

**FIRST 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**
36 West Highway 92
Bisbee, Arizona 85603

Prepared by:

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

April 15, 2013

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Approved by:



James R. Norris
Arizona Registered Geologist No. 30842

April 15, 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 first 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 (DWS) 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 generalized geologic map of the study area and well locations where data reported herein have been collected. Table 2 lists wells scheduled under the groundwater monitoring program, their availability for sampling, and their sampling status in the first quarter 2013. 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 presented in Section 2.

The monitoring purpose listed on Table 2 was updated in the first 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 new drinking water well, BOOTH, was identified in the first quarter 2013 and was added to the groundwater sampling schedule under the Well Inventory. Two wells, BOOTH and ECHAVE, were surveyed in the first 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 first quarter 2013 are tabulated in Tables 3 and 4, respectively, along with information previously collected under the Mitigation Order. Figure 2 shows the concentrations of dissolved sulfate in the wells sampled in the first quarter 2013. The highest sulfate concentration measured at co-located wells was used for concentration contouring. Figure 3 shows groundwater elevations in the first quarter 2013. Groundwater elevations were calculated using depth to water measurements made under static (nonpumping) conditions for all wells shown on Figure 3. At wells where multiple samples or water levels were collected during the first 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 first 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 first quarter 2013 by Clear Creek and CQB are of acceptable quality for use in the groundwater monitoring being conducted pursuant to the Mitigation Order.

3. FINDINGS

This report provides the results of groundwater monitoring conducted within the vicinity of the CTSA for the first quarter 2013. Groundwater samples were collected from 80 wells and depth to water measurements were collected in 70 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 first quarter 2013 groundwater monitoring are described below.

- Water quality samples have been collected from wells completed in three principal water bearing units in the area: basin fill, undifferentiated Bisbee Group, and Glance Conglomerate. The undifferentiated Bisbee Group consists, from youngest to oldest, of the Cintura Formation, Upper Mural Limestone, Lower Mural Limestone and Morita Formation. Figures 2 and 3 provide the screened lithology of the wells sampled.
- Sulfate concentration data indicate that the plume extends to the southwest from the vicinity of the former evaporation pond (Figure 1) to the vicinity of Naco and to the south to the vicinity of Bisbee Junction (Figure 2). The groundwater monitoring data indicate that the sulfate plume extends over an 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 2 are based on both historic and current sulfate concentration data. Historic data are available in this report and in the Aquifer Characterization Report (Clear Creek, 2010).
- Comparison of the first quarter 2013 sulfate concentrations with previous quarters indicates no large scale change in the plume geometry since the Mitigation Order sampling began in 2008, although concentration contours within the plume have been modified to reflect current concentrations.
- Figure 4 shows sulfate concentrations through time at public drinking water supply wells that are not receiving mitigation actions. Sulfate concentrations have remained relatively stable over time, although NWC-04 displays the greatest variability in concentration.
- Groundwater elevations decrease from east to west across the study area, indicating westerly groundwater flow (Figure 3).
- Figures 5 and 6 show groundwater elevations over time for BMO monitor wells with screened intervals in basin fill and bedrock, respectively. Groundwater elevations in BMO monitor wells screened in basin fill have decreased over time. The maximum rate of decline measured in the basin fill through the most recent quarter sampled is 1.42 feet per year in

BMO-2010-3B, which has declined 3.51 feet between July 2010 and January 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 7.46 feet per year in BMO-2008-10GU, which has declined 29.42 feet between August 2008 and July 2012. Water level declines range from 0.8 to 4.7 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-2010-2M, and BMO-2010-3M. The groundwater elevations in bedrock wells BMO-2008-10GL and BMO-2008-11G display increasing trends. The groundwater elevation in bedrock well BMO-2010-1M is relatively steady over time.

