-Jul-13 10:58

SVL Sample ID: **W3G0770-15 (Ground Water)**

Received: 31-Jul-13

Sample Report Page 1 of 1

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	66.6	mg/L	1.50	0.33	5	W332313	AEW	08/08/13 19:09	D2
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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

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

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W3G0770**

Reported: 13-Aug-13 11:28

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO ₄	mg/L	<0.30	0.07	0.30	W332222	07-Aug-13	
Dissolved Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO ₄	mg/L	<0.30	0.07	0.30	W332313	08-Aug-13	

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 SO ₄	mg/L	10.8	10.0	108	90 - 110	W332222	07-Aug-13	
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO ₄	mg/L	10.8	10.0	108	90 - 110	W332313	08-Aug-13	

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 SO ₄	mg/L	4560	4610	10.0	R > 4S	90 - 110	W332222	07-Aug-13	D2,M3
EPA 300.0	Sulfate as SO ₄	mg/L	31.2	19.8	10.0	114	90 - 110	W332222	07-Aug-13	M1
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO ₄	mg/L	176	169	10.0	R > 4S	90 - 110	W332313	08-Aug-13	D2,M3
EPA 300.0	Sulfate as SO ₄	mg/L	102	94.0	10.0	R > 4S	90 - 110	W332313	09-Aug-13	D2,M3

Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	RPD	RPD Limit	Batch ID	Analyzed	Notes
Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO ₄	mg/L	4640	4560	10.0	1.7	20	W332222	07-Aug-13	D2,M3
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO ₄	mg/L	176	176	10.0	0.1	20	W332313	08-Aug-13	D2,M3



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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: **W3G0770**

Reported: 13-Aug-13 11:28

Notes and Definitions

D1	Sample required dilution due to matrix.
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: **W3H0297**

Reported: 21-Aug-13 11:47

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
NWC-04	W3H0297-01	Ground Water	09-Aug-13 08:45	VH	13-Aug-2013
THOMPSON	W3H0297-02	Ground Water	09-Aug-13 10:58	VH	13-Aug-2013

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.



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0297**

Reported: 21-Aug-13 11:47

Client Sample ID: **NWC-04**

SVL Sample ID: **W3H0297-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 09-Aug-13 08:45

Received: 13-Aug-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	207	mg/L	3.00	0.66	10	W334035	AEW	08/19/13 14:10	D2
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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: **W3H0297**

Reported: 21-Aug-13 11:47

Client Sample ID: **THOMPSON**

SVL Sample ID: **W3H0297-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 09-Aug-13 10:58

Received: 13-Aug-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	7.62	mg/L	0.30	0.07		W334035	AEW	08/19/13 14:21	
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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 - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W3H0297**

Reported: 21-Aug-13 11:47

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	mg/L	<0.30	0.07	0.30	W334035	19-Aug-13	
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Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	mg/L	10.1	10.0	101	90 - 110	W334035	19-Aug-13	
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Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	mg/L	67.4	57.4	10.0	99.4	90 - 110	W334035	20-Aug-13	D2,M3
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Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	mg/L	66.7	67.4	10.0	0.9	20	W334035	20-Aug-13	D2,M3
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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



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0426**

Reported: 29-Aug-13 15:19

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BMO-2008-8M	W3H0426-01	Ground Water	12-Aug-13 09:10	CLS	16-Aug-2013
BMO-2008-8B	W3H0426-02	Ground Water	12-Aug-13 10:25	CLS	16-Aug-2013
BMO-2008-9M	W3H0426-03	Ground Water	12-Aug-13 12:30	CLS	16-Aug-2013
BMO-2008-10GL	W3H0426-04	Ground Water	13-Aug-13 10:30	CLS	16-Aug-2013
COOPER C	W3H0426-05	Ground Water	13-Aug-13 12:50	CLS	16-Aug-2013
HOBAN	W3H0426-06	Ground Water	13-Aug-13 13:45	CLS	16-Aug-2013
BMO-2008-1G	W3H0426-07	Ground Water	14-Aug-13 08:00	CLS	16-Aug-2013
BMO-2012-1M	W3H0426-08	Ground Water	14-Aug-13 13:00	CLS	16-Aug-2013
TM-16	W3H0426-09	Ground Water	15-Aug-13 06:45	CLS	16-Aug-2013
BMO-2010-1M	W3H0426-10	Ground Water	15-Aug-13 11:35	CLS	16-Aug-2013
BMO-2010-2M	W3H0426-11	Ground Water	15-Aug-13 12:15	CLS	16-Aug-2013

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 - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0426**

Reported: 29-Aug-13 15:19

Client Sample ID: **BMO-2008-8M**

Sampled: 12-Aug-13 09:10

SVL Sample ID: **W3H0426-01 (Ground Water)**

Sample Report Page 1 of 1

Received: 16-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	65.0	mg/L	3.00	0.66	10	W335162	AEW	08/28/13 14:53	D2
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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: **W3H0426**

Reported: 29-Aug-13 15:19

Client Sample ID: **BMO-2008-8B**

Sampled: 12-Aug-13 10:25

SVL Sample ID: **W3H0426-02 (Ground Water)**

Received: 16-Aug-13

Sample Report Page 1 of 1

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	1420	mg/L	30.0	6.60	100	W335162	AEW	08/28/13 15:03	D2
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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 Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0426**

Reported: 29-Aug-13 15:19

Client Sample ID: **BMO-2008-9M**

SVL Sample ID: **W3H0426-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 12-Aug-13 12:30

Received: 16-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	71.1	mg/L	3.00	0.66	10	W335162	AEW	08/28/13 15:13	D2
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0426**

Reported: 29-Aug-13 15:19

Client Sample ID: **BMO-2008-10GL**

Sampled: 13-Aug-13 10:30

SVL Sample ID: **W3H0426-04 (Ground Water)**

Sample Report Page 1 of 1

Received: 16-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	520	mg/L	7.50	1.65	25	W335162	AEW	08/28/13 15:23	D2
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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: **W3H0426**

Reported: 29-Aug-13 15:19

Client Sample ID: **COOPER C**

SVL Sample ID: **W3H0426-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 13-Aug-13 12:50

Received: 16-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	756	mg/L	15.0	3.30	50	W335162	AEW	08/28/13 15:33	D2
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0426**

Reported: 29-Aug-13 15:19

Client Sample ID: **HOBAN**

SVL Sample ID: **W3H0426-06 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 13-Aug-13 13:45

Received: 16-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	1030	mg/L	15.0	3.30	50	W335162	AEW	08/28/13 15:43	D2
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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: **W3H0426**

Reported: 29-Aug-13 15:19

Client Sample ID: **BMO-2008-1G**

Sampled: 14-Aug-13 08:00

SVL Sample ID: **W3H0426-07 (Ground Water)**

Sample Report Page 1 of 1

Received: 16-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	120	mg/L	3.00	0.66	10	W335162	AEW	08/28/13 15:52	D2
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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0426**

Reported: 29-Aug-13 15:19

Client Sample ID: **BMO-2012-1M**

Sampled: 14-Aug-13 13:00

SVL Sample ID: **W3H0426-08 (Ground Water)**

Sample Report Page 1 of 1

Received: 16-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	202	mg/L	3.00	0.66	10	W335162	AEW	08/28/13 16:02	D2
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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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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0426**

Reported: 29-Aug-13 15:19

Client Sample ID: **TM-16**

SVL Sample ID: **W3H0426-09 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Aug-13 06:45

Received: 16-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	539	mg/L	7.50	1.65	25	W335162	AEW	08/28/13 16:30	D2
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John Kern
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Freeport McMoRan - Bisbee
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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0426**

Reported: 29-Aug-13 15:19

Client Sample ID: **BMO-2010-1M**

SVL Sample ID: **W3H0426-10 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Aug-13 11:35

Received: 16-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	156	mg/L	3.00	0.66	10	W335162	AEW	08/28/13 16:39	D2
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John Kern
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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0426**

Reported: 29-Aug-13 15:19

Client Sample ID: **BMO-2010-2M**

Sampled: 15-Aug-13 12:15

SVL Sample ID: **W3H0426-11 (Ground Water)**

Sample Report Page 1 of 1

Received: 16-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	978	mg/L	15.0	3.30	50	W335162	AEW	08/28/13 16:49	D2
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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 OrderWork Order: **W3H0426**

Reported: 29-Aug-13 15:19

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W335162	28-Aug-13	
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Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	9.93	10.0	99.3	90 - 110	W335162	28-Aug-13	
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Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	18.2	6.91	10.0	113	90 - 110	W335162	28-Aug-13	M1
EPA 300.0	Sulfate as SO4	mg/L	167	158	10.0	93.3	90 - 110	W335162	28-Aug-13	D2,M3

Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	169	167	10.0	0.8	20	W335162	28-Aug-13	D2,M3
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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

SVL holds the following certifications:

AZ:0538, CA:2080, FL(NELAC):E87993, ID:ID00019 & ID00965 (Microbiology), NV:ID000192007A, WA:C573

Work order Report Page 13 of 13



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W310118**

Reported: 16-Sep-13 11:20

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
NWC-04	W310118-01	Ground Water	05-Sep-13 11:42	VH	06-Sep-2013

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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36 West Hwy 92
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3I0118**

Reported: 16-Sep-13 11:20

Client Sample ID: **NWC-04**

SVL Sample ID: **W3I0118-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 05-Sep-13 11:42

Received: 06-Sep-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	214	mg/L	3.00	0.66	10	W337294	AEW	09/12/13 22:01	D2
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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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36 West Hwy 92
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Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W310118**

Reported: 16-Sep-13 11:20

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	mg/L	<0.30	0.07	0.30	W337294	12-Sep-13	
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Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	mg/L	9.99	10.0	99.9	90 - 110	W337294	12-Sep-13	
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Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	mg/L	11.8	0.91	10.0	109	90 - 110	W337294	12-Sep-13	
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Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	mg/L	11.8	11.8	10.0	0.5	20	W337294	12-Sep-13	
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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



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: **W3H0616**

Reported: 05-Sep-13 11:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BMO-2008-106U	W3H0616-01	Ground Water	19-Aug-13 08:15	CL	23-Aug-2013
TM-6	W3H0616-02	Ground Water	19-Aug-13 09:15	CL	23-Aug-2013
BMO-2008-6M	W3H0616-03	Ground Water	20-Aug-13 07:10	CL	23-Aug-2013
BMO-2008-6B	W3H0616-04	Ground Water	20-Aug-13 08:15	CL	23-Aug-2013
BMO-2008-5M	W3H0616-05	Ground Water	20-Aug-13 09:55	CL	23-Aug-2013
BMO-2008-5B	W3H0616-06	Ground Water	20-Aug-13 10:30	CL	23-Aug-2013

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 - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0616**

Reported: 05-Sep-13 11:46

Client Sample ID: **BMO-2008-106U**

Sampled: 19-Aug-13 08:15

SVL Sample ID: **W3H0616-01 (Ground Water)**

Sample Report Page 1 of 1

Received: 23-Aug-13

Sampled By: CL

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	1780	mg/L	15.0	3.30	50	W336074	AEW	09/03/13 15:53	D2
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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

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0616**

Reported: 05-Sep-13 11:46

Client Sample ID: **TM-6**

Sampled: 19-Aug-13 09:15

SVL Sample ID: **W3H0616-02 (Ground Water)**

Sample Report Page 1 of 1

Received: 23-Aug-13

Sampled By: CL

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	32.5	mg/L	0.30	0.07		W336074	AEW	09/03/13 16:05	
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John Kern
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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0616**

Reported: 05-Sep-13 11:46

Client Sample ID: **BMO-2008-6M**

Sampled: 20-Aug-13 07:10

SVL Sample ID: **W3H0616-03 (Ground Water)**

Sample Report Page 1 of 1

Received: 23-Aug-13

Sampled By: CL

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	213	mg/L	3.00	0.66	10	W336074	AEW	09/03/13 16:17	D2
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Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0616**

Reported: 05-Sep-13 11:46

Client Sample ID: **BMO-2008-6B**

Sampled: 20-Aug-13 08:15

SVL Sample ID: **W3H0616-04 (Ground Water)**

Sample Report Page 1 of 1

Received: 23-Aug-13

Sampled By: CL

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	10.6	mg/L	0.30	0.07		W336074	AEW	09/03/13 16:29	
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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: **W3H0616**

Reported: 05-Sep-13 11:46

Client Sample ID: **BMO-2008-5M**

Sampled: 20-Aug-13 09:55

SVL Sample ID: **W3H0616-05 (Ground Water)**

Sample Report Page 1 of 1

Received: 23-Aug-13

Sampled By: CL

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	138	mg/L	3.00	0.66	10	W336074	AEW	09/03/13 16:41	D2
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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: **W3H0616**

Reported: 05-Sep-13 11:46

Client Sample ID: **BMO-2008-5B**

Sampled: 20-Aug-13 10:30

SVL Sample ID: **W3H0616-06 (Ground Water)**

Sample Report Page 1 of 1

Received: 23-Aug-13

Sampled By: CL

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	226	mg/L	3.00	0.66	10	W336074	AEW	09/03/13 16:53	D2
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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 OrderWork Order: **W3H0616**

Reported: 05-Sep-13 11:46

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W336074	03-Sep-13	
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Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	10.0	10.0	100	90 - 110	W336074	03-Sep-13	
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Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	14.0	3.03	10.0	109	90 - 110	W336074	03-Sep-13	
EPA 300.0	Sulfate as SO4	mg/L	235	227	10.0	R > 4S	90 - 110	W336074	03-Sep-13	D2,M3

Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	14.2	14.0	10.0	1.8	20	W336074	03-Sep-13	M1
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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

SVL holds the following certifications:

AZ:0538, CA:2080, FL(NELAC):E87993, ID:ID00019 & ID00965 (Microbiology), NV:ID000192007A, WA:C573

Work order Report Page 8 of 8



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0789**

Reported: 12-Sep-13 08:56

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BMO-2008-11G	W3H0789-01	Ground Water	27-Aug-13 08:05	CLS	30-Aug-2013
BMO-2008-3B	W3H0789-02	Ground Water	27-Aug-13 13:25	CLS	30-Aug-2013
TM-42	W3H0789-03	Ground Water	28-Aug-13 09:35	CLS	30-Aug-2013
EQB-082813	W3H0789-04	Ground Water	28-Aug-13 11:00	CLS	30-Aug-2013
BMO-2008-7M	W3H0789-05	Ground Water	28-Aug-13 11:05	CLS	30-Aug-2013
DUP-082813	W3H0789-06	Ground Water	28-Aug-13 11:05	CLS	30-Aug-2013
TM-7	W3H0789-07	Ground Water	28-Aug-13 12:08	CLS	30-Aug-2013
TM-2A	W3H0789-08	Ground Water	28-Aug-13 13:30	CLS	30-Aug-2013

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 - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0789**

Reported: 12-Sep-13 08:56

Client Sample ID: **BMO-2008-11G**

Sampled: 27-Aug-13 08:05

SVL Sample ID: **W3H0789-01 (Ground Water)**

Sample Report Page 1 of 1

Received: 30-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	12.2	mg/L	0.30	0.07		W337058	AEW	09/09/13 20:42	
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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: **W3H0789**