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.
- 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 596/803	573596	✓	✓	✓	✓
ROGERS E	216018	✓	✓	✓	✓
RUIZ	531770	✓	✓	✓	✓
SCHWARTZ	210865	✓	✓	✓	✓
STEPHENS	808560	WLO		WLO	
SUNBELT	201531	WLO		WLO	
SWAN	NR	✓		✓	
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 First 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 January 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 January 2013.
AWC-02	616586	Arizona Water Company	Well Inventory	330	N	Y	Water quality sample collected in February 2013. Unable to measure water level because well was pumping.
AWC-03	616585	Arizona Water Company	Well Inventory	269	N	Y	Water quality sample collected in February 2013. Unable to measure water level because well was pumping.
AWC-04	616584	Arizona Water Company	Well Inventory	250	N	Y	Water quality sample collected in February 2013. Unable to measure water level because well was pumping.
AWC-05	590620	Arizona Water Company	Well Inventory	1183	N	Y	Water quality sample collected in February 2013. Unable to measure water level because well was pumping.
BANKS 986	647986	Banks	Well Inventory	435	N	Y	Water quality sample collected in January 2013. Unable to measure water level because wellhead is not accessible.
BANKS 987	647987	Banks	Plume	339	Y	N	Water level collected in January 2013.
BARTON 919	644919	Barton	Plume	130	N	N	Well identified for water level measurements only. Unable to contact well owner for access.
BF-01	539783	Copper Queen Branch	Plume	400	N	N	Well is not scheduled for first quarter sampling.
BIMA	577927	Bisbee Municipal Airport	Well Inventory	465	N	Y	Water quality sample collected in March 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 February 2013.
BMO-2008-3B	909147	Copper Queen Branch	Plume	260	Y	Y	Water quality sample collected in February 2013.
BMO-2008-4B	910096	Copper Queen Branch	Plume	610	Y	Y	Water quality sample collected in January 2013.
BMO-2008-5B	909653	Copper Queen Branch	Well Inventory	285	Y	Y	Water quality sample collected in February 2013.
BMO-2008-5M	909552	Copper Queen Branch	Plume	450	Y	Y	Water quality sample collected in February 2013.
BMO-2008-6B	909146	Copper Queen Branch	Plume	265	Y	Y	Water quality sample collected in February 2013.
BMO-2008-6M	909019	Copper Queen Branch	Plume	450	Y	Y	Water quality sample collected in February 2013.
BMO-2008-7M	908794	Copper Queen Branch	Plume	670	Y	Y	Water quality sample collected in February 2013.
BMO-2008-8B	910097	Copper Queen Branch	Plume	480	Y	Y	Water quality sample collected in February 2013.
BMO-2008-8M	909711	Copper Queen Branch	Plume	1210	Y	Y	Water quality sample collected in February 2013.
BMO-2008-9M	909255	Copper Queen Branch	Plume	775	Y	Y	Water quality sample collected in February 2013.
BMO-2008-10GL	909435	Copper Queen Branch	Plume	810	Y	Y	Water quality sample collected in February 2013.

TABLE 2
Summary of Groundwater Monitoring Program for First Quarter 2013

Well Name	ADWR 55 Registry Number	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
BMO-2008-10GU	909272	Copper Queen Branch	Plume	449	N	N	Well is not scheduled for first quarter sampling.
BMO-2008-11G	909434	Copper Queen Branch	Plume	760	Y	Y	Water quality sample collected in February 2013.
BMO-2008-13B	909551	Copper Queen Branch	Plume	474	Y	Y	Water quality sample collected in February 2013.
BMO-2008-13M	909760	Copper Queen Branch	Plume	1030	Y	Y	Water quality sample collected in February 2013.
BMO-2010-1M	219957	Copper Queen Branch	Plume	540	Y	Y	Water quality sample collected in February 2013.
BMO-2010-2M	219958	Copper Queen Branch	Plume	370	Y	Y	Water quality sample collected in February 2013.
BMO-2010-3B	219970	Copper Queen Branch	Plume	330	Y	Y	Water quality sample collected in January 2013.
BMO-2010-3M	219969	Copper Queen Branch	Plume	532	Y	Y	Water quality sample collected in January 2013.
BMO-2012-1M	221388	Copper Queen Branch	Plume	396	Y	Y	Water quality sample collected in February 2013.
BOOTH	914931	Booth	Well Inventory	240	Y	Y	Water quality sample collected in January 2013.
CHAMBERS	629807	Chambers	Well Inventory		N	Y	Water quality sample collected in January 2013. Unable to measure water level because wellhead is not accessible.
COB MW-1	903992	City of Bisbee	Plume	420	Y	Y	Water quality sample collected in February 2013.
COB MW-2	903984	City of Bisbee	Plume	170	Y	Y	Water quality sample collected in January 2013.
COB MW-3	906823	City of Bisbee	Plume	269	Y	Y	Water quality sample collected in February 2013.
COB WL	593116	City of Bisbee	Plume	150	Y	Y	Water quality sample collected in February 2013.
COOPER	623564	Cooper	Well Inventory	325	N	Y	Water quality sample collected in January 2013. Unable to measure water level because wellhead is not accessible.
COOPER C	637069	Copper Queen Branch	Plume	220	Y	Y	Water quality sample collected in February 2013.
DODSON	644927	Dodson	Well Inventory	200	Y	Y	Water quality sample collected in January 2013.
DOUGLASS 791	592791	Douglass	Plume	200	Y	N	Well identified for water level measurement only. Water level measured in January 2013.
DOUGLASS 792	592792	Douglass	Plume	200	Y	N	Well identified for water level measurement only. Water level measured January 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 January 2013.
ECHAVE	219449	Echave	Well Inventory	345	Y	Y	Water quality sample collected in January 2013.