Reported: 12-Sep-13 08:56

Client Sample ID: **BMO-2008-3B**

Sampled: 27-Aug-13 13:25

SVL Sample ID: **W3H0789-02 (Ground Water)**

Sample Report Page 1 of 1

Received: 30-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	170	mg/L	3.00	0.66	10	W337058	AEW	09/09/13 20:52	D2
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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: **W3H0789**

Reported: 12-Sep-13 08:56

Client Sample ID: **TM-42**

Sampled: 28-Aug-13 09:35

SVL Sample ID: **W3H0789-03 (Ground Water)**

Sample Report Page 1 of 1

Received: 30-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	416	mg/L	7.50	1.65	25	W337058	AEW	09/09/13 21:23	D2
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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: **W3H0789**

Reported: 12-Sep-13 08:56

Client Sample ID: **EQB-082813**

Sampled: 28-Aug-13 11:00

SVL Sample ID: **W3H0789-04 (Ground Water)**

Sample Report Page 1 of 1

Received: 30-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.07		W336224	AEW	09/05/13 18:32	
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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: **W3H0789**

Reported: 12-Sep-13 08:56

Client Sample ID: **BMO-2008-7M**

Sampled: 28-Aug-13 11:05

SVL Sample ID: **W3H0789-05 (Ground Water)**

Sample Report Page 1 of 1

Received: 30-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	27.7	mg/L	0.30	0.07		W337058	AEW	09/09/13 21:33	
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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: **W3H0789**

Reported: 12-Sep-13 08:56

Client Sample ID: **DUP-082813**

Sampled: 28-Aug-13 11:05

SVL Sample ID: **W3H0789-06 (Ground Water)**

Sample Report Page 1 of 1

Received: 30-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	27.8	mg/L	0.30	0.07		W337058	AEW	09/09/13 21:43	
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John Kern
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Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0789**

Reported: 12-Sep-13 08:56

Client Sample ID: **TM-7**

Sampled: 28-Aug-13 12:08

SVL Sample ID: **W3H0789-07 (Ground Water)**

Sample Report Page 1 of 1

Received: 30-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	25.0	mg/L	0.30	0.07		W337058	AEW	09/09/13 21:53	
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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: **W3H0789**

Reported: 12-Sep-13 08:56

Client Sample ID: **TM-2A**

SVL Sample ID: **W3H0789-08 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 28-Aug-13 13:30

Received: 30-Aug-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	23.5	mg/L	0.30	0.07		W337058	AEW	09/09/13 22:03	
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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 OrderWork Order: **W3H0789**

Reported: 12-Sep-13 08:56

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO ₄	mg/L	<0.30	0.07	0.30	W336224	05-Sep-13	
Dissolved Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO ₄	mg/L	<0.30	0.07	0.30	W337058	09-Sep-13	

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 SO ₄	mg/L	10.2	10.0	102	90 - 110	W336224	05-Sep-13	
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO ₄	mg/L	9.98	10.0	99.8	90 - 110	W337058	09-Sep-13	

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 SO ₄	mg/L	315	313	10.0	R > 4S	90 - 110	W336224	05-Sep-13	D2,M3
EPA 300.0	Sulfate as SO ₄	mg/L	52.6	43.0	10.0	96.0	90 - 110	W336224	05-Sep-13	D2,M3
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO ₄	mg/L	40.5	29.0	10.0	115	90 - 110	W337058	09-Sep-13	M1
EPA 300.0	Sulfate as SO ₄	mg/L	35.1	23.7	10.0	114	90 - 110	W337058	10-Sep-13	M1

Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	RPD	RPD Limit	Batch ID	Analyzed	Notes
Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO ₄	mg/L	313	315	10.0	0.7	20	W336224	05-Sep-13	D2,M3
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO ₄	mg/L	40.6	40.5	10.0	0.1	20	W337058	09-Sep-13	M1

SVL holds the following certifications:

AZ:0538, CA:2080, FL(NELAC):E87993, ID:ID00019 & ID00965 (Microbiology), NV:ID000192007A, WA:C573

Work order Report Page 10 of 11



One Government Gulch - PO Box 929

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Fax (208) 783-0891

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3H0789**

Reported: 12-Sep-13 08:56

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



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: **W310181**

Reported: 16-Sep-13 11:05

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BMO-2008-13B	W3I0181-01	Ground Water	04-Sep-13 07:15	CLS	10-Sep-2013
TM-19A	W3I0181-02	Ground Water	04-Sep-13 08:40	CLS	10-Sep-2013
TM-15	W3I0181-03	Ground Water	04-Sep-13 10:20	CLS	10-Sep-2013
BMO-2008-13M	W3I0181-04	Ground Water	06-Sep-13 15:30	CLS	10-Sep-2013

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 - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3I0181**

Reported: 16-Sep-13 11:05

Client Sample ID: **BMO-2008-13B**

Sampled: 04-Sep-13 07:15

SVL Sample ID: **W3I0181-01 (Ground Water)**

Received: 10-Sep-13

Sample Report Page 1 of 1

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	1050	mg/L	15.0	3.30	50	W337294	AEW	09/12/13 22:11	D2
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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: **W310181**

Reported: 16-Sep-13 11:05

Client Sample ID: **TM-19A**

SVL Sample ID: **W310181-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 04-Sep-13 08:40

Received: 10-Sep-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	61.3	mg/L	3.00	0.66	10	W337294	AEW	09/12/13 22:21	D2
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John Kern
Laboratory Director



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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W310181**

Reported: 16-Sep-13 11:05

Client Sample ID: **TM-15**

SVL Sample ID: **W310181-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 04-Sep-13 10:20

Received: 10-Sep-13

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	14.8	mg/L	0.30	0.07		W337294	AEW	09/12/13 22:31	
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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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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3I0181**

Reported: 16-Sep-13 11:05

Client Sample ID: **BMO-2008-13M**

Sampled: 06-Sep-13 15:30

SVL Sample ID: **W3I0181-04 (Ground Water)**

Received: 10-Sep-13

Sample Report Page 1 of 1

Sampled By: CLS

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	402	mg/L	7.50	1.65	25	W337294	AEW	09/12/13 22:41	D2
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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
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W310181**

Reported: 16-Sep-13 11:05

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W337294	12-Sep-13	
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Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	9.99	10.0	99.9	90 - 110	W337294	12-Sep-13	
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Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	11.8	0.91	10.0	109	90 - 110	W337294	12-Sep-13	
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Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	11.8	11.8	10.0	0.5	20	W337294	12-Sep-13	
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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 - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W310472**

Reported: 26-Sep-13 09:08

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BMO-2008-4B	W310472-01	Ground Water	18-Sep-13 10:53	VH	19-Sep-2013

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: **W310472**

Reported: 26-Sep-13 09:08

Client Sample ID: **BMO-2008-4B**

SVL Sample ID: **W310472-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Sep-13 10:53

Received: 19-Sep-13

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	9.84	mg/L	0.30	0.07		W339106	AEW	09/23/13 19:36	
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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 OrderWork Order: **W310472**

Reported: 26-Sep-13 09:08

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W339106	23-Sep-13	
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Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	9.93	10.0	99.3	90 - 110	W339106	23-Sep-13	
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Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	20.0	9.16	10.0	108	90 - 110	W339106	23-Sep-13	
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Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	20.4	20.0	10.0	2.2	20	W339106	23-Sep-13	M1
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Notes and Definitions

M1	Matrix spike recovery was high, but the LCS recovery 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

APPENDIX D

GROUNDWATER SAMPLING FORMS

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/18/13
 Well ID: Anderson 458 Weather: Sunny & Windy
 ADWR No: 221458 Sampler: VH

WELL DATA		
Well Depth (ft bls): <u>734'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>5'</u>	2	0.16
	4	0.65
Static Water Level (ft bmp): <u>157.56'</u>	5	1.02
	6	1.47
Casing Volume (gal): <u>588 x3 = 1764</u>	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
<u>0841</u>	<u>Pump On</u>						
<u>0856</u>	<u>15</u>	<u>9</u>	<u>135</u>	<u>8.14</u>	<u>23.7</u>	<u>405.1</u>	
<u>0911</u>	<u>30</u>	<u>9</u>	<u>270</u>	<u>8.08</u>	<u>24.3</u>	<u>407.4</u>	
<u>0926</u>	<u>45</u>	<u>9</u>	<u>405</u>	<u>8.21</u>	<u>24.1</u>	<u>404.9</u>	
<u>0941</u>	<u>60</u>	<u>9</u>	<u>540</u>	<u>8.17</u>	<u>24.3</u>	<u>402.0</u>	
<u>0956</u>	<u>75</u>	<u>9</u>	<u>675</u>	<u>8.18</u>	<u>24.3</u>	<u>401.9</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Anderson 458</u>	<u>1000</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input checked="" type="checkbox"/> Other: <u>Purge 1 well vol, parameters stabilized</u>

Additional Comments:

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/25/13
 Well ID: AWC-02 Weather: Overcast, muggy
 ADWR No: 616586 Sampler: VH

WELL DATA			
Well Depth (ft bls): <u>333'</u>	Casing Capacity		
	Nominal Size (inches)	Gallons per Linear Foot	
Casing Diameter (in): <u>20"</u>	2	0.16	
Static Water Level (ft bmp): <u>128.89</u>	4	0.65	
Casing Volume (gal): <u>3331 x3 = 9993</u>	5	1.02	
	6	1.47	
	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
<u>0840</u>	Pump On						
<u>0900</u>	<u>20</u>	<u>120</u>	<u>2400</u>	<u>7.40</u>	<u>22.0</u>	<u>471.8</u>	
<u>0920</u>	<u>40</u>	<u>120</u>	<u>4800</u>	<u>7.27</u>	<u>21.7</u>	<u>463.6</u>	
<u>0940</u>	<u>60</u>	<u>120</u>	<u>7200</u>	<u>7.31</u>	<u>21.9</u>	<u>456.8</u>	
<u>1000</u>	<u>80</u>	<u>120</u>	<u>9600</u>	<u>7.32</u>	<u>22.0</u>	<u>456.3</u>	
<u>1005</u>	<u>85</u>	<u>120</u>	<u>10200</u>	<u>7.35</u>	<u>22.1</u>	<u>460.5</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>AWC-02</u>	<u>1007</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: _____

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/16/13
 Well ID: AWC-03 Weather: Overcast
 ADWR No: 616585 Sampler: VN-1

WELL DATA		
Well Depth (ft bls): <u>270'</u>	Casing Capacity	
Casing Diameter (in): <u>16"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>126'</u>	2	0.16
Casing Volume (gal): <u>1504</u> x3 = <u>4512</u>	4	0.65
	5	1.02
	6	1.47
	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
<u>1017</u>	<u>Pump On</u>						
<u>1022</u>	<u>5</u>	<u>600</u>	<u>3000</u>	<u>7.38</u>	<u>21.7</u>	<u>502.6</u>	
<u>1027</u>	<u>10</u>	<u>600</u>	<u>6000</u>	<u>7.53</u>	<u>21.5</u>	<u>494.2</u>	
<u>1032</u>	<u>15</u>	<u>600</u>	<u>9000</u>	<u>7.62</u>	<u>21.4</u>	<u>490.3</u>	
<u>1037</u>	<u>20</u>	<u>600</u>	<u>12,000</u>	<u>7.61</u>	<u>21.5</u>	<u>489.6</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>AWC-03</u>	<u>1043</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments:

Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/16/13
 Well ID: AWC-04 Weather: Overcast
 ADWR No: 616584 Sampler: NH

WELL DATA			
Well Depth (ft bls):	<u>337'</u>	Casing Capacity	
Casing Diameter (in):	<u>16"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	<u>123.76'</u>	2	0.16
Casing Volume (gal):	<u>2227 x3 = 6681</u>	4	0.65
Total Volume Purged (gal):		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
<u>1100</u>	<u>Pump On</u>						
<u>1105</u>	<u>5</u>	<u>700</u>	<u>3500</u>	<u>7.79</u>	<u>20.9</u>	<u>841.3</u>	
<u>1110</u>	<u>10</u>	<u>700</u>	<u>7000</u>	<u>7.40</u>	<u>20.8</u>	<u>600.4</u>	
<u>1115</u>	<u>15</u>	<u>700</u>	<u>10500</u>	<u>7.33</u>	<u>20.9</u>	<u>588.5</u>	
<u>1120</u>	<u>20</u>	<u>700</u>	<u>14000</u>	<u>7.30</u>	<u>21.0</u>	<u>585.7</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>AWC-04</u>	<u>1126</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>3005.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION	
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:	

WELL PURGING INFORMATION	
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:	

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/16/13
 Well ID: AWC-05 Weather: Overcast
 ADWR No: 590620 Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>1183'</u>	Casing Capacity	
Casing Diameter (in): <u>16"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>203.17'</u>	2	0.16
Casing Volume (gal): <u>10234.5</u> x3 = <u>30703.5</u>	4	0.65
Total Volume Purged (gal): _____	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
<u>0904</u>	<u>Pump On</u>						
<u>0914</u>	<u>10</u>	<u>300</u>	<u>3000</u>	<u>7.29</u>	<u>21.4</u>	<u>451.2</u>	
<u>0924</u>	<u>20</u>	<u>300</u>	<u>6000</u>	<u>7.55</u>	<u>21.1</u>	<u>447.8</u>	
<u>0934</u>	<u>30</u>	<u>300</u>	<u>9000</u>	<u>7.60</u>	<u>21.3</u>	<u>449.0</u>	
<u>0944</u>	<u>40</u>	<u>300</u>	<u>12,000</u>	<u>7.56</u>	<u>21.3</u>	<u>454.5</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>AWC-05</u>	<u>0954</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>
<u>DUP20130716</u>	<u>1800</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION	
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____	

WELL PURGING INFORMATION	
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input checked="" type="checkbox"/> Purged well until field parameters stabilized. <u>Per Peco</u> <input type="checkbox"/> Other: _____	

Additional Comments:

Groundwater Sampling Form

*

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/9/13
 Well ID: Banks 986 Weather: Overcast, 80's
 ADWR No: 647986 Sampler: VH

WELL DATA			
Well Depth (ft bis): <u>435'</u>	Casing Capacity		
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot	
Static Water Level (ft bmp): <u>Dep Banks 987 238.32'</u>	2	0.16	
Casing Volume (gal): <u>289 x3 = 867</u>	4	0.65	
Total Volume Purged (gal): _____	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
<u>1557</u>	<u>Pump On</u>						
<u>1617</u>	<u>20</u>	<u>11</u>	<u>220</u>	<u>7.89</u>	<u>22.5</u>	<u>828.5</u>	
<u>1637</u>	<u>40</u>	<u>11</u>	<u>440</u>	<u>7.96</u>	<u>22.8</u>	<u>793.6</u>	
<u>1657</u>	<u>60</u>	<u>3</u>	<u>500</u>	<u>8.04</u>	<u>22.9</u>	<u>769.1</u>	
<u>1717</u>	<u>80</u>						
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Banks 986</u>	<u>1702</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input checked="" type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____
WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input checked="" type="checkbox"/> Purged well until field parameters stabilized. <u>+ lightning</u> <input type="checkbox"/> Other: _____

Additional Comments: Lightning w/in 10mi

* When Q drops, reset control box in well shed w/ orange lever *

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/17/13
 Well ID: Barton 919 Weather: Sunny, windy
 ADWR No: 644919 Sampler: VNI

WELL DATA		
Well Depth (ft bls): <u>130'</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>114.18'</u>	2	0.16
Casing Volume (gal): <u>x3 =</u>	4	0.65
Total Volume Purged (gal): _____	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 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments:

WLO
Go very slowly w/sonder.
Well is behind house, by brick tower (former windmill?)

Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 5/8/13
 Well ID: Bima Weather: overcast, breezy 80's
 ADWR No: 577927 Sampler: NH

WELL DATA		
Well Depth (ft bls): <u>460'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>4"</u>	2	0.16
Static Water Level (ft bmp): _____	4	0.65
	5	1.02
	6	1.47
Casing Volume (gal): <u>x3 =</u>	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							
<u>1540</u>				<u>6.62</u>	<u>28.0</u>	<u>1580</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Bima</u>	<u>1546</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input checked="" type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field paremeters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input checked="" type="checkbox"/> Other: <u>Sample from P-Tanker no purge per owner request</u>

Additional Comments:

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8-14-13
 Well ID: BMD-2008-16 Weather: Sunny
 ADWR No: _____ Sampler: Christopher L Sherman

WELL DATA			
Well Depth (ft bls): <u>310</u>	Casing Capacity		
	Nominal Size (inches)	Gallons per Linear Foot	
Casing Diameter (in): <u>5"</u>	2	0.16	
Static Water Level (ft bmp): <u>73.82</u>	4	0.65	
Casing Volume (gal): <u>241 x3 = 723</u>	5	1.02	
	6	1.47	
	8	2.61	
	10	4.08	
Total Volume Purged (gal): <u>747</u>	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
<u>0630</u>	<u>Pump On</u>						
<u>0700</u>	<u>30</u>	<u>8.3</u>	<u>249</u>	<u>6.97</u>	<u>21.6</u>	<u>1005</u>	
<u>0720</u>	<u>50</u>	<u>8.3</u>	<u>415</u>	<u>6.99</u>	<u>21.5</u>	<u>1005</u>	
<u>0740</u>	<u>70</u>	<u>8.3</u>	<u>581</u>	<u>6.99</u>	<u>21.5</u>	<u>1007</u>	
<u>0800</u>	<u>90</u>	<u>8.3</u>	<u>747</u>	<u>6.96</u>	<u>21.6</u>	<u>1009</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMD-2008-16</u>	<u>0800</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>FLC</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION	
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:	
WELL PURGING INFORMATION	
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:	

Additional Comments: 236.1

Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:		Date:	8-27-13
Well ID:	BMO-2008-3B	Weather:	Sunny
ADWR No:		Sampler:	Christopher L. Sherman

WELL DATA

		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Well Depth (ft bls):	260	2	0.16
Casing Diameter (in):	5"	4	0.65
Static Water Level (ft bmp):	145.10	5	1.02
Casing Volume (gal):	117.3 x3 = 354	6	1.47
		8	2.61
		10	4.08
Total Volume Purged (gal):	540	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

[illegible]

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 μ S/cm)

SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Bmo-2008-3B	1325	PL	250	1	309.0	Ice	X

WATER LEVEL MEASUREMENT COLLECTION

- ☒ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead/No port in 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 parameters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other: _____

Additional Comments: 115

Groundwater Sampling Form

Project No: 287030

Client: Freeport Copper Queen Branch

Task N°:

Date:

Well ID:

Weather:

ADWR No:

Sampler:

WELL DATA			
Well Depth (ft bls):	610'	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	5"	2	0.16
		4	0.65
		5	1.02
		6	1.47
		8	2.61
Static Water Level (ft bmp):	137.04'	10	4.08
Casing Volume (gal):	482 x3 = 1446	Casing Volume = gallons/foot * water column (feet)	
Total Volume Purged (gal):			

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate $\cancel{\text{ft}}$ (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance ($\mu\text{S/cm}$)	Comments
0920	Pump On						
0940	20	3	60	—	—	—	Figuring Out Q
0950	30	20	260	7.64	24.2	384.1	
1010	50	20	660	7.78	23.6	382.9	
1030	70	20	1060	7.71	23.5	382.7	
1050	90	20	1460	7.69	23.4	384.6	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 μ S/cm)

SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMD-2008-43	1053	Poly	250mL	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☒ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead/No port in 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 parameters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: * Prior to purge - open all valves

If low discharge - turn off/on power
- reset control box

☆ Make sure to turn off all switches for power when done

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8-20-13
 Well ID: BMO-2008-5B Weather: Sunny
 ADWR No: _____ Sampler: Christopher L. Shuman

WELL DATA		
Well Depth (ft bls): <u>285</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>5"</u>	2	0.16
Static Water Level (ft bmp): <u>150.82</u>	4	0.65
Casing Volume (gal): <u>137</u> x3 = <u>411</u>	5	1.02
	6	1.47
	8	2.61
Total Volume Purged (gal): <u>675</u>	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
<u>1005</u>	Pump On						
<u>1010</u>	<u>5</u>	<u>27</u>	<u>135</u>	<u>6.95</u>	<u>21.8</u>	<u>792</u>	
<u>1020</u>	<u>15</u>	<u>27</u>	<u>405</u>	<u>6.98</u>	<u>21.8</u>	<u>791</u>	
<u>1030</u>	<u>25</u>	<u>27</u>	<u>675</u>	<u>7.00</u>	<u>21.7</u>	<u>792</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)

WATER LEVEL MEASUREMENT COLLECTION	
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____	
WELL PURGING INFORMATION	
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field paremeters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____	

Additional Comments: 134.1

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8-20-13
 Well ID: BMO-2008 5 m Weather: Sunny
 ADWR No: _____ Sampler: Christopher L. Shermann

WELL DATA		
Well Depth (ft bls): <u>450</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>152.76 90</u>	2	0.16
Casing Volume (gal): <u>303.1 x 3 = 909.3</u>	4	0.65
Total Volume Purged (gal): <u>990</u>	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
<u>0900</u>	Pump On						
<u>0905</u>	<u>5</u>	<u>18</u>	<u>90</u>	<u>7.14</u>	<u>22.5</u>	<u>639</u>	
<u>0925</u>	<u>25</u>	<u>18</u>	<u>450</u>	<u>7.12</u>	<u>22.4</u>	<u>638</u>	
<u>0945</u>	<u>45</u>	<u>18</u>	<u>810</u>	<u>7.16</u>	<u>22.4</u>	<u>640</u>	
<u>0955</u>	<u>55</u>	<u>18</u>	<u>990</u>	<u>7.18</u>	<u>22.5</u>	<u>640</u>	
						Pump Off	

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: 297.2

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8-20-13
 Well ID: Bmo-2008-6B Weather: Sunny
 ADWR No: _____ Sampler: Christopher L. Shuman

WELL DATA		
Well Depth (ft bls): <u>265</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>196.23</u>	2	0.16
Casing Volume (gal): <u>70 x3 = 210</u>	4	0.65
Total Volume Purged (gal): <u>225</u>	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
<u>0730</u>	Pump On						
<u>0735</u>	<u>5</u>	<u>5.1</u>	<u>25</u>	<u>7.05</u>	<u>21.4</u>	<u>322</u>	
<u>0745</u>	<u>15</u>	<u>5.1</u>	<u>75</u>	<u>7.32</u>	<u>21.4</u>	<u>318</u>	
<u>0800</u>	<u>30</u>	<u>5.1</u>	<u>150</u>	<u>7.33</u>	<u>21.4</u>	<u>315</u>	
<u>0815</u>	<u>45</u>	<u>5.1</u>	<u>225</u>	<u>7.36</u>	<u>21.5</u>	<u>310</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point: _____							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: 48.7

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8-20-13
 Well ID: BMP-2008-6M Weather: Partly Cloudy
 ADWR No: _____ Sampler: Christopher L Shuman

WELL DATA		
Well Depth (ft bls): <u>450</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>197.43</u>	2	0.16
Casing Volume (gal): <u>257.5 x 3 = 773</u>	4	0.65
Total Volume Purged (gal): <u>840</u>	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
<u>0630</u>	<u>Pump On</u>						
<u>0640</u>	<u>10</u>	<u>21</u>	<u>210</u>	<u>6.96</u>	<u>21.6</u>	<u>772</u>	
<u>0650</u>	<u>20</u>	<u>21</u>	<u>420</u>	<u>6.98</u>	<u>21.7</u>	<u>773</u>	
<u>0700</u>	<u>30</u>	<u>21</u>	<u>630</u>	<u>6.98</u>	<u>21.7</u>	<u>771</u>	
<u>0710</u>	<u>40</u>	<u>21</u>	<u>840</u>	<u>6.99</u>	<u>21.7</u>	<u>772</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments: 257.5

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8-28-13
 Well ID: BMD-2008-7M Weather: Partly Cloudy
 ADWR No: _____ Sampler: Christopher L. Shuman

WELL DATA		
Well Depth (ft bls): <u>670</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>244.32</u>	2	0.16
Casing Volume (gal): <u>434.1</u> x3 = <u>1302</u>	4	0.65
Total Volume Purged (gal): <u>1365</u>	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
<u>1000</u>	Pump On						
<u>1005</u>	<u>5</u>	<u>21</u>	<u>105</u>	<u>7.14</u>	<u>22.9</u>	<u>494</u>	
<u>1025</u>	<u>25</u>	<u>21</u>	<u>525</u>	<u>7.14</u>	<u>22.8</u>	<u>493</u>	
<u>1045</u>	<u>45</u>	<u>21</u>	<u>945</u>	<u>7.14</u>	<u>22.8</u>	<u>493</u>	
<u>1105</u>	<u>65</u>	<u>21</u>	<u>1365</u>	<u>7.15</u>	<u>22.9</u>	<u>494</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMD-2008-7M</u>	<u>1105</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>EPA 300</u>	<u>ICG</u>	<u>X</u>
<u>Dup-022813</u>	<u>1105</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>EPA 300</u>	<u>ICG</u>	<u>X</u>

WATER LEVEL MEASUREMENT COLLECTION	
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead. <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____	

WELL PURGING INFORMATION	
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____	

Additional Comments: 425.6

Groundwater Sampling Form

Project No: 287030

Client: **Freeport Copper Queen Branch**

Task No:

Date:

Well ID:

Weather:

ADWR No:

Sampler:

WELL DATA		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Well Depth (ft bls):	480	2	0.16
Casing Diameter (in):	5"	4	0.65
Static Water Level (ft bmp):	302.48	5	1.02
Casing Volume (gal):	181 x3 = 543	6	1.47
		8	2.61
		10	4.08
Total Volume Purged (gal):	639	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						
0955	15	14.2	213	6.26	22.0	2760	
1005	25	14.2	355	6.36	21.6	2720	
1015	35	14.2	497	6.34	21.4	2720	
1025	45	14.2	639	6.38	21.3	2780	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 μ S/cm

SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-8B	1025	PL	250	1	300	Ice	✓

WATER LEVEL MEASUREMENT COLLECTION

- ☒ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead/No port in 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 parameters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments:

177.5

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8-12-13
 Well ID: BMO-2008-8M Weather: Sunny
 ADWR No: _____ Sampler: Christopher L Shuman

WELL DATA		
Well Depth (ft bls): <u>1210</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>303.60</u>	2	0.16
Casing Volume (gal): <u>924.5 x3 = 2,774</u>	4	0.65
Total Volume Purged (gal): <u>2816</u>	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
<u>0630</u>	<u>Pump On</u>						
<u>0730</u>	<u>60</u>	<u>17.6</u>	<u>1056</u>	<u>7.01</u>	<u>24.6</u>	<u>584</u>	
<u>0830</u>	<u>120</u>	<u>17.6</u>	<u>2112</u>	<u>7.15</u>	<u>24.4</u>	<u>583</u>	
<u>0900</u>	<u>150</u>	<u>17.6</u>	<u>2640</u>	<u>7.17</u>	<u>24.4</u>	<u>582</u>	
<u>0910</u>	<u>160</u>	<u>17.6</u>	<u>2816</u>	<u>7.19</u>	<u>24.6</u>	<u>585</u>	
						Pump Off	

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2008-8M</u>	<u>0910</u>	<u>PL</u>	<u>250 ml</u>	<u>1</u>	<u>EPA-300.0</u>	<u>Free</u>	<u>Yes</u>

WATER LEVEL MEASUREMENT COLLECTION	
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:	

WELL PURGING INFORMATION	
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:	

Additional Comments:

Calibrated Meter - Geotech PH 7 3AE725 Exp 5-15 PH 9 3beal Exp 2-15

906.4

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8-12-13
 Well ID: BMO-2008-9m Weather: Sunny
 ADWR No: _____ Sampler: Christopher L. Shuman

WELL DATA			
Well Depth (ft bls): <u>775</u>	Casing Capacity		
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot	
Static Water Level (ft bmp): <u>297.63</u>	2	0.16	
Casing Volume (gal): <u>487</u> x3 = <u>1460</u>	4	0.65	
Total Volume Purged (gal): _____	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
<u>1110</u>	<u>Pump On</u>						
<u>1130</u>	<u>20</u>	<u>18.8</u>	<u>376</u>	<u>7.43</u>	<u>24.3</u>	<u>550</u>	
<u>1150</u>	<u>40</u>	<u>18.8</u>	<u>752</u>	<u>7.47</u>	<u>24.2</u>	<u>552</u>	
<u>1210</u>	<u>60</u>	<u>18.8</u>	<u>1128</u>	<u>7.49</u>	<u>24.2</u>	<u>553</u>	
<u>1230</u>	<u>80</u>	<u>18.8</u>	<u>1504</u>	<u>7.47</u>	<u>24.2</u>	<u>553</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Bmo-2008-9m</u>	<u>1230</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ice</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION	
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____	
WELL PURGING INFORMATION	
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field paremeters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____	

Additional Comments:

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8-13-13
 Well ID: BMO-2008-106L Weather: Sunny
 ADWR No: _____ Sampler: Christopher L. Sherry

WELL DATA		
Well Depth (ft bls): <u>810</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>509.32</u>	2	0.16
Casing Volume (gal): <u>306.7 x 3 = 920</u>	4	0.65
Total Volume Purged (gal): <u>942</u>	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
<u>0630</u>	<u>Pump On</u>						
<u>0635</u>	<u>5</u>	<u>4.5</u>	<u>22.5</u>	<u>6.51</u>	<u>25.8</u>	<u>1572</u>	
<u>0730</u>	<u>60</u>	<u>4.6</u>	<u>276</u>	<u>6.55</u>	<u>26.0</u>	<u>1567</u>	
<u>0830</u>	<u>120</u>	<u>3.7</u>	<u>516</u>	<u>6.58</u>	<u>25.8</u>	<u>1585</u>	
<u>0930</u>	<u>180</u>	<u>2.4</u>	<u>738</u>	<u>6.59</u>	<u>25.6</u>	<u>1590</u>	
<u>1030</u>	<u>240</u>	<u>3.4</u>	<u>942</u>	<u>6.57</u>	<u>25.5</u>	<u>1586</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2008-106L</u>	<u>1930</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>JCL</u>	<u>X</u>

WATER LEVEL MEASUREMENT COLLECTION	
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead. <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:	

WELL PURGING INFORMATION	
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:	

Additional Comments:

306.7

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8-19-13
 Well ID: BMO-2008-1064 Weather: Sunny
 ADWR No: _____ Sampler: Christopher L. Shuman

WELL DATA

Well Depth (ft bls): <u>449</u> Casing Diameter (in): <u>5"</u> Static Water Level (ft bmp): <u>283.97</u> Casing Volume (gal): <u>168.3 x 3 = 505</u> 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
<u>0645</u>	<u>Pump On</u>						
<u>0700</u>	<u>15</u>	<u>5.7</u>	<u>85.5</u>	<u>6.07</u>	<u>20.6</u>	<u>3610</u>	
<u>0715</u>	<u>30</u>	<u>5.7</u>	<u>171</u>	<u>6.09</u>	<u>20.7</u>	<u>3600</u>	
<u>0745</u>	<u>60</u>	<u>5.7</u>	<u>342</u>	<u>6.08</u>	<u>20.8</u>	<u>3610</u>	
<u>0815</u>	<u>90</u>	<u>5.7</u>	<u>513</u>	<u>6.10</u>	<u>21.0</u>	<u>3630</u>	
						<u>Pump Off</u>	

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION

Sample Collection Point:

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

WATER LEVEL MEASUREMENT COLLECTION

- ☐ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead/No port in 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 parameters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other: _____

Additional Comments: 165

Calibrated meter

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:		Date:	8-27-13
Well ID:	BMO-2008-116	Weather:	Sunny
ADWR No:		Sampler:	Christopher L Sherman

[illegible]

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 μ S/cm)

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMD-2008-116	0805	PL	250	1	300	Ice	Y

☒ Water level measurement collected.

☐ No water level measurement collected. No access to wellhead/No port in wellhead

☐ No water level measurement collected. Obstruction in well.

☐ No water level measurement collected. Well is pumping.

☐ Other:

☒ Purged 3 well volumes and field parameters stabilized.

☐ Purged 3 well volumes based on previous water level and field parameters stabilized.

☐ Purged well until field parameters stabilized.

☐ Other:

Additional Comments: 193.5

Project No: 287030 Client: Freeport Copper Queen Branch
Task No: _____ Date: 9-4-13
Well ID: BMO-2008-13B Weather: _____
ADWR No: _____ Sampler: _____

WELL DATA		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Well Depth (ft bls):	475	2	0.16
Casing Diameter (in):	5'	4	0.65
Static Water Level (ft bmp):	212.15	5	1.02
Casing Volume (gal):	268 x3 = 804	6	1.47
		8	2.61
		10	4.08
Total Volume Purged (gal):	900	Casing Volume = gallons/foot * water column (feet)	

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (μS/cm)	Comments
0630	Pump On						
0640	10	20	200	6.56	20.8	2050	
0655	25	20	500	6.55	20.7	2060	
0705	35	20	700	6.52	20.8	2070	
0715	45	20	900	6.57	20.8	2070	
							Pump Off

Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BPMO-2008-13B	0715	PL	250	1	EPA-3000	TC	Yes

motor calibrator ~ Geotech -4 Tot 3a Baal Exp 2.5 ~ 7 Lot 3AE 725 Exp 5.15

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 9-6-13
 Well ID: Bma-2008-13M Weather: Sunny
 ADWR No: _____ Sampler: Christopher L. Sherman

WELL DATA

Well Depth (ft bls): <u>1030</u> Casing Diameter (in): <u>5 1/2</u> Static Water Level (ft bmp): <u>212.52</u> Casing Volume (gal): <u>833.7 x 3 = 2501</u> Total Volume Purged (gal): <u>2604</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Casing Capacity</th> </tr> <tr> <th>Nominal Size (inches)</th> <th>Gallons per Linear Foot</th> </tr> </thead> <tbody> <tr><td>2</td><td>0.16</td></tr> <tr><td>4</td><td>0.65</td></tr> <tr><td>5</td><td>1.02</td></tr> <tr><td>6</td><td>1.47</td></tr> <tr><td>8</td><td>2.61</td></tr> <tr><td>10</td><td>4.08</td></tr> </tbody> </table> <p>Casing Volume = gallons/foot * water column (feet)</p>	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 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																

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>0515</u>	<u>Pump On</u>						
<u>0735</u>	<u>140</u>	<u>5.7</u>	<u>798</u>	<u>8.94</u>	<u>23.1</u>	<u>1276</u>	
<u>0835</u>	<u>200</u>	<u>4.6</u>	<u>1140</u>	<u>8.99</u>	<u>23.0</u>	<u>1280</u>	
<u>0935</u>	<u>260</u>	<u>3.8</u>	<u>1416</u>	<u>8.99</u>	<u>23.3</u>	<u>1272</u>	
<u>1135</u>	<u>380</u>	<u>3.8</u>	<u>1872</u>	<u>8.88</u>	<u>23.5</u>	<u>1288</u>	
<u>1235</u>	<u>440</u>	<u>2.8</u>	<u>2100</u>	<u>8.84</u>	<u>23.8</u>	<u>1294</u>	
<u>1530</u>	<u>620</u>	<u>2.8</u>	<u>2604</u>	<u>8.81</u>	<u>23.8</u>	<u>1300</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Bma-2008-13M</u>	<u>1530</u>	<u>PL</u>	<u>250 mL</u>	<u>1</u>	<u>EPA 300.0</u>	<u>Fee</u>	<u>YES</u>

WATER LEVEL MEASUREMENT COLLECTION

- ☒ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead/No port in 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 parameters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other: _____

Additional Comments: 817.4

Groundwater Sampling Form

Project No: 287030

Client: Freeport Copper Queen Branch

Task No:

Date: 8-15-13

Well ID:

Bmo-2010-1M

Weather:

Sunny

ADWR No:

Sampler: Christopher L Sherman

WELL DATA

Well Depth (ft bls): 550 Casing Diameter (in): 5" Static Water Level (ft bmp): 228.10 Casing Volume (gal): 328.4 x 3 = 985.2 Total Volume Purged (gal): 1005	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Casing Capacity</th> </tr> <tr> <th>Nominal Size (inches)</th> <th>Gallons per Linear Foot</th> </tr> </thead> <tbody> <tr><td>2</td><td>0.16</td></tr> <tr><td>4</td><td>0.65</td></tr> <tr><td>5</td><td>1.02</td></tr> <tr><td>6</td><td>1.47</td></tr> <tr><td>8</td><td>2.61</td></tr> <tr><td>10</td><td>4.08</td></tr> </tbody> </table> <p style="text-align: center;">Casing Volume = gallons/foot * water column (feet)</p>	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 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																

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0705	Pump On						
0715	10	10	100	7.40	23.2	756	
0720	15	10	150	7.46	22.9	755	
0805	60	5	375	7.36	23.0	765	
0905	120	3	555	7.37	23.1	762	
1005	180	3	735	7.38	23.3	766	
1105	240	3	915	7.40	23.8	767	
1135	270	3	1005	7.39	23.5	767	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Bmo-2010-1M	1135	PL	250	1	Q300	Ice	X

WATER LEVEL MEASUREMENT COLLECTION

- ☒ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead/No port in 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 parameters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments:

320

Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:		Date:	8-15-13
Well ID:	BMD-2010-2M	Weather:	Sunny
ADWR No:		Sampler:	Christopher I. Sharma

WELL DATA

	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Well Depth (ft bls):	2	0.16
Casing Diameter (in):	4	0.65
	5	1.02
Static Water Level (ft bmp):	6	1.47
	8	2.61
Casing Volume (gal):	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
1145	Pump On						
1155	10	27	270	6.56	21.4	2140	
1205	20	27	540	6.59	21.3	2150	
1215	30	27	810	6.58	21.2	2159	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 μ S/cm)

SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2010-2M	1215	PL	250	1	300	100	X

WATER LEVEL MEASUREMENT COLLECTION

- ☒ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead/No port in 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 parameters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: 101

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/23/13
 Well ID: BMO-2010-3B Weather: Sunny, Windy
 ADWR No: 219970 Sampler: VJH

WELL DATA		
Well Depth (ft bls): <u>330'</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>120.02'</u>	2	0.16
Casing Volume (gal): <u>214</u> x3 = <u>642</u>	4	0.65
	5	1.02
	6	1.47
	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
<u>0912</u>	<u>Pump On</u>						
<u>0932</u>	<u>20</u>	<u>8</u>	<u>160</u>	<u>7.61</u>	<u>21.6</u>	<u>421.6</u>	<u>Faint brown</u>
<u>0952</u>	<u>40</u>	<u>8</u>	<u>320</u>	<u>7.66</u>	<u>21.6</u>	<u>420.3</u>	<u>Clear</u>
<u>1012</u>	<u>60</u>	<u>8</u>	<u>480</u>	<u>7.67</u>	<u>21.7</u>	<u>420.0</u>	
<u>1032</u>	<u>80</u>	<u>8</u>	<u>640</u>	<u>7.67</u>	<u>21.8</u>	<u>420.0</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point: _____							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2010-3B</u>	<u>1036</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: _____

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/23/13
 Well ID: BMO-2010-3M Weather: Sunny, windy
 ADWR No: 219969 Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>532'</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>122.97'</u>	2	0.16
Casing Volume (gal): <u>417</u> x3 = <u>1251</u>	4	0.65
	5	1.02
	6	1.47
	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
<u>1100</u>	<u>Pump On</u>						
<u>1120</u>	<u>20</u>	<u>7</u>	<u>140</u>	<u>7.81</u>	<u>22.4</u>	<u>350.7</u>	<u>Faintly yellow, sulphur odor</u>
<u>1140</u>	<u>40</u>	<u>7</u>	<u>280</u>	<u>7.79</u>	<u>23.0</u>	<u>388.7</u>	<u>" "</u>
<u>1200</u>	<u>60</u>	<u>7</u>	<u>420</u>	<u>7.82</u>	<u>23.3</u>	<u>386.1</u>	<u>Clear, faint sulphur odor</u>
<u>1220</u>	<u>80</u>	<u>7</u>	<u>560</u>	<u>7.83</u>	<u>23.4</u>	<u>385.2</u>	<u>" "</u>
<u>1240</u>	<u>100</u>	<u>7</u>	<u>700</u>	<u>7.80</u>	<u>23.3</u>	<u>385.1</u>	<u>" "</u>
<u>1300</u>	<u>120</u>	<u>7</u>	<u>840</u>	<u>7.82</u>	<u>23.5</u>	<u>384.8</u>	<u>Clear, odorless</u>
<u>1320</u>	<u>140</u>	<u>7</u>	<u>980</u>	<u>7.81</u>	<u>23.7</u>	<u>384.6</u>	<u>" "</u>
<u>1340</u>	<u>160</u>	<u>7</u>	<u>1120</u>	<u>7.79</u>	<u>23.5</u>	<u>385.5</u>	<u>" "</u>
<u>1400</u>	<u>180</u>	<u>7</u>	<u>1260</u>	<u>7.80</u>	<u>23.4</u>	<u>386.0</u>	<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2010-3M</u>	<u>1402</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments:

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8-14-13
 Well ID: BMD-2012-1M Weather: Sunny
 ADWR No: _____ Sampler: Christopher L. Sherman

WELL DATA

Well Depth (ft bls): <u>405</u> Casing Diameter (in): <u>5"</u> Static Water Level (ft bmp): <u>233.96</u> Casing Volume (gal): <u>174.4</u> x3 = <u>522.4</u> Total Volume Purged (gal): <u>540</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Casing Capacity</th> </tr> <tr> <th>Nominal Size (inches)</th> <th>Gallons per Linear Foot</th> </tr> </thead> <tbody> <tr><td>2</td><td>0.16</td></tr> <tr><td>4</td><td>0.65</td></tr> <tr><td>5</td><td>1.02</td></tr> <tr><td>6</td><td>1.47</td></tr> <tr><td>8</td><td>2.61</td></tr> <tr><td>10</td><td>4.08</td></tr> </tbody> </table> <p>Casing Volume = gallons/foot * water column (feet)</p>	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 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																

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1130</u>	<u>Pump On</u>						
<u>1140</u>	<u>10</u>	<u>6</u>	<u>60</u>	<u>7.08</u>	<u>22.9</u>	<u>853</u>	
<u>1200</u>	<u>30</u>	<u>6</u>	<u>180</u>	<u>7.06</u>	<u>22.9</u>	<u>852</u>	
<u>1230</u>	<u>60</u>	<u>6</u>	<u>360</u>	<u>7.01</u>	<u>22.8</u>	<u>856</u>	
<u>1300</u>	<u>90</u>	<u>6</u>	<u>540</u>	<u>7.09</u>	<u>22.9</u>	<u>858</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMD-2012-1M</u>	<u>1300</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>TL</u>	<u>X</u>

WATER LEVEL MEASUREMENT COLLECTION

- ☒ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead/No port in 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 parameters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: 171.04

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/17/13
 Well ID: Booth Weather: Sunny, windy
 ADWR No: 914931 Sampler: VW1

WELL DATA		
Well Depth (ft bis): <u>240'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>7"</u>	2	0.16
	4	0.65
Static Water Level (ft bmp): _____	5	1.02
	6	1.47
Casing Volume (gal): <u>x3 =</u>	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						
<u>1025</u>				<u>7.75</u>	<u>23.2</u>	<u>497.6</u>	
	Pump Off						

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Booth</u>	<u>1029</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input checked="" type="checkbox"/> No water level measurement collected. <u>No access to wellhead/No port in wellhead.</u> <u>Well house locked, cannot contact well owner. Left note.</u> <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input checked="" type="checkbox"/> Other: <u>Grabbed from spigot on west side of well house.</u>

Additional Comments:

Groundwater Sampling Form

*

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 07/15/13
 Well ID: Chambers Weather: Sunny, hot, humid
 ADWR No: 629807 Sampler: VH

WELL DATA		
Well Depth (ft bls): <u>245'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>	2	0.16
	4	0.65
Static Water Level (ft bmp): _____	5	1.02
	6	1.47
Casing Volume (gal): <u>x3 =</u>	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
<u>1207</u>	Pump On						
<u>1212</u>	<u>5</u>	<u>13</u>	<u>65</u>	<u>7.17</u>	<u>22.6</u>	<u>433.9</u>	
<u>1217</u>	<u>10</u>	<u>13</u>	<u>130</u>	<u>7.36</u>	<u>22.7</u>	<u>435.7</u>	
<u>1222</u>	<u>15</u>	<u>13</u>	<u>195</u>	<u>7.40</u>	<u>22.7</u>	<u>434.6</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Chambers</u>	<u>1224</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>
<u>DUP28130715</u>	<u>1225</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input checked="" type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input checked="" type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments:

Groundwater Sampling Form

✱

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/11/13
 Well ID: COR MW-1 Weather: Partly cloudy, hot, humid
 ADWR No: 903992 Sampler: VN1

WELL DATA		
Well Depth (ft bls): <u>420'</u>	Casing Capacity	
Casing Diameter (in): <u>8"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>239.67'</u>	2	0.16
Casing Volume (gal): <u>471</u> x3 = <u>1413</u>	4	0.65
	5	1.02
	6	1.47
	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
<u>1033</u>	<u>Pump On</u>						
<u>1053</u>	<u>20</u>	<u>11</u>	<u>220</u>	<u>7.18</u>	<u>22.0</u>	<u>1705</u>	
<u>1113</u>	<u>40</u>	<u>11</u>	<u>440</u>	<u>7.24</u>	<u>21.7</u>	<u>1745</u>	
<u>1133</u>	<u>60</u>	<u>11</u>	<u>660</u>	<u>7.26</u>	<u>21.6</u>	<u>1775</u>	
<u>1153</u>	<u>80</u>	<u>11</u>	<u>880</u>	<u>7.27</u>	<u>21.5</u>	<u>1792</u>	
<u>1213</u>	<u>100</u>	<u>11</u>	<u>1100</u>	<u>7.25</u>	<u>21.3</u>	<u>1813</u>	
<u>1233</u>	<u>120</u>	<u>11</u>	<u>1320</u>	<u>7.13</u>	<u>21.4</u>	<u>1833</u>	
<u>1253</u>	<u>140</u>	<u>11</u>	<u>1540</u>	<u>7.17</u>	<u>21.4</u>	<u>1858</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point: _____							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>COR MW-1</u>	<u>1256</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>✓</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: _____