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Well Name	ADWR 55 Registry Number	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
EPPELE 641	805641	Eppele	Well Inventory	265	Y	Y	Water quality sample collected in January 2013.
FLEMING	218386	Fleming	Plume	400	Y	N	Well identified for water level measurement only. Water level measured in January 2013.
FRANCO 101	500101	Franco	Plume	200	N	N	Well is inoperable due to low saturated thickness over the screened interval.
FRANCO 383	221383	Franco	Well Inventory	711	Y	Y	Water quality samples collected in January, February, and March 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 January 2013.
GARNER 635	587635	Garner	Well Inventory	680	Y	Y	Water quality sample collected in January 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 January 2013
HOBAN	805290	Copper Queen Branch	Plume	316	Y	Y	Water quality sample collected in February 2013.
HOWARD NR	NR	Howard	Plume	200	Y	Y	Water quality sample collected in February 2013.
HOWARD 312	221312	Howard	Well Inventory	980	Y	Y	Water quality sample collected in February 2013.
KEEFER	209744	Keefer	Well Inventory	245	Y	Y	Water quality sample collected in January 2013.
MARCELL	NR	Marcell	Well Inventory	220	N	Y	Water quality sample collected in February 2013. Unable to measure water level because wellhead is not accessible.
MCCONNELL 265	539265	McConnell	Plume	216	Y	Y	Water quality sample collected in January 2013.
MCCONNELL 459	221459	McConnell	Well Inventory	863	Y	Y	Water quality sample collected in January 2013.
METZLER	35-71891	Metzler	Plume	351	Y	N	Water level measured January 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 January 2013. Unable to measure water level because wellhead is not accessible.
NESS	509127	Ness	Well Inventory	812	Y	Y	Water quality sample collected in January 2013.
NOTEMAN	212483	Bailey	Well Inventory	400	N	Y	Water quality sample collected in January 2013. Unable to measure water level due to obstruction in well.
NWC-02	562944	Naco Water Company	Well Inventory	312	N	Y	Water quality sample collected in January 2013. Unable to measure water level because well was pumping.
NWC-03	203321	Naco Water Company	Well Inventory	312	N	Y	Water quality sample collected in January 2013. Unable to measure water level because well was pumping.
NWC-03 CAP	627684	Naco Water Company	Plume	179	Y	N	Well identified for water level measurements only. Water level measured taken in January 2013.

TABLE 2
Summary of Groundwater Monitoring Program for First Quarter 2013

Well Name	ADWR 55 Registry Number	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
NWC-04	551849	Naco Water Company	Well Inventory Sulfate Trend	795	N	Y	Water quality samples collected in January, February and March 2013. Unable to measure water level because well was pumping.
NWC-06	575700	Naco Water Company	Well Inventory	410	N	Y	Water quality sample collected in January 2013. Unable to measure water level because well was pumping.
OSBORN	643436	Osborn	Well Inventory	258	N	Y	Water quality sample collected in January 2013. Unable to measure water level because wellhead is inaccessible.
PALMER	578819	Palmer	Well Inventory	220	N	Y	Water quality sample collected in January 2013. Unable to measure water level because wellhead is inaccessible.
PANAGAKOS	35-76413	Panagakos	Well Inventory	200	Y	Y	Water quality sample collected in February 2013. Water level measured in January and February 2013.
PARRA	576415	Parra	Plume	355	N	Y	Water quality sample collected in January 2013. Unable to measure water level because wellhead is inaccessible.
PIONKE 395	613395	Pionke	Plume	300	Y	N	Water level measured in February 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 January 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 January 2013. Unable to measure water level due to obstruction in well.
RAY	803772	Ray	Well Inventory	100	Y	Y	Water quality sample collected in January 2013.
ROGERS 596	573596	Rogers, David	Plume	290	Y	N	Well is turned off. Rogers residence uses ROGERS 803. Water level measured in January 2013.
ROGERS 803	641803	Rogers, Ernest M	Well Inventory	140	N	Y	Water quality sample collected in January 2013. Unable to measure water level due to obstruction in well.
ROGERS E	216018	Rogers, Ernest M	Well Inventory	290	Y	Y	Water quality sample collected in January 2013.
RUIZ	531770	Ruiz	Well Inventory	312	Y	Y	Water quality sample collected in January 2013.
SCHWARTZ	210865	Schwartz	Well Inventory	305	Y	Y	Water quality sample collected in March 2013.
STEPHENS	808560	Stephens	Plume	NR	Y	N	Well identified for water level measurements only. Water level measured in January 2013.
SUNBELT	201531	Sunbelt Marketing, Inc.	Plume	380	Y	N	Well identified for water level measurements only. Water level measured in January 2013.
SWAN	NR	Swan	Well Inventory	NR	Y	Y	Water quality sample collected January 2013.
TM-02A	522574	Copper Queen Branch	Plume	925	Y	Y	Water quality sample collected in February 2013.
TM-06 MILLER	522695	Miller	Plume	200	Y	Y	Water quality sample collected in February 2013.
TM-07	522576	Copper Queen Branch	Plume	350	N	Y	Water quality sample collected in February 2013. Unable to measure water level because it is below the sounding tube.
TM-15 MILLER	522699	Miller	Plume	325	N	Y	Water quality sample collected in February 2013. Unable to measure water level due to broken sounding tube.