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/25/13
 Well ID: LOB-2 Weather: Sunny, 80's
 ADWR No: 903984 Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>162'</u>	Casing Capacity	
Casing Diameter (in): <u>4"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>130.21'</u>	2	0.16
Casing Volume (gal): <u>21 x3 = 63</u>	4	0.65
Total Volume Purged (gal): _____	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
<u>1127</u>	Pump On						
<u>1130</u>	<u>3</u>	<u>7</u>	<u>21</u>	<u>7.26</u>	<u>21.0</u>	<u>482.5</u>	
<u>1133</u>	<u>6</u>	<u>7</u>	<u>42</u>	<u>7.33</u>	<u>21.1</u>	<u>485.1</u>	
<u>1136</u>	<u>9</u>	<u>7</u>	<u>63</u>	<u>7.34</u>	<u>20.9</u>	<u>485.4</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>LOB-2</u>	<u>1145</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments:

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/25/13
 Well ID: COB-3 Weather: Sunny, hot
 ADWR No: 900823 Sampler: VNA

WELL DATA		
Well Depth (ft bls): <u>300'</u>	Casing Capacity	
Casing Diameter (in): <u>4"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>129.05'</u>	2	0.16
Casing Volume (gal): <u>11' x 3 = 333</u>	4	0.65
Total Volume Purged (gal): _____	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
<u>1024</u>	Pump On						
<u>1030</u>	<u>6</u>	<u>19</u>	<u>114</u>	<u>7.37</u>	<u>21.6</u>	<u>457.2</u>	
<u>1036</u>	<u>12</u>	<u>19</u>	<u>228</u>	<u>7.47</u>	<u>21.5</u>	<u>473.1</u>	
<u>1042</u>	<u>18</u>	<u>19</u>	<u>342</u>	<u>7.42</u>	<u>21.4</u>	<u>480.8</u>	
<u>1048</u>	<u>24</u>	<u>19</u>	<u>456</u>	<u>7.43</u>	<u>21.3</u>	<u>482.9</u>	
<u>1054</u>	<u>30</u>	<u>19</u>	<u>570</u>	<u>7.42</u>	<u>21.4</u>	<u>485.0</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>COB-3</u>	<u>1058</u>	<u>10LY</u>	<u>250mL</u>	<u>1</u>	<u>3000.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead. <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: SWL = 129.05' from top of sounding tube.
- 2.10
= 126.95 from ground surface.

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/25/13
 Well ID: COB-WL Weather: Partly cloudy, hot
 ADWR No: 593116 Sampler: NH

WELL DATA		
Well Depth (ft bls): <u>150'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>4"</u>	2	0.16
Static Water Level (ft bmp): <u>81.36</u>	4	0.65
Casing Volume (gal): <u>45</u> x3 = <u>135</u>	5	1.02
	6	1.47
	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
<u>1430</u>	Pump On						
<u>1435</u>	<u>5</u>	<u>7</u>	<u>35</u>	<u>7.08</u>	<u>26.3</u>	<u>1061</u>	
<u>1446</u>	<u>10</u>	<u>7</u>	<u>70</u>	<u>7.11</u>	<u>21.3</u>	<u>1068</u>	
<u>1455</u>	<u>25</u>	<u>1.5</u>	<u>92.5</u>	<u>7.37</u>	<u>22.6</u>	<u>1068</u>	
<u>1510</u>	<u>40</u>	<u>1.5</u>	<u>115</u>	<u>7.31</u>	<u>22.9</u>	<u>1072</u>	
<u>1525</u>	<u>55</u>	<u>1.5</u>	<u>137.5</u>	<u>7.23</u>	<u>22.7</u>	<u>1074</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>COB-WL</u>	<u>1532</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/11/13
 Well ID: Cooper Weather: Partly Cloudy, humid
 ADWR No: 623564 Sampler: _____

WELL DATA		
Well Depth (ft bls): <u>325'</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): _____	2	0.16
Casing Volume (gal): <u>x3 =</u>	4	0.65
Total Volume Purged (gal): _____	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
<u>1316</u>	<u>Pump On</u>						
<u>1321</u>	<u>5</u>	<u>8</u>	<u>40</u>	<u>7.54</u>	<u>22.5</u>	<u>433.9</u>	
<u>1326</u>	<u>10</u>	<u>8</u>	<u>80</u>	<u>7.57</u>	<u>23.0</u>	<u>433.0</u>	
<u>1331</u>	<u>15</u>	<u>8</u>	<u>120</u>	<u>7.65</u>	<u>23.2</u>	<u>432.5</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point: _____							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Cooper</u>	<u>1334</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>3000.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input checked="" type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input checked="" type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: _____

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8-13-13
 Well ID: Cooper C Weather: Sunny
 ADWR No: _____ Sampler: Christopher L Sturm

WELL DATA		
Well Depth (ft bls): <u>220</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>162.07</u>	2	0.16
Casing Volume (gal): <u>85.2 x3 =</u>	4	0.65
Total Volume Purged (gal): <u>256</u>	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
<u>1220</u>	<u>Pump On</u>						
<u>1230</u>	<u>10</u>	<u>8.5</u>	<u>85</u>	<u>6.63</u>	<u>21.3</u>	<u>1733</u>	
<u>1240</u>	<u>20</u>	<u>8.5</u>	<u>170</u>	<u>6.65</u>	<u>21.2</u>	<u>1737</u>	
<u>1250</u>	<u>30</u>	<u>8.5</u>	<u>255</u>	<u>6.69</u>	<u>21.2</u>	<u>1739</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Cooper C</u>	<u>1250</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>JCC</u>	<u>X</u>

WATER LEVEL MEASUREMENT COLLECTION	
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead. <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:	

WELL PURGING INFORMATION	
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:	

Additional Comments: 58

Groundwater Sampling Form

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Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/9/13
 Well ID: Dodson Weather: Overcast, 80's, drizzly
 ADWR No: 644927 Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>200'</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>98.38</u>	2	0.16
Casing Volume (gal): <u>149 x3 = 447</u>	4	0.65
Total Volume Purged (gal): _____	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
<u>1438</u>	<u>Pump On</u>						
<u>1448</u>	<u>10</u>	<u>14</u>	<u>140</u>	<u>7.24</u>	<u>22.5</u>	<u>1985</u>	
<u>1458</u>	<u>20</u>	<u>14</u>	<u>280</u>	<u>7.30</u>	<u>21.2</u>	<u>1897</u>	
<u>1508</u>	<u>30</u>	<u>14</u>	<u>420</u>	<u>7.36</u>	<u>21.1</u>	<u>1832</u>	
<u>1518</u>	<u>40</u>	<u>14</u>	<u>560</u>	<u>7.39</u>	<u>21.0</u>	<u>1825</u>	
						<u>Pump Off</u>	

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Dodson</u>	<u>1521</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments:

Groundwater Sampling Form

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Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/8/13
 Well ID: Douglas 791 Weather: Partly Cloudy, 80's
 ADWR No: 592791 Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>200'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>5"</u>	2	0.16
	4	0.65
Static Water Level (ft bmp): <u>32.70'</u>	5	1.02
	6	1.47
Casing Volume (gal): <u>x3 =</u>	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 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments: WLO

Measured from Top of metal outer casing.
Outer metal casing = .82' above concrete well pad
= 1.04' above inner PVC casing.

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/17/13
 Well ID: Dura 30 Weather: Sunny, windy
 ADWR No: NR Sampler: VNT

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): _____	2	0.16
	4	0.65
Static Water Level (ft bmp): <u>Unable to access, rusted/welded shut</u>	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 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point: _____							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: Access to well is welded/rusted shut. Cannot get SWL.

Groundwater Sampling Form

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Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/9/13
 Well ID: East Weather: Sunny, humid 90s
 ADWR No: 599796 Sampler: VH

WELL DATA		
Well Depth (ft bls): <u>125'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>	2	0.16
Static Water Level (ft bmp): <u>78.37</u>	4	0.65
	5	1.02
Casing Volume (gal): <u>69</u> x3 = <u>207</u>	6	1.47
	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
<u>1344</u>	<u>Pump On</u>						
<u>1351</u>	<u>7</u>	<u>10</u>	<u>70</u>	<u>7.34</u>	<u>21.6</u>	<u>599.6</u>	
<u>1358</u>	<u>14</u>	<u>10</u>	<u>140</u>	<u>7.40</u>	<u>21.2</u>	<u>602.4</u>	
<u>1405</u>	<u>21</u>	<u>10</u>	<u>210</u>	<u>7.46</u>	<u>21.2</u>	<u>603.6</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>East</u>	<u>1409</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments: _____

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/17/13
 Well ID: Echave Weather: Sunny, windy
 ADWR No: 219449 Sampler: VH

WELL DATA		
Well Depth (ft bls): <u>345'</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>Use 218.41' from 1/18/13</u>	2	0.16
Casing Volume (gal): <u>186 x 3 = 558</u>	4	0.65
Total Volume Purged (gal): _____	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
<u>1515</u>	<u>Pump On</u>						
<u>1535</u>	<u>20</u>	<u>7</u>	<u>140</u>	<u>7.86</u>	<u>22.6</u>	<u>403.0</u>	
<u>1555</u>	<u>40</u>	<u>7</u>	<u>280</u>	<u>7.76</u>	<u>22.0</u>	<u>404.8</u>	
<u>1615</u>	<u>60</u>	<u>7</u>	<u>420</u>	<u>7.79</u>	<u>22.0</u>	<u>406.9</u>	
<u>1635</u>	<u>80</u>	<u>7</u>	<u>560</u>	<u>7.81</u>	<u>22.1</u>	<u>406.4</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Echave</u>	<u>1644</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>3000.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input checked="" type="checkbox"/> No water level measurement collected. Obstruction in well. ~ 25' <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments:

Groundwater Sampling Form

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Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: Date: 7/9/13
 Well ID: Eppale 641 Weather: Sunny, humid, 80's
 ADWR No: 805641 Sampler: VNH

WELL DATA		
Well Depth (ft bls): 265'	Casing Capacity	
Casing Diameter (in): 8"	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): 92.84'	2	0.16
Casing Volume (gal): 449 x3 = 1347	4	0.65
Total Volume Purged (gal):	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
0846	Pump On						
0858	10	9	90	7.53	21.7	565.1	
0908	20	9	180	7.55	21.2	565.3	
0918	30	9	270	7.66	21.5	566.4	
0928	40	9	360	7.66	21.9	570.1	
0930							Dry
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Eppale 641	0946	Poly	250ml	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input checked="" type="checkbox"/> Other:

Additional Comments: Well dry (water below level of pump) @ 0930.
 Wait 15 min to sample

*Additional tenant on property.

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/10/13
 Well ID: Franco 101 Weather: Overcast, hot, humid
 ADWR No: 500101 Sampler: VW

WELL DATA		
Well Depth (ft bls): <u>200'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>	2	0.16
	4	0.65
Static Water Level (ft bmp): <u>196.19'</u>	5	1.02
	6	1.47
Casing Volume (gal): <u>x3 =</u>	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 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>WLO</u>							

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments: WLO

Groundwater Sampling Form

*

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/10/13
 Well ID: Franco 383 Weather: Overcast, hot, humid
 ADWR No: 221383 Sampler: VNI

WELL DATA		
Well Depth (ft bls): <u>711'</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>196.13'</u>	2	0.16
Casing Volume (gal): <u>525 x3 = 1575</u>	4	0.65
	5	1.02
	6	1.47
	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
<u>1100</u>	<u>Pump On</u>						
<u>1115</u>	<u>15</u>	<u>11</u>	<u>165</u>	<u>7.59</u>	<u>25.8</u>	<u>1015</u>	
<u>1130</u>	<u>30</u>	<u>11</u>	<u>330</u>	<u>7.74</u>	<u>26.0</u>	<u>1017</u>	
<u>1145</u>	<u>45</u>	<u>11</u>	<u>495</u>	<u>7.79</u>	<u>25.9</u>	<u>1015</u>	
<u>1150</u>	<u>50</u>	<u>11</u>	<u>550</u>	<u>7.69</u>	<u>25.7</u>	<u>1018</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Franco 383</u>	<u>1154</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input checked="" type="checkbox"/> Other: <u>Purged 1 well vol. & stable field parameters.</u>

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/10/13
 Well ID: Garner 557 Weather: Partly cloudy, hot
 ADWR No: 558557 Sampler: VNT

WELL DATA		
Well Depth (ft bls): <u>300'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>	2	0.16
Static Water Level (ft bmp): <u>197.87'</u>	4	0.65
	5	1.02
Casing Volume (gal): <u>x3 =</u>	6	1.47
	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 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>WLO</u>							

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: WLO

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: Date: 7/10/13
 Well ID: Garner 635 Weather: Partly cloudy, hot
 ADWR No: 587635 Sampler: VNH

WELL DATA		
Well Depth (ft bls): 680'	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): 5"	2	0.16
Static Water Level (ft bmp): 200.13	4	0.65
	5	1.02
	6	1.47
Casing Volume (gal): 489 x3 = 1467	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
1232	Pump On						
1252	20	11	220	7.62	24.6	480.5	
1312	40	11	440	7.84	24.9	470.7	
1332	60	11	660	7.91	25.4	469.5	
1352	80	11	880	7.86	25.2	469.1	
1412	100	11	1100	7.91	24.8	469.4	
1432	120	11	1320	7.82	25.2	469.7	
1452	140	11	1540	7.90	25.0	469.5	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Garner 635	1457	Poly	250mL	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments:

Groundwater Sampling Form

Project No: 287030

Client: Freeport, Copper Queen Branch

9/18/13

Weather: Sunny, 80°s

VNH

WELL DATA

		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Well Depth (ft bls):	250'	2	0.16
Casing Diameter (in):	7"	4	0.65
Static Water Level (ft bmp):	191.21	5	1.02
Casing Volume (gal):	x3 =	6	1.47
		8	2.61
		10	4.08
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

[illegible]

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 μ S/cm)

SAMPLE INFORMATION

Sample Collection Point:

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

WATER LEVEL MEASUREMENT COLLECTION

- ☒ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead/No port in 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 parameters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments: WLO

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8-13-13
 Well ID: Hoban Weather: Sunny
 ADWR No: _____ Sampler: Chris Fopker / S. Skimming

WELL DATA			Casing Capacity	
Well Depth (ft bls): <u>300</u>	Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in): <u>5"</u>	2		0.16	
Static Water Level (ft bmp): <u>170.31</u> 170.32	4		0.65	
Casing Volume (gal): <u>133</u> x3 = <u>399</u>	5		1.02	
Total Volume Purged (gal): <u>528</u>	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
<u>1315</u>	<u>Pump On</u>						
<u>1325</u>	<u>10</u>	<u>17.6</u>	<u>176</u>	<u>6.83</u>	<u>21.7</u>	<u>1927</u>	
<u>1335</u>	<u>20</u>	<u>17.6</u>	<u>352</u>	<u>6.80</u>	<u>21.7</u>	<u>1930</u>	
<u>1345</u>	<u>30</u>	<u>17.6</u>	<u>528</u>	<u>6.85</u>	<u>21.6</u>	<u>1925</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Hoban</u>	<u>1345</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>200</u>	<u>X</u>

WATER LEVEL MEASUREMENT COLLECTION	
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead. <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____	
WELL PURGING INFORMATION	
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____	

Additional Comments:

130

Groundwater Sampling Form

Project No: 055038

Client: Freeport Copper Queen Branch

Task No:

Date: 7/12/13

Well ID:

Howard 312

Weather:

Sunny, humid, hot

ADWR No:

221312

Sampler:

VH

WELL DATA

Well Depth (ft bls):	Casing Diameter (in):	Static Water Level (ft bmp):	Casing Volume (gal):	Casing Capacity	
				Nominal Size (inches)	Gallons per Linear Foot
980'	5"	198.27	797 x3 = 2361	2	0.16
				4	0.65
				5	1.02
				6	1.47
				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
1225	Pump On						
1245	20	9	180	8.22	23.4	621.5	
1305	40	9	360	8.22	24.1	620.9	
1325	60	9	540	8.24	25.7	625.4	
1345	80	9	720	8.23	26.3	626.0	
1405	100	9	900	8.25	26.8	624.9	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Howard 312	1409	Poly	250ml	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☒ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead/No port in 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 parameters stabilized.
- ☒ Purged well until field parameters stabilized.
- ☒ Other: Purge 1 well vol, stable parameters

Additional Comments:

Groundwater Sampling Form

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Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/11/13
 Well ID: Keefer Weather: Overcast, hot, humid
 ADWR No: 209744 Sampler: VN4

WELL DATA		
Well Depth (ft bls): <u>245'</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>141.81'</u>	2	0.16
Casing Volume (gal): <u>152 x3 = 456</u>	4	0.65
	5	1.02
	6	1.47
	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
1558	Pump On						
1608	10	10	100	7.68	20.8	471.5	
1618	20	10	200	7.69	20.9	475.2	
1628	30	10	300	7.66	21.2	473.8	
1638	40	10	400	7.67	20.7	487.2	
1648	50	10	500	7.67	20.8	485.1	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Keefer	1651	Poly	250mL	1	300.0	NA	✓
DUP20130711	1800	Poly	250mL	1	300.0	NA	✓

WATER LEVEL MEASUREMENT COLLECTION	
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:	

WELL PURGING INFORMATION	
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:	

Additional Comments:

Groundwater Sampling Form

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Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/15/13
 Well ID: Marcell Weather: Overcast, windy
 ADWR No: NR Sampler: VA

WELL DATA		
Well Depth (ft bls): <u>~220'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>	2	0.16
	4	0.65
	5	1.02
Static Water Level (ft bmp): _____	6	1.47
	8	2.61
Casing Volume (gal): <u>x3 =</u>	10	4.08
Casing Volume = gallons/foot * water column (feet)		
Total Volume Purged (gal): _____		

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1635</u>	Pump On						
<u>1640</u>	<u>5</u>	<u>12.5</u>	<u>62.5</u>	<u>7.01</u>	<u>21.6</u>	<u>1728</u>	
<u>1645</u>	<u>10</u>	<u>12.5</u>	<u>125</u>	<u>7.02</u>	<u>23.1</u>	<u>1704</u>	
<u>1650</u>	<u>15</u>	<u>12.5</u>	<u>187.5</u>	<u>7.09</u>	<u>21.6</u>	<u>1627</u>	
<u>1655</u>	<u>20</u>	<u>12.5</u>	<u>250</u>	<u>7.09</u>	<u>21.4</u>	<u>1617</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Marcell</u>	<u>1659</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input checked="" type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments:

Groundwater Sampling Form

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Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/10/13
 Well ID: McConnell 265 Weather: Partly cloudy, 90
 ADWR No: 539265 Sampler: VH

WELL DATA		
Well Depth (ft bls): <u>216'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>	2	0.16
	4	0.65
	5	1.02
Static Water Level (ft bmp): <u>Use 163.08 from 4/18/13</u>	6	1.47
	8	2.61
Casing Volume (gal): <u>78 x3 = 234</u>	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
<u>1550</u>	<u>Pump On</u>						
<u>1600</u>	<u>10</u>	<u>9</u>	<u>90</u>	<u>7.04</u>	<u>23.2</u>	<u>1936</u>	<u>Slight sulphur odor</u>
<u>1610</u>	<u>20</u>	<u>9</u>	<u>180</u>	<u>7.10</u>	<u>22.2</u>	<u>1910</u>	<u>Slight sulphur odor</u>
<u>1620</u>	<u>30</u>	<u>9</u>	<u>270</u>	<u>7.14</u>	<u>22.1</u>	<u>1897</u>	<u>Slight sulphur odor</u>
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>McConnell 265</u>	<u>1624</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input checked="" type="checkbox"/> No water level measurement collected. Obstruction in well. ~100' <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: Obstruction @ ~100'

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: Date: 7/10/13
 Well ID: McConnell 459 Weather: Partly cloudy, 90
 ADWR No: 221459 Sampler: V12

WELL DATA		
Well Depth (ft bls): 863'	Casing Capacity	
Casing Diameter (in): 5"	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): 1167.53'	2	0.16
Casing Volume (gal): 709 x3 = 2127	4	0.65
	5	1.02
	6	1.47
	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
1622	Pump On						
1637	15	11	165	8.09	23.9	468.3	
1652	30	11	330	8.14	24.8	469.4	Faint sulphur odor
1707	45	11	495	8.12	25.3	476.8	" "
1722	60	11	660	8.13	25.4	481.6	" "
1727	65	11	715	8.10	25.5	480.7	" "
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
McConnell 459	1730	Poly	250mL	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input checked="" type="checkbox"/> Other: Purged 1 well vol. & parameters stabilized

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: Date: 7/11/13
 Well ID: Moore Weather: Overcast, humid
 ADWR No: 538847 Sampler: N/A

WELL DATA			
Well Depth (ft bls):	220'	Casing Capacity	
Casing Diameter (in):	6"	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):		2	0.16
Casing Volume (gal):	x3 =	4	0.65
		5	1.02
		6	1.47
		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
1500	Pump On						
1510	10	9	90	7.60	22.7	441.6	
1520	20	9	180	7.64	22.4	441.9	
1530	30	9	270	7.56	22.9	442.2	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Moore	1534	Poly	250mL	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input checked="" type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input checked="" type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments:

Groundwater Sampling Form

*

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/8/13
 Well ID: Ness Weather: Partly cloudy, 80's
 ADWR No: 509127 Sampler: NN

WELL DATA		
Well Depth (ft bls): <u>812'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>	2	0.16
Static Water Level (ft bmp): <u>Use 551.35' from 4/9/13</u>	4	0.65
Casing Volume (gal): <u>383</u> x3 = <u>1149</u>	5	1.02
	6	1.47
	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
<u>1158</u>	Pump On						
<u>1218</u>	<u>20</u>	<u>11</u>	<u>220</u>	<u>7.62</u>	<u>27.8</u>	<u>536.8</u>	
<u>1238</u>	<u>40</u>	<u>11</u>	<u>440</u>	<u>7.82</u>	<u>27.5</u>	<u>539.6</u>	
<u>1258</u>	<u>60</u>	<u>11</u>	<u>660</u>	<u>7.77</u>	<u>27.9</u>	<u>539.5</u>	
<u>1318</u>	<u>80</u>	<u>11</u>	<u>880</u>	<u>7.87</u>	<u>27.7</u>	<u>539.3</u>	
<u>1338</u>	<u>100</u>	<u>11</u>	<u>1100</u>	<u>7.84</u>	<u>27.9</u>	<u>539.2</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Ness</u>	<u>1343</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input checked="" type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments:

Groundwater Sampling Form

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Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/9/13
 Well ID: Noteman Weather: Sunny, humid, 90's
 ADWR No: 212483 Sampler: VH

WELL DATA		
Well Depth (ft bls): <u>470'</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>Use 327.54' from 2/25/09</u>	2	0.16
Casing Volume (gal): <u>145 x3 = 435</u>	4	0.65
Total Volume Purged (gal): _____	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
<u>1231</u>	<u>Pump On</u>						
<u>1241</u>	<u>10</u>	<u>11</u>	<u>110</u>	<u>6.49</u>	<u>24.6</u>	<u>1420</u>	
<u>1251</u>	<u>20</u>	<u>11</u>	<u>220</u>	<u>6.81</u>	<u>24.4</u>	<u>1413</u>	
<u>1301</u>	<u>30</u>	<u>11</u>	<u>330</u>	<u>6.85</u>	<u>24.9</u>	<u>1401</u>	
<u>1311</u>	<u>40</u>	<u>11</u>	<u>440</u>	<u>6.89</u>	<u>24.3</u>	<u>1400</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Noteman</u>	<u>1314</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input checked="" type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments:

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 9/23/13
 Well ID: NSD-2 Weather: Sunny, 60's
 ADWR No: _____ Sampler: VNI

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): _____	2	0.16
Static Water Level (ft bmp): <u>86.88'</u>	4	0.65
Casing Volume (gal): _____ x3 = _____	5	1.02
	6	1.47
	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 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>WLO</u>							

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field paremeters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: WLO

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 9/23/13
 Well ID: NSD-3 Weather: Sunny, 80's
 ADWR No: _____ Sampler: VJH

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): _____	2	0.16
Static Water Level (ft bmp): <u>105'</u>	4	0.65
Casing Volume (gal): _____ x3 = _____	5	1.02
	6	1.47
	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 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION								
Sample Collection Point:								
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)	
<u>NLD</u>								

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field paremeters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: NLD

Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/12/13
 Well ID: NWC-02 Weather: Sunny, 80's
 ADWR No: 562944 Sampler: NA

WELL DATA		
Well Depth (ft bls): <u>312¹</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>	2	0.16
	4	0.65
Static Water Level (ft bmp): _____	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							
<u>1016</u>				<u>7.54</u>	<u>21.6</u>	<u>433.9</u>	
<u>1021</u>				<u>7.68</u>	<u>22.1</u>	<u>428.5</u>	
<u>1026</u>				<u>7.65</u>	<u>22.0</u>	<u>429.3</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>NWC-02</u>	<u>1030</u>	<u>poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input checked="" type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input checked="" type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/12/13
 Well ID: NWC-03CAP Weather: Partly cloudy, 80's
 ADWR No: 10271284 Sampler: VNJ

WELL DATA			
Well Depth (ft bls): <u>179'</u>	Casing Capacity		
Casing Diameter (in): <u>8"</u>	Nominal Size (inches)	Gallons per Linear Foot	
Static Water Level (ft bmp): <u>136.78'</u>	2	0.16	
Casing Volume (gal): <u>x3 =</u>	4	0.65	
Total Volume Purged (gal): _____	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 0.3 su pH, 2 degrees C, and 100 µS/cm)							

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field paremeters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: WLD

Groundwater Sampling Form

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Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/12/13
 Well ID: NWC-04 Weather: Overcast, 70's
 ADWR No: 551749 Sampler: VN1

WELL DATA		
Well Depth (ft bls): <u>462'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>10"</u>	2	0.16
Static Water Level (ft bmp): _____	4	0.65
	5	1.02
	6	1.47
Casing Volume (gal): <u>x3 =</u>	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							
<u>0826</u>				<u>6.79</u>	<u>23.3</u>	<u>941.1</u>	
<u>0831</u>				<u>6.89</u>	<u>23.4</u>	<u>928.7</u>	
<u>0836</u>				<u>7.16</u>	<u>23.5</u>	<u>924.4</u>	
<u>0841</u>				<u>7.30</u>	<u>23.5</u>	<u>907.7</u>	
<u>0846</u>				<u>7.29</u>	<u>23.5</u>	<u>897.2</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>NWC-04</u>	<u>0855</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>
<u>DUP20130712</u>	<u>1800</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input checked="" type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input checked="" type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: *Rush sample

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8/9/13
 Well ID: NWC-04 Weather: Sunny, 70's
 ADWR No: 551849 Sampler: VH

WELL DATA		
Well Depth (ft bls): <u>462'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>10"</u>	2	0.16
	4	0.65
Static Water Level (ft bmp): _____	5	1.02
	6	1.47
Casing Volume (gal): <u>x3 =</u>	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							
<u>0830</u>				<u>7.35</u>	<u>23.5</u>	<u>881.7</u>	
<u>0835</u>				<u>7.42</u>	<u>23.6</u>	<u>885.8</u>	
<u>0840</u>				<u>7.43</u>	<u>23.5</u>	<u>898.6</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>NWC-04</u>	<u>0845</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>3000.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input checked="" type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input checked="" type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments:

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 9/5/13
 Well ID: NWC-04 Weather: Sunny, 80's
 ADWR No: 551849 Sampler: UNH

WELL DATA			
Well Depth (ft bls): <u>2162</u>	Casing Capacity		
	Nominal Size (inches)	Gallons per Linear Foot	
Casing Diameter (in): <u>10</u>	2	0.16	
	4	0.65	
Static Water Level (ft bmp): _____	5	1.02	
	6	1.47	
Casing Volume (gal): <u>x3 =</u>	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							
<u>1126</u>				<u>7.57</u>	<u>24.1</u>	<u>934.5</u>	
<u>1131</u>				<u>7.53</u>	<u>24.0</u>	<u>902.7</u>	
<u>1136</u>				<u>7.56</u>	<u>23.8</u>	<u>893.6</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>NWC-04</u>	<u>1142</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input checked="" type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field paremeters stabilized. <input checked="" type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/12/13
 Well ID: NWC-06 Weather: Partly cloudy, 80's
 ADWR No: 575700 Sampler: VN

WELL DATA		
Well Depth (ft bls): <u>340'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>8"</u>	2	0.16
	4	0.65
Static Water Level (ft bmp): _____	5	1.02
	6	1.47
Casing Volume (gal): <u>x3 =</u>	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							
<u>0932</u>				<u>7.18</u>	<u>22.8</u>	<u>396.6</u>	
<u>0937</u>				<u>7.61</u>	<u>22.3</u>	<u>401.9</u>	
<u>0942</u>				<u>7.60</u>	<u>22.3</u>	<u>403.4</u>	
<u>0947</u>				<u>7.59</u>	<u>22.4</u>	<u>404.1</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>NWC-06</u>	<u>0955</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input checked="" type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input checked="" type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments:

Groundwater Sampling Form

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Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/8/13
 Well ID: Osborn Weather: Partly cloudy, 90's
 ADWR No: 643436 Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>258'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>8"</u>	2	0.16
	4	0.65
	5	1.02
Static Water Level (ft bmp): _____	6	1.47
	8	2.61
Casing Volume (gal): <u>x3 =</u>	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							
<u>1447</u>				<u>7.56</u>	<u>39.2</u>	<u>510.3</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Osborn</u>	<u>1500</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input checked="" type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input checked="" type="checkbox"/> Other: <u>Sample from tank.</u>

Additional Comments: Hand - Gilder

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/17/13
 Well ID: Palmer Weather: Sunny, windy
 ADWR No: 578819 Sampler: VNF

WELL DATA			
Well Depth (ft bls):	<u>220'</u>	Casing Capacity	
Casing Diameter (in):	<u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):		2	0.16
Casing Volume (gal):	<u>x3 =</u>	4	0.65
Total Volume Purged (gal):		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
<u>1108</u>	<u>Pump On</u>						
<u>1113</u>	<u>5</u>	<u>6</u>	<u>30</u>	<u>7.58</u>	<u>22.3</u>	<u>529.5</u>	
<u>1118</u>	<u>10</u>	<u>6</u>	<u>60</u>	<u>7.66</u>	<u>22.2</u>	<u>531.3</u>	
<u>1123</u>	<u>15</u>	<u>6</u>	<u>90</u>	<u>7.74</u>	<u>22.3</u>	<u>531.0</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Palmer</u>	<u>1126</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input checked="" type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input checked="" type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments:

Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/10/13
 Well ID: Panagakos Weather: Overcast, humid, hot
 ADWR No: 35-76413 Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>200'</u>	Casing Capacity	
Casing Diameter (in): <u>8"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>168.51'</u>	2	0.16
Casing Volume (gal): <u>82</u> x3 = <u>246</u>	4	0.65
Total Volume Purged (gal): _____	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
<u>0925</u>	<u>Pump On</u>						
<u>0935</u>	<u>10</u>	<u>9</u>	<u>90</u>	<u>7.19</u>	<u>21.8</u>	<u>1124</u>	
<u>0945</u>	<u>20</u>	<u>9</u>	<u>180</u>	<u>7.25</u>	<u>21.4</u>	<u>1181</u>	
<u>0955</u>	<u>30</u>	<u>9</u>	<u>270</u>	<u>7.26</u>	<u>21.4</u>	<u>1218</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Panagakos</u>	<u>0959</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: Don't forget to close ball valve.