TABLE 2
Summary of Groundwater Monitoring Program for First Quarter 2013

Well Name	ADWR 55 Registry Number	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
TM-16	522578	Copper Queen Branch	Plume	115	N	N	Well is not scheduled for first quarter sampling.
TM-19A	522580	Copper Queen Branch	Plume	700	Y	Y	Water quality sample collected in February 2013.
TM-42	562554	Copper Queen Branch	Plume	250	Y	Y	Water quality sample collected in February 2013.
TVI 236	802236	Turquoise Valley, Inc.	Well Inventory	222	N	N	Well is not scheduled for first quarter sampling.
TVI 713	567713	Turquoise Valley, Inc.	Well Inventory	200	Y	N	Well identified for water level measurements only. Water level measured in February 2013.
TVI 875	568875	Turquoise Valley, Inc.	Plume	330	N	Y	Water quality sample collected in February 2013. Unable to measure water level because wellhead is not accessible.
WEED	544535	Weed	Well Inventory	320	N	Y	Water quality sample collected in February 2013. Unable to measure water level because wellhead is not accessible.
WEISKOPF 802	641802	Weiskopf	Plume	200	Y	Y	Water quality sample collected in January 2013.
WEISKOPF 897	221897	Weiskopf	Well Inventory	947	Y	Y	Water quality sample collected in January 2013.
ZANDER	205126	Zander	Well Inventory	280	Y	Y	Water quality sample collected in January 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
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	448.9	13.0		
2/5/13	7.54	19.3	473.6	18.0		
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		
2/5/13	7.73	19.2	481.2	55.0		

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-04	616584	2/4/08	ND	ND	ND	18
		4/7/08	ND	ND	ND	18
		6/2/08	ND	ND	ND	14.3
		8/12/08	7.08	22.5	458	21.6
		10/23/08	6.91	22.2	616	24
		3/11/09	7.02	21.3	539	27.2
		4/22/09	6.93	22.1	560	26.1
		7/22/09	7.13	22.5	587	26.2
		10/21/09	7.00	21.2	607	25.7
		2/3/10	7.35	19.3	438	16.3
		4/23/10	7.14	19.2	625	27.4
		7/20/10	7.02	24.1	600	26.6
		11/4/10	7.41	20.3	593.2	24.0
		1/19/11	8.15	20.5	690	26.2
		4/7/11	7.00	20.4	637.2	25.8
		7/13/11	6.88	20.4	610.1	25.7
		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		
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		
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		

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)
BF-01	539783	3/4/08	6.46	21.9	2745	1320
		5/23/08	6.41	18.3	2698	1450
		8/5/08	6.11	22.4	3095	1330
		11/5/08	6.33	19.9	3027	1490
		2/20/09	6.42	19.2	1477	1330
		5/6/09	5.98	23.9	2632	1280
		8/17/09	6.21	29.7	2948	1250
		11/4/09	6.24	23.0	2846	1280
		3/1/10	6.34	21.1	2945	1260
		4/7/10	5.83	20.4	1853	1450
		7/6/10	5.93	22.6	1403	1310
		7/13/11	6.26	21.3	2960	1350
		2/1/12	6.18	19.8	2910	1480
		8/14/12	6.00	21.5	3000	1500
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		
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
		8/27/08	7.09	24.2	808	107
		11/11/08	7.00	20.8	721	143
BMO-2008-1G	909474	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

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-2008-3B	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		
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
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	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		

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		
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		
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
		BMO-2008-8B	910097	12/5/08	6.47	20.1
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

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-2008-8M	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	7.10	24.3	565	64.9		
BMO-2008-9M	909255	8/8/08	7.72	25.7	415	47.3
		11/5/08	7.89	21.4	444	54.4
		2/26/09	7.71	24.5	482	28.8
		5/12/09	7.76	24.8	449	51.7
		8/17/09	7.76	25.6	534	53.4
		11/3/09	7.82	24.9	552	56.9
		3/4/10	8.07	22.4	520	58.6
		4/6/10	6.74	23.8	484	60.1
		7/1/10	7.40	24.6	425	61.0
		2/10/11	6.79	24.0	520	64.2
		7/15/11	7.56	24.3	516	67
		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	8/20/08	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	8/4/08	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
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		

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-2008-13B	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		
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	8.80	22.4	1280	383		
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	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		
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		
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		
BMO-2012-1M	221388	11/13/12	7.55	21.3	933.7	231
		2/27/13	6.97	22.4	793	205

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)
BOOTH	914931	1/5/13	7.67	18.5	574.3	91.4
BURKE	212268	2/7/08	7.17	23.0	411	29.5
		4/22/08	7.13	27.0	423	26
		8/5/08	7.06	26.8	496	21.9
		10/20/08	7.57	26.0	466	20.5
		2/11/09	7.23	25.0	363	23.9
		4/28/09	7.16	26.1	369	24.2
		8/19/09	7.36	26.7	486	22.5
		12/16/09	7.28	25.7	488	26
		3/2/10	7.56	12.3	432	23.8
		4/22/10	7.49	16.4	452	24.8
		7/21/10	7.56	25.6	423.7	33.1
CHAMBERS	629807	3/6/08	7.73	17.8	408	7.7
		5/5/08	7.15	22.1	421	6
		7/14/08	7.43	23.2	434	5.8
		10/15/08	7.41	22.5	420	4
		1/27/09	7.57	21.5	312	5.3
		4/14/09	7.42	22.4	384	6.8
		7/15/09	7.83	23.4	414	4.3
		10/13/09	7.41	22.6	410	6.5
		1/26/10	7.31	21.3	416	5.7
		4/23/10	7.47	20.9	427.5	8.34
		7/21/10	7.49	23.1	430	7.75
		10/19/10	8.00	23.0	440	7.04
		1/18/11	7.47	22.4	390	7.30
		4/11/11	7.18	22.0	427.3	7.74
		7/18/11	7.18	23.8	420.2	8.18
		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		
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
		COB MW-2	903984	5/20/08	7.32	21.2
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

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-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		
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		
COLLINS	565260	2/12/08	6.88	21.6	1470	520
		5/29/08	7.01	22.0	1459	520
		7/31/08	6.86	21.6	1502	536
		10/20/08	8.44	24.7	1510	518
		2/11/09	6.68	21.4	1147	567
		4/21/09	6.92	22.5	1150	499
		7/22/09	7.00	22.4	1413	460
		10/20/09	6.60	21.9	1432	513
		2/2/10	6.98	21.2	1439	471
		4/23/10	6.99	20.6	1472	561
		7/20/10	6.69	25.0	1420	569
COOPER	623564	2/14/08	7.02	20.8	371	33
		5/14/08	8.08	22.1	419	34.2
		7/31/08	7.81	28.4	455	33.7
		10/20/08	8.44	24.7	448	31.2
		2/11/09	7.32	19.2	333	34.3
		4/21/09	8.19	24.9	346	33.4
		7/20/09	8.45	29.8	430	32.3
		10/14/09	7.85	24.6	423	33.6
		2/1/10	7.83	13.6	433	32.4
		4/22/10	7.82	17.9	433	34.5
		7/19/10	7.98	29.3	420	35.0
		10/18/10	7.12	73.1	450	33.1
		1/19/11	8.83	18.4	410	32.1
		4/11/11	7.65	21.0	442.6	34.3
		7/11/11	7.45	24.2	426.5	32.1
		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		

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	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
		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		
DURAZO	NR	2/10/09	7.22	18.8	848	386
		4/20/09	7.37	22.7	901	367
		7/15/09	7.57	22.8	1102	332
		10/14/09	7.17	21.9	1048	377
		2/1/10	7.30	21.1	1105	344
		4/26/10	7.22	23.1	1099	388
		7/20/10	7.28	23.0	1070	405
		10/19/10	7.28	21.9	1112	398
		1/19/11	7.94	21.6	1050	360
		4/4/11	7.20	21.9	1119	383
		7/14/11	7.01	23.6	1101	409
		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		
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
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		
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		
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	7.40	20.5	979.9	338

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)
FULTZ	212447	2/27/08	6.76	21.1	1827	152
		4/21/2008 ¹	6.74	22.0	1739	137
		5/14/2008 ¹	6.88	22.3	1532	131
		6/23/2008 ¹	6.74	22.0	1788	111
		7/29/2008 ¹	6.74	22.2	1989	152
		8/28/2008 ¹	M	21.6	1889	137
		9/23/2008 ¹	6.82	21.9	1821	137
		10/22/08	6.80	21.4	1940	145
		1/21/09	6.74	21.2	1481	82
		4/9/09	6.78	21.5	1695	138
		7/13/09	7.04	23.4	1452	81
		10/8/09	7.00	21.6	1262	72
		10/8/09 DUP	7.00	21.6	1262	71.8
		1/25/10	7.11	21.8	1282	66.7
		4/20/10	7.32	21.2	1202	68.3
		7/14/10	7.75	22.2	1132	57.0
		10/20/10	7.27	20.5	1091	54.7
		1/18/11	7.23	20.4	1136	56.9
		4/5/11	7.08	22.1	1082	49.5
		4/5/11 DUP	7.08	22.1	1082	51.7
8/25/11	6.45	23.3	940	50.6		
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
		7/11/12	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		
GGOOSE 547	628547	5/21/08	7.08	22.7	856	199
		8/15/08	7.02	24.8	915	178
		10/29/08	7.27	22.6	897	216
		2/24/09	7.06	23.8	851	186
		5/14/09	7.15	23.9	743	174
		8/19/09	7.20	23.8	887	175
		11/11/09	7.15	23.1	897	188
GL-03	539782	3/4/08	7.43	25.7	417	20.3
		5/22/08	7.06	25.3	647	43.3
		8/4/08	7.10	26.8	673	36.1
		11/12/08	7.21	25.2	478	34.9
		2/26/09	7.05	26.5	603	54.8
		5/5/09	6.91	28.1	682	43.9
		8/1/09	7.12	27.4	768	43.1
		11/10/09	6.96	27.0	692	49
		3/2/10	7.36	24.9	693	43.4
		3/2/2010 DUP	7.36	24.9	693	45.1
		4/9/10	6.17	25.6	556	48.1
		7/7/10	6.48	26.3	546	44.4
		2/1/12	6.57	24.1	559	42.0
HARDT	NR	2/5/13	7.15	17.5	670.6	17.7

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)
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		
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		
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
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		

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)
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		
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		
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
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

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)
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		
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		
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	22.3	1417	288		
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

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-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		
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		

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	3/4/08	ND	ND	ND	7.9
		6/9/08	ND	ND	ND	7.2
		10/27/08	7.35	23.3	414	6.4
		2/12/09	7.54	21.8	306	8
		4/23/09	7.30	24.5	354	7.3
		7/21/09	7.63	23.5	388	6.4
		10/21/09	7.26	23.2	413	8
		2/3/10	7.61	20.5	404	7.5
		2/3/10 DUP	7.61	20.5	404	7.4
		4/21/10	7.54	22.4	387	8.49
		7/20/10	7.33	26.0	388.6	8.59
		10/19/10	7.49	22.7	394.5	8.32
		1/18/11	7.45	23.4	380	8.24
		4/6/11	7.42	23.1	388.3	7.76
		4/6/11 DUP	7.42	23.1	388.3	7.73
		7/15/11	7.09	22.9	394.3	8.36
		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	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	7.90	17.5	532.8	16.8		

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)
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		
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		
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		
10/17/12	7.16	22.3	1136	419		
PIONKE 517	221517	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

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)
POOL	509518	2/20/08	7.95	20.9	497	134
		5/19/08	7.40	22.2	585	122
		7/31/08	7.47	22.3	599	117
		10/21/08	7.51	21.4	598	120
		2/13/09	7.62	20.8	473	141
		4/21/09	7.73	22.6	470	124
		7/20/09	7.76	22.9	579	122
		10/20/09	7.22	21.2	577	122
		2/24/10	7.56	22.4	577	110
		4/22/10	7.75	20.2	606.5	130
		7/14/10	7.38	21.7	580.9	117
		10/20/10	7.79	21.3	620	115
		1/20/11	7.71	20.5	530	112
		1/20/11 DUP	7.71	20.5	530	114
POWER	624535	4/6/11	7.37	21.6	567.4	114
		2/12/08	7.11	18.9	428	15.5
		7/22/08	7.10	21.7	795	20.2
		2/4/08	7.47	21.7	408	7.6
RAMIREZ	216425	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		
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		
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

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 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		
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		
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		

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		
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		
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		

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
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
		TM-08 SWAN	522817	2/13/08	7.63	24.1
5/14/08	7.44			24.4	480	12.6
7/23/08	7.76			28.1	522	12.6
TM-10 USBP	522696	12/8/11	6.95	19.6	381	16.8
		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		
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		

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		
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		
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
		TM-43	564729	3/3/08	8.57	21.0
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		

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		
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		
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		
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
WMD-2011-03M	913037	2/2/12	6.66	22.0	1190	391

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)
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		

Notes:

- ¹ Verified drinking water supply well, sample collected for sulfate trend analysis and interim action evaluation
- 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

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					
10/10/12	151.50	4437.01					
1/17/13	151.24	4437.27					
ANDERSON 458	221458	601118.690	3468826.284	4585.37	9/7/12	173.76	4411.61
					10/10/12	151.82	4433.55
					1/17/13	152.17	4433.20
AWC-02	616586	598907.911	3468549.357	4547.64	8/27/08	121.12	4426.52
					4/8/08 ¹	116	4431.64
					10/23/08 ²	115	4432.64
					4/22/09 ²	118	4429.64
					10/9/09 ²	117	4430.64
4/23/10 ²	119	4428.64					
AWC-03	616585	599090.322	3468681.898	4539.52	8/27/08	119.40	4420.12
					4/8/2008 ¹	112	4427.52
					10/23/08 ²	106	4433.52
					4/22/09 ²	114	4425.52
					10/9/09 ²	116	4423.52
4/23/10 ²	116	4423.52					
AWC-04	616584	598949.929	3468717.084	4540.48	8/18/08	112.56	4427.92
					4/8/2008 ¹	108	4432.48
					10/23/08 ²	111.31	4429.17
					4/22/09 ²	110	4430.48
					10/9/09 ²	110	4430.48
4/23/10 ²	109	4431.48					
AWC-05	590620	599269.904	3468541.692	4542.51	8/27/08	299.65	4242.86
					4/8/08	284	4258.51
					10/23/08	284	4258.51
					4/22/09	286	4256.51
					6/3/09	125	4417.51
					10/9/09 ²	289	4253.51
4/23/10 ²	278	4264.51					

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)
BANKS 987	647987	606981.921	3469206.175	4648.18	2/27/08	208.00	4440.18
					5/12/08	216.30	4431.88
					7/21/08	228.95	4419.23
					10/13/08	228.20	4419.98
					1/21/09	206.64	4441.54
					4/8/09	205.50	4442.68
					7/9/09	235.68	4412.50
					10/7/09	236.71	4411.47
					2/25/10	216.98	4431.20
					4/20/10	219.35	4428.83
					7/20/10	235.60	4412.58
					10/20/10	230.24	4417.94
					1/17/11	215.28	4432.90
					4/5/11	221.68	4426.50
					7/11/11	237.39	4410.79
					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					
10/4/12	237.16	4411.02					
1/18/13	237.81	4410.37					
BARTON 919	644919	606243.850	3469076.689	4692.36	5/12/08	113.71	4578.65
					7/23/08	113.56	4578.80
					10/16/08	113.20	4579.16
					3/11/09	112.92	4579.44
					4/10/09	112.89	4579.47
7/7/09	112.86	4579.50					
BF-01	539783	604169.077	3472151.593	4835.23	3/4/08	348.99	4486.24
					5/23/08	348.80	4486.43
					8/5/08	348.66	4486.57
					11/5/08	348.94	4486.29
					2/20/09	348.78	4486.45
					5/6/09	348.73	4486.50
					8/17/09	348.73	4486.50
					11/4/09	348.65	4486.58
					3/1/10	348.84	4486.39
					4/7/10	348.70	4486.53
					7/6/10	348.69	4486.54
7/13/11	348.67	4486.56					
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
					1/19/11	391.47	4410.58
4/4/11	395.22	4406.83					
BMO-2008-1G	909474	606467.681	3471723.644	4805.10	8/27/08	62.05	4743.05
					11/11/08	60.95	4744.15
					2/25/09	61.43	4743.67
					4/28/09	62.01	4743.09
					8/4/09	62.96	4742.14
					10/27/09	63.61	4741.49
					2/17/10	64.51	4740.59
					4/15/10	65.05	4740.05
					7/7/10	65.83	4739.27
					2/10/11	67.74	4737.36
					7/12/11	69.37	4735.73
					2/8/12	70.33	4734.77
					8/14/12	71.73	4733.37
2/14/13	72.95	4732.15					
BMO-2008-3B	909147	602012.923	3467919.582	4583.97	7/18/08	138.05	4445.92
					11/4/08	137.95	4446.02
					2/19/09	138.19	4445.78
					5/11/09	138.46	4445.51
					8/6/09	139.02	4444.95
					10/26/09	139.60	4444.37
					3/3/10	140.03	4443.94
					4/8/10	140.07	4443.90
					7/1/10	140.70	4443.27
					2/14/11	141.41	4442.56
					7/12/11	142.21	4441.76
					2/23/12	143.90	4440.07
					7/10/12	143.70	4440.27
2/15/13	144.53	4439.44					

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	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					
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					
2/12/13	152.00	4433.02					

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)
BMO-2008-6B	909146	600366.523	3469820.644	4627.44	7/16/08	190.13	4437.31
					11/4/08	190.23	4437.21
					2/19/09	189.71	4437.73
					4/27/09	189.99	4437.45
					8/4/09	190.80	4436.64
					10/26/09	191.04	4436.40
					2/15/10	190.82	4436.62
					4/15/10	190.75	4436.69
					7/1/10	191.43	4436.01
					10/5/10	192.50	4434.94
					2/14/11	192.19	4435.25
					5/12/11	192.70	4434.74
					7/12/11	193.30	4434.14
					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					
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					
2/12/13	196.45	4430.45					
BMO-2008-7M	908794	603099.165	3470029.283	4688.33	7/14/08	238.31	4450.02
					11/6/08	239.69	4448.64
					2/18/09	238.90	4449.43
					5/11/09	239.03	4449.30
					8/6/09	239.17	4449.16
					10/27/09	239.55	4448.78
					2/17/10	239.98	4448.35
					4/15/10	240.13	4448.20
					7/6/10	240.28	4448.05
					2/14/11	241.26	4447.07
					7/15/11	241.81	4446.52
					1/30/12	242.44	4445.89
7/11/12	243.0	4445.33					
2/15/13	243.8	4444.53					

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-2008-8B	910097	604171.347	3471141.719	4753.25	12/5/08	297.94	4455.31
					2/19/09	297.63	4455.62
					5/5/09	297.37	4455.88
					8/10/09	297.53	4455.72
					11/9/09	297.85	4455.40
					3/3/10	298.37	4454.88
					4/16/10	298.46	4454.79
					7/1/10	298.64	4454.61
					2/11/11	299.56	4453.69
					5/13/11	299.78	4453.47
					7/15/11	300.00	4453.25
					1/30/12	300.52	4452.73
7/12/12	301.15	4452.10					
2/13/13	302.05	4451.20					
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					
2/14/13	303.07	4449.38					
BMO-2008-9M	909255	604668.669	3471121.675	4762.61	8/8/08	287.17	4475.44
					11/5/08	287.65	4474.96
					2/26/09	285.65	4476.96
					5/12/09	285.28	4477.33
					8/17/09	286.09	4476.52
					11/3/09	286.55	4476.06
					3/4/10	287.45	4475.16
					4/6/10	287.81	4474.80
					7/1/10	288.26	4474.35
					2/10/11	289.77	4472.84
					5/13/11	290.47	4472.14
					7/15/11	290.95	4471.66
					2/1/12	293.44	4469.17
7/12/12	294.65	4467.96					
2/13/13	296.67	4465.94					

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-2008-10GL	909435	605264.072	3471702.043	4792.21	8/20/08	521.75	4270.46
					11/5/08	520.50	4271.71
					2/25/09	516.72	4275.49
					5/12/09	514.68	4277.53
					8/11/09	513.23	4278.98
					11/2/09	509.43	4282.78
					3/4/10	510.88	4281.33
					4/8/10	506.31	4285.90
					7/2/10	511.80	4280.41
					7/13/11	512.16	4280.05
					2/2/12	511.34	4280.87
					7/13/12	510.90	4281.31
2/18/13	509.91	4282.30					
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
					7/13/12	328.7	4464.75
BMO-2008-11G	909434	603800.995	3472626.482	4844.67	8/22/08	577.76	4266.91
					11/12/08	576.80	4267.87
					2/26/09	575.91	4268.76
					4/8/09	575.46	4269.21
					8/12/09	574.84	4269.83
					11/9/09	573.41	4271.26
					3/1/10	573.68	4270.99
					4/9/10	573.56	4271.11
					7/1/10	572.97	4271.70
					2/10/11	571.61	4273.06
					7/22/11	571.20	4273.47
					1/31/12	569.83	4274.84
8/14/12	569.70	4274.97					
2/13/13	568.75	4275.92					

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-2008-13B	909551	601657.612	3470076.358	4649.21	10/3/08	206.42	4442.79
					2/17/09	206.11	4443.10
					5/6/09	206.32	4442.89
					8/5/09	206.79	4442.42
					10/28/09	207.08	4442.13
					2/16/10	207.26	4441.95
					4/14/10	207.27	4441.94
					7/6/10	207.68	4441.53
					2/10/11	208.51	4440.70
					5/13/11	208.95	4440.26
					7/15/11	209.36	4439.85
					2/9/12	209.78	4439.43
7/11/12	210.60	4438.61					
2/27/13	211.40	4437.81					
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					
2/15/13	212.13	4435.02					
BMO-2010-1M	219957	605581.263	3469935.750	4718.55	9/7/10	224.13	4494.42
					11/10/10	222.97	4495.58
					2/11/11	222.01	4496.54
					5/12/11	223.08	4495.47
					8/31/11	224.38	4494.17
					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	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					

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-2010-3B	219970	599977.962	3468347.363	4550.59	7/28/10	115.38	4435.21
					11/10/10	115.80	4434.79
					1/20/11	115.46	4435.13
					4/7/11	116.11	4434.48
					7/13/11	117.30	4433.29
					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					
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	11/13/12	231.90	4487.86
					2/27/13	233.20	4486.56
BOOTH	914931	601132.466	3468049.945	4568.21	1/15/13	131.47	4436.74
BURKE	212268	602230.087	3473029.816	4856.30	4/22/08	606.55	4249.75
					8/5/08	605.86	4250.44
					10/28/08	604.88	4251.42
					2/19/09	603.91	4252.39
					4/28/09	603.70	4252.60
					8/19/09	602.66	4253.64
COB MW-1	903992	603153.259	3469889.889	4683.26	2/22/08	232.47	4450.79
					5/20/08	233.12	4450.14
					7/30/08	233.37	4449.89
					10/23/08	233.62	4449.64
					2/12/09	234.05	4449.21
					4/21/09	234.99	4448.27
					7/22/09	234.34	4448.92
					10/22/09	234.69	4448.57
					2/4/10	235.15	4448.11
					4/20/10	235.47	4447