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/17/13
 Well ID: Parra Weather: Sunny, windy
 ADWR No: 576415 Sampler: VN4

WELL DATA		
Well Depth (ft bls): <u>355"</u>	Casing Capacity	
Casing Diameter (in): <u>6'</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>Use 280.99 from 7/20/09</u>	2	0.16
Casing Volume (gal): <u>109 x3 = 327</u>	4	0.65
Total Volume Purged (gal): _____	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
<u>1346</u>	<u>Pump On</u>						
<u>1356</u>	<u>10</u>	<u>12</u>	<u>120</u>	<u>6.97</u>	<u>22.1</u>	<u>1206</u>	
<u>1406</u>	<u>20</u>	<u>12</u>	<u>240</u>	<u>7.14</u>	<u>21.9</u>	<u>1213</u>	
<u>1416</u>	<u>30</u>	<u>12</u>	<u>360</u>	<u>7.21</u>	<u>21.9</u>	<u>1212</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Parra</u>	<u>1420</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>3000.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input checked="" type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments:

Groundwater Sampling Form

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Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/16/13
 Well ID: Pionke 517 Weather: Overcast, hot
 ADWR No: 221517 Sampler: VW

WELL DATA		
Well Depth (ft bls): <u>604'</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>153.11'</u>	2	0.16
Casing Volume (gal): <u>460 x3 = 1380</u>	4	0.65
Total Volume Purged (gal): _____	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
1300	Pump On						
1320	20	10	200	7.02	23.4	394.8	
1340	40	10	400	7.70	23.2	391.3	
1400	60	10	600	7.86	23.2	391.1	
1420	80	10	800	7.78	23.2	391.5	
1440	100	10	1000	7.83	22.8	391.8	
1500	120	10	1200	7.92	22.9	391.9	
1520	140	10	1400	7.84	22.9	391.5	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Pionke 517	1525	Poly	250mL	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/15/13
 Well ID: Ramirez Weather: Sunny, hot, humid
 ADWR No: _____ Sampler: VH

WELL DATA		
Well Depth (ft bls): <u>300'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>	2	0.16
Static Water Level (ft bmp): <u>Use 1164.96' from 4/19/13</u>	4	0.65
Casing Volume (gal): <u>199 x3 = 597</u>	5	1.02
	6	1.47
	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
<u>1038</u>	Pump On						
<u>1053</u>	<u>15</u>	<u>10</u>	<u>150</u>	<u>7.36</u>	<u>23.2</u>	<u>426.2</u>	
<u>1108</u>	<u>30</u>	<u>10</u>	<u>300</u>	<u>7.55</u>	<u>23.4</u>	<u>423.3</u>	
<u>1123</u>	<u>45</u>	<u>10</u>	<u>450</u>	<u>7.54</u>	<u>23.3</u>	<u>418.7</u>	
<u>1138</u>	<u>60</u>	<u>10</u>	<u>600</u>	<u>7.58</u>	<u>23.6</u>	<u>416.2</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Ramirez</u>	<u>1144</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>3000.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input checked="" type="checkbox"/> No water level measurement collected. Obstruction in well. <i>couldn't get sounder past 60'</i> <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/9/13
 Well ID: Ray Weather: Sunny, humid, 90's
 ADWR No: 803772 Sampler: VJH

WELL DATA			
Well Depth (ft bls): <u>100'</u>	Casing Capacity		
Casing Diameter (in): <u>8"</u>	Nominal Size (inches)	Gallons per Linear Foot	
Static Water Level (ft bmp): <u>60.30'</u>	2	0.16	
Casing Volume (gal): <u>104</u> x3 = <u>312</u>	4	0.65	
Total Volume Purged (gal): _____	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
<u>1023</u>	Pump On						
<u>1033</u>	<u>10</u>	<u>7</u>	<u>70</u>	<u>7.08</u>	<u>21.4</u>	<u>1443</u>	
<u>1043</u>	<u>20</u>	<u>7</u>	<u>140</u>	<u>7.16</u>	<u>22.1</u>	<u>1446</u>	
<u>1053</u>	<u>30</u>	<u>7</u>	<u>210</u>	<u>7.17</u>	<u>21.7</u>	<u>1444</u>	
<u>1103</u>	<u>40</u>	<u>7</u>	<u>280</u>	<u>7.18</u>	<u>21.3</u>	<u>1440</u>	
<u>1108</u>	<u>45</u>	<u>7</u>	<u>315</u>	<u>7.18</u>	<u>21.4</u>	<u>1451</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Ray</u>	<u>1111</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/15/13
 Well ID: Rogers 596 Weather: Partly cloudy, hot
 ADWR No: 573596 Sampler: VH

WELL DATA		
Well Depth (ft bls): <u>290'</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>139.94'</u>	2	0.16
Casing Volume (gal): <u>x3 =</u>	4	0.65
Total Volume Purged (gal): _____	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 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>WLO</u>							

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field paremeters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: WLO

Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/15/13
 Well ID: Rogers 803 Weather: Sunny, humid, 95°
 ADWR No: 641803 Sampler: _____

WELL DATA		
Well Depth (ft bis): <u>140'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>	2	0.16
Static Water Level (ft bmp): <u>Use 139.94' from Rogers 596</u>	4	0.65
Casing Volume (gal): <u>.08 x3 = ~.26</u>	5	1.02
	6	1.47
	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
1533	Pump On						
1536	3	9	27	7.10	24.3	691.3	
1538	5 min	<1	~32	—	—	—	
1539	6	<1	~33	7.21	23.6	690.4	
1542	9	<1	~36	7.33	23.4	690.2	
1545	12	<1	~39	7.39	23.6	697.8	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Rogers 803	1548	Poly	250mL	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead. <input checked="" type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: _____

Groundwater Sampling Form

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Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/17/13
 Well ID: Rogers, E. Weather: Overcast
 ADWR No: 216018 Sampler: VH

WELL DATA		
Well Depth (ft bls): <u>285'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>	2	0.16
Static Water Level (ft bmp): <u>155.71'</u>	4	0.65
	5	1.02
Casing Volume (gal): <u>190 x3 = 570</u>	6	1.47
	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
<u>0845</u>	<u>Pump On</u>						
<u>0900</u>	<u>15</u>	<u>9.5</u>	<u>142.5</u>	<u>7.54</u>	<u>21.3</u>	<u>424.5</u>	
<u>0915</u>	<u>30</u>	<u>9.5</u>	<u>285</u>	<u>7.58</u>	<u>21.8</u>	<u>427.6</u>	
<u>0930</u>	<u>45</u>	<u>9.5</u>	<u>427.5</u>	<u>7.60</u>	<u>22.1</u>	<u>427.8</u>	
<u>0945</u>	<u>60</u>	<u>9.5</u>	<u>570</u>	<u>7.59</u>	<u>22.1</u>	<u>427.7</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Rogers, E</u>	<u>0949</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>
<u>DUP20130717</u>	<u>1800</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments:

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/25/13
 Well ID: Buiz Weather: Overcast
 ADWR No: 581770 Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>312'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>	2	0.16
Static Water Level (ft bmp): <u>300.06</u>	4	0.65
Casing Volume (gal): <u>18 x3 = 54</u>	5	1.02
	6	1.47
	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
<u>1220</u>	Pump On						
<u>1226</u>	<u>6</u>	<u>3</u>	<u>18</u>	<u>7.23</u>	<u>22.3</u>	<u>883.3</u>	
<u>1232</u>	<u>12</u>	<u>3</u>	<u>36</u>	<u>7.15</u>	<u>21.5</u>	<u>888.4</u>	
<u>1238</u>	<u>18</u>	<u>3</u>	<u>54</u>	<u>7.13</u>	<u>21.4</u>	<u>887.3</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Buiz</u>	<u>1243</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field paremeters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 2/15/13
 Well ID: Schwartz Weather: Sunny, hot, humid
 ADWR No: 210865 Sampler: VNH

WELL DATA			
Well Depth (ft bls): <u>305'</u>	Casing Capacity		
	Nominal Size (inches)	Gallons per Linear Foot	
Casing Diameter (in): <u>6"</u>	2	0.16	
Static Water Level (ft bmp): <u>129.05'</u>	4	0.65	
Casing Volume (gal): <u>259 x3 = 777</u>	5	1.02	
	6	1.47	
	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
<u>1257</u>	Pump On						
<u>1312</u>	<u>15</u>	<u>11</u>	<u>165</u>	<u>7.43</u>	<u>22.2</u>	<u>823.5</u>	
<u>1327</u>	<u>30</u>	<u>11</u>	<u>330</u>	<u>7.51</u>	<u>22.3</u>	<u>779.0</u>	
<u>1342</u>	<u>45</u>	<u>11</u>	<u>495</u>	<u>7.48</u>	<u>22.7</u>	<u>771.9</u>	
<u>1357</u>	<u>60</u>	<u>11</u>	<u>660</u>	<u>7.51</u>	<u>22.2</u>	<u>769.3</u>	
<u>1412</u>	<u>75</u>	<u>11</u>	<u>825</u>	<u>7.49</u>	<u>22.1</u>	<u>770.2</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Schwartz</u>	<u>1415</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>3000.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments:

Groundwater Sampling Form

*

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/10/13
 Well ID: Stephens Weather: Overcast, hot, humid
 ADWR No: 808560 Sampler: VH

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): _____	2	0.16
	4	0.65
Static Water Level (ft bmp): <u>58.16'</u>	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 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>WLO</u>							

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: WLO
Slowly Measure from opening next to drop pipe.
Not in drop pipe.

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/9/13
 Well ID: Sunbelt Weather: Sunny, humid, 90's
 ADWR No: 201531 Sampler: VW+

WELL DATA			
Well Depth (ft bls): <u>380'</u>	Casing Capacity		
	Nominal Size (inches)	Gallons per Linear Foot	
Casing Diameter (in): <u>6"</u>	2	0.16	
	4	0.65	
	5	1.02	
Static Water Level (ft bmp): <u>Dry</u>	6	1.47	
	8	2.61	
Casing Volume (gal): <u>x3 =</u>	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 0.3 su pH, 2 degrees C, and 100 µS/cm)							

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead. <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input checked="" type="checkbox"/> Other: <u>Well is dry,</u>

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments: well is dry

Groundwater Sampling Form

*

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: Date: 7/8/13
 Well ID: Swan Weather: Partly cloudy, 90's
 ADWR No: NR Sampler: VM

WELL DATA			
Well Depth (ft bls): 98	Casing Capacity		
	Nominal Size (inches)	Gallons per Linear Foot	
Casing Diameter (in): 4"	2	0.16	
Static Water Level (ft bmp): 42.26'	4	0.65	
	5	1.02	
Casing Volume (gal): 36 x3 = 108	6	1.47	
	8	2.61	
	10	4.08	
Total Volume Purged (gal): 110	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
1409	Pump On						
1410	3	10	30	7.49	23.8	484.2	
1414	7	10	70	7.43	22.8	487.9	
1418	11	10	110	7.45	22.8	489.7	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Swan	1421	Poly	250mL	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments:

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8/9/13
 Well ID: Thompson 341 Weather: Sunny, 80's
 ADWR No: 218341 Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>285'</u>	Casing Capacity	
Casing Diameter (in): <u>7"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>Use 167.86' from Thompson NR</u>	2	0.16
Casing Volume (gal): <u>234</u> x3 = <u>702</u>	4	0.65
Total Volume Purged (gal): _____	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
<u>1039</u>	Pump On						
<u>1044</u>	<u>5</u>	<u>4*</u>	<u>20</u>	<u>7.57</u>	<u>22.3</u>	<u>421.5</u>	
<u>1049</u>	<u>10</u>	<u>4*</u>	<u>40</u>	<u>7.59</u>	<u>22.4</u>	<u>418.6</u>	
<u>1054</u>	<u>15</u>	<u>4*</u>	<u>60</u>	<u>7.57</u>	<u>22.2</u>	<u>420.0</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Thompson</u>	<u>1058</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>3000.0</u>	<u>NA</u>	<u>y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input checked="" type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input checked="" type="checkbox"/> Purged well until field parameters stabilized. → <u>short purge per owner request.</u> <input type="checkbox"/> Other: _____

Additional Comments: Pump activated by water-tank float.

* GPM estimated @ spigot near well. Actual GPM probably higher.
Hand-filtered.

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8/9/13
 Well ID: Thompson NR Weather: Sunny, 80's
 ADWR No: _____ Sampler: VW

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): _____	2	0.16
	4	0.65
Static Water Level (ft bmp): <u>167.86'</u>	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 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>WLL</u>							

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: WLO in well inside shed.

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8-27-13
 Well ID: TM 2A Weather: Sunny
 ADWR No: _____ Sampler: Christopher & Sherry

WELL DATA		
Well Depth (ft bls): <u>925</u>	Casing Capacity	
Casing Diameter (in): <u>4"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>343.84</u>	2	0.16
Casing Volume (gal): <u>378 x3 = 1134</u>	4	0.65
Total Volume Purged (gal): _____	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
<u>0830</u>	<u>Pump On</u>						
<u>0835</u>	<u>5</u>	<u>2.5</u>	<u>32</u>	<u>7.74</u>	<u>24.5</u>	<u>376</u>	
<u>0930</u>	<u>60</u>	<u>5.5</u>	<u>450</u>	<u>7.76</u>	<u>24.4</u>	<u>375</u>	
<u>1010</u>	<u>100</u>	<u>3.2</u>	<u>670</u>	<u>7.70</u>	<u>24.8</u>	<u>377</u>	
<u>1110</u>	<u>160</u>	<u>1.86</u>		<u>7.78</u>	<u>25.0</u>	<u>377</u>	
<u>1150</u>	<u>200</u>	<u>1.25</u>	<u>912</u>	<u>7.80</u>	<u>25.2</u>	<u>379</u>	
<u>1200</u>							<u>Break Suction 8-28-13</u>
<u>1300</u>				<u>7.74</u>	<u>25.0</u>	<u>413</u>	<u>Pump on</u>
<u>1315</u>	<u>15</u>	<u>7</u>	<u>105</u>	<u>7.70</u>	<u>24.8</u>	<u>414</u>	
<u>1330</u>	<u>30</u>	<u>7</u>	<u>210</u>	<u>7.72</u>	<u>24.7</u>	<u>414</u>	<u>Pump Off - Samples</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>TM-2A</u>	<u>1330</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ice</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION	
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead. <input checked="" type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____	

WELL PURGING INFORMATION	
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input checked="" type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input checked="" type="checkbox"/> Other: _____	

Additional Comments: 581.1
Second day - Ar line obstructed around 400'

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8-19-13
 Well ID: TM-6 Weather: Partly Cloudy
 ADWR No: _____ Sampler: Christopher L Skuman

WELL DATA			
Well Depth (ft bls): <u>200'</u>	Casing Capacity		
Casing Diameter (in): <u>4"</u>	Nominal Size (inches)	Gallons per Linear Foot	
Static Water Level (ft bmp): <u>161.3</u>	2	0.16	
Casing Volume (gal): <u>25.1 x 3 = 75.3</u>	4	0.65	
Total Volume Purged (gal): <u>172</u>	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
<u>0900</u>	<u>Pump On</u>						
<u>0905</u>	<u>5</u>	<u>11.5</u>	<u>57</u>	<u>7.19</u>	<u>20.1</u>	<u>555</u>	
<u>0910</u>	<u>10</u>	<u>11.5</u>	<u>115</u>	<u>7.20</u>	<u>19.9</u>	<u>555</u>	
<u>0915</u>	<u>15</u>	<u>11.5</u>	<u>172</u>	<u>7.21</u>	<u>19.9</u>	<u>556</u>	
						Pump Off	

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments: 36.7

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: Date: 8-28-13
 Well ID: TM-7 Weather: Cloudy
 ADWR No: Sampler: Christopher L Shorman

WELL DATA		
Well Depth (ft bls):	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	2	0.16
	4	0.65
	5	1.02
Static Water Level (ft bmp):	6	1.47
	8	2.61
Casing Volume (gal): x3 =	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
1130	Pump On						
1132	2	10	20	7.05	20.9	659	
1142	-				20.9	659	
1144	4	10	40	7.30	20.9	371	
1154	-						
1156	6	10	60	7.32	21.0	370	
1206	-						
1208	8	10	80	7.36	21.2	369	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TM-7	1208	PL	250	1	300	Tac	X

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input checked="" type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input checked="" type="checkbox"/> Other:

Additional Comments: SWL NA

Sampled by Clear Creek method for TM-7

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/23/13
 Well ID: TM-10 USBP Weather: Overcast, breezy
 ADWR No: 522696 Sampler: VH

WELL DATA		
Well Depth (ft bls): <u>290'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>4"</u>	2	0.16
	4	0.65
Static Water Level (ft bmp): <u>275.99'</u>	5	1.02
	6	1.47
Casing Volume (gal): <u>9.1 x3 = 27.3</u>	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
<u>1518</u>	<u>Pump On</u>						
<u>1520</u>				<u>7.79</u>	<u>20.9</u>	<u>429.9</u>	
<u>1530</u>				<u>8.07</u>	<u>21.2</u>	<u>421.4</u>	
<u>1540</u>				<u>8.15</u>	<u>21.3</u>	<u>425.8</u>	<u>Sediment in water</u>
<u>1550</u>				<u>8.19</u>	<u>21.4</u>	<u>425.9</u>	<u>" "</u>
<u>1600</u>				<u>8.16</u>	<u>21.4</u>	<u>426.1</u>	
						<u>Pump Off</u>	

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>TM-10 USBP</u>	<u>1600</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>3000.0</u>	<u>NA</u>	<u>y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input checked="" type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments: Wait 10min between readings for recharge.
* Hand-Filter

Groundwater Sampling Form

Project No: 287030

Client: Freeport Copper Queen Branch

Task No:

Date:

Well ID:

Weather:

ADWR No:

Sampler:

WELL DATA

		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Well Depth (ft bls):	325	2	0.16
Casing Diameter (in):	4"	4	0.65
Static Water Level (ft bmp):	NA	5	1.02
		6	1.47
		8	2.61
Casing Volume (gal):	x3 =	10	4.08
Total Volume Purged (gal):	420	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

[illegible]

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 μ S/cm)

SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TM-15	1020	A	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 port in 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 parameters stabilized.
☒ Purged well until field parameters stabilized.
☐ Other:

Additional Comments:

Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 8-15-13
 Well ID: TM-16 Weather: Sunny
 ADWR No: _____ Sampler: Christopher L. Sherman

WELL DATA			
Well Depth (ft bls): <u>115</u>	Casing Capacity		
Casing Diameter (in): <u>4"</u>	Nominal Size (inches)	Gallons per Linear Foot	
Static Water Level (ft bmp): <u>61.42</u>	2	0.16	
Casing Volume (gal): <u>35</u> x3 = <u>105</u>	4	0.65	
Total Volume Purged (gal): <u>315</u>	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
<u>0630</u>	<u>Pump On</u>						
<u>0635</u>	<u>5</u>	<u>21</u>	<u>105</u>	<u>6.82</u>	<u>20.3</u>	<u>1375</u>	
<u>0640</u>	<u>10</u>	<u>21</u>	<u>210</u>	<u>6.84</u>	<u>20.3</u>	<u>1375</u>	
<u>0645</u>	<u>15</u>	<u>21</u>	<u>315</u>	<u>6.86</u>	<u>20.3</u>	<u>1374</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>TM-16</u>	<u>0645</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>3000</u>	<u>TCC</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION	
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead. <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____	
WELL PURGING INFORMATION	
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____	

Additional Comments: 53.5

Groundwater Sampling Form

Client: Freeport Copper Queen Branch

Date: 9-4-13

Weather: Sunny

Sampler: Crustacean / Slurp

WELL DATA

Well Depth (ft bls):	700	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	4"	2	0.16
		4	0.65
		5	1.02
Static Water Level (ft bmp):	205.73	6	1.47
		8	2.61
Casing Volume (gal):	321.2 x 3 = 964	10	4.08
Total Volume Purged (gal):	1000	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

[illegible]

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 μ S/cm)

SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TM-19A	0840	PL	250 ml	1	EPA 300.6	Ice	X

WATER LEVEL MEASUREMENT COLLECTION

- ☒ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead/No port in 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 parameters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

494.2

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:		Date:	8-28-13
Well ID:	TM-42	Weather:	Partly Cloudy
ADWR No:		Sampler:	Christopher & Sherrin

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):		4	0.65
Casing Volume (gal):		5	1.02
		6	1.47
		8	2.61
		10	4.08
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)	

[illegible]

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TM-42	0935	PL	250	1	300.0	IG	X

☒ Water level measurement collected.

☐ No water level measurement collected. No access to wellhead/No port in wellhead

☐ No water level measurement collected. Obstruction in well.

☐ No water level measurement collected. Well is pumping.

☐ Other:

☒ Purged 3 well volumes and field parameters stabilized.

☐ Purged 3 well volumes based on previous water level and field parameters stabilized.

☐ Purged well until field parameters stabilized.

☐ Other:

Additional Comments: 32.6

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/18/13
 Well ID: TVI 236 Weather: Partly Cloudy, hot
 ADWR No: 902236 Sampler: VH

WELL DATA			
Well Depth (ft bls):	<u>222'</u>	Casing Capacity	
Casing Diameter (in):	<u>12"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	<u>127.38'</u>	2	0.16
Casing Volume (gal):	<u>556 x3 = 1668</u>	4	0.65
Total Volume Purged (gal):		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
<u>1527</u>	<u>Pump On</u>						
<u>1532</u>	<u>5</u>			<u>7.10</u>	<u>20.7</u>	<u>504.5</u>	
<u>1537</u>	<u>10</u>			<u>7.27</u>	<u>21.2</u>	<u>508.9</u>	
<u>1542</u>	<u>15</u>			<u>7.35</u>	<u>21.0</u>	<u>513.7</u>	
<u>1547</u>	<u>20</u>			<u>7.38</u>	<u>20.9</u>	<u>514.4</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>TVI 236</u>	<u>1550</u>	<u>Poly</u>	<u>250 mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments: _____

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/18/13
 Well ID: TVI 713 Weather: Partly cloudy
 ADWR No: 567713 Sampler: VH

WELL DATA			
Well Depth (ft bls):	<u>200'</u>	Casing Capacity	
Casing Diameter (in):	<u>8"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	<u>131.72'</u>	2	0.16
Casing Volume (gal):	<u>x3 =</u>	4	0.65
Total Volume Purged (gal):		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 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>WLO</u>							

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other:

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other:

Additional Comments: WLO

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/18/13
 Well ID: TVI 875 Weather: Partly cloudy
 ADWR No: 568875 Sampler: VH

WELL DATA		
Well Depth (ft bls): <u>330'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>8"</u>	2	0.16
	4	0.65
	5	1.02
Static Water Level (ft bmp): _____	6	1.47
	8	2.61
Casing Volume (gal): <u>x3 =</u>	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
<u>1621</u>	<u>Pump On</u>						
<u>1626</u>				<u>7.21</u>	<u>21.6</u>	<u>969.7</u>	
<u>1631</u>				<u>7.29</u>	<u>21.5</u>	<u>1005</u>	
<u>1636</u>				<u>7.31</u>	<u>21.4</u>	<u>994.2</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>TVI 875</u>	<u>1640</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>3000.0</u>	<u>N/A</u>	<u>X</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input checked="" type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input checked="" type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/19/13
 Well ID: Weed Weather: overcast, drizzling
 ADWR No: 544535 Sampler: VJH

WELL DATA		
Well Depth (ft bls): <u>320'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>	2	0.16
	4	0.65
	5	1.02
Static Water Level (ft bmp): _____	6	1.47
	8	2.61
Casing Volume (gal): <u>x3 =</u>	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
<u>0816</u>	Pump On						
<u>0819</u>	<u>3</u>	<u>2.5</u>	<u>7.5</u>	<u>7.54</u>	<u>21.1</u>	<u>387.4</u>	
<u>0822</u>	<u>6</u>	<u>2.5</u>	<u>15</u>	<u>7.60</u>	<u>21.2</u>	<u>386.1</u>	
<u>0825</u>	<u>9</u>	<u>2.5</u>	<u>22.5</u>	<u>7.63</u>	<u>21.3</u>	<u>386.6</u>	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Weed</u>	<u>0829</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input type="checkbox"/> Water level measurement collected. <input checked="" type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input checked="" type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/18/13
 Well ID: Weiskopf 802 Weather: Bunny, windy
 ADWR No: 641802 Sampler: VJH

WELL DATA		
Well Depth (ft bls): <u>200'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>	2	0.16
Static Water Level (ft bmp): <u>150.24'</u>	4	0.65
Casing Volume (gal): <u>73</u> x3 = <u>219</u>	5	1.02
	6	1.47
	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
1022	Pump On						
1037	15	5	75	7.69	21.3	245.5	Cloudy, faintly brown
1052	30	5	150	7.73	21.2	343.4	Less cloudy, faintly brown
1107	45	5	225	7.63	21.3	475.6	" "
1122	60	5	300	7.69	21.4	661.2	" "
1137	75	5	375	7.58	21.4	793.5	" "
1152	90	5	450	7.49	21.3	879.2	" "
1207	105	5	525	7.18	21.4	979.9	Clear
1222	120	5	600	7.37	21.4	1045	Clear
1237	135	5	675	7.37	21.3	1096	Pump Off Clear

1252 FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

~~127A~~ 750 gal SAMPLE INFORMATION 7.45 / 21.3 / 1131

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Weiskopf 802	1300	Poly	250mL	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION

- ☒ Water level measurement collected.
- ☐ No water level measurement collected. No access to wellhead/No port in 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 parameters stabilized.
- ☐ Purged well until field parameters stabilized.
- ☐ Other:

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/18/13
 Well ID: Weiskopf 897 Weather: Sunny, windy
 ADWR No: 221897 Sampler: VN2

WELL DATA		
Well Depth (ft bls): <u>1030'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>5"</u>	2	0.16
	4	0.65
	5	1.02
Static Water Level (ft bmp): <u>150.15'</u>	6	1.47
	8	2.61
Casing Volume (gal): <u>897 x3 = 2691</u>	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
<u>1136</u>	<u>Pump On</u>						
<u>1156</u>	<u>20</u>	<u>12.5</u>	<u>250</u>	<u>7.81</u>	<u>23.0</u>	<u>391.5</u>	
<u>1216</u>	<u>40</u>	<u>12.5</u>	<u>500</u>	<u>7.84</u>	<u>24.1</u>	<u>393.8</u>	
<u>1236</u>	<u>60</u>	<u>12.5</u>	<u>750</u>	<u>7.86</u>	<u>24.0</u>	<u>393.7</u>	
<u>1256</u>	<u>80</u>	<u>12.5</u>	<u>1000</u>	<u>7.84</u>	<u>24.3</u>	<u>393.2</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Weiskopf 897</u>	<u>1309</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input checked="" type="checkbox"/> Other: <u>Purge 1 well vol & parameters stabilized.</u>

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 7/15/13
 Well ID: Zander Weather: Sunny, 80's
 ADWR No: 205126 Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>280'</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>152.14'</u>	2	0.16
Casing Volume (gal): <u>188 x3 = 564</u>	4	0.65
Total Volume Purged (gal): _____	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
<u>0914</u>	<u>Pump On</u>						
<u>0924</u>	<u>10</u>	<u>11</u>	<u>110</u>	<u>7.28</u>	<u>21.7</u>	<u>433.6</u>	
<u>0934</u>	<u>20</u>	<u>11</u>	<u>220</u>	<u>7.42</u>	<u>21.7</u>	<u>433.2</u>	
<u>0944</u>	<u>30</u>	<u>11</u>	<u>330</u>	<u>7.45</u>	<u>21.9</u>	<u>430.5</u>	
<u>0954</u>	<u>40</u>	<u>11</u>	<u>440</u>	<u>7.55</u>	<u>21.9</u>	<u>431.0</u>	
<u>1004</u>	<u>50</u>	<u>11</u>	<u>550</u>	<u>7.55</u>	<u>21.8</u>	<u>431.1</u>	
							<u>Pump Off</u>

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm)

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Zander</u>	<u>1009</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input checked="" type="checkbox"/> Water level measurement collected. <input type="checkbox"/> No water level measurement collected. No access to wellhead/No port in wellhead <input type="checkbox"/> No water level measurement collected. Obstruction in well. <input type="checkbox"/> No water level measurement collected. Well is pumping. <input type="checkbox"/> Other: _____

WELL PURGING INFORMATION
<input checked="" type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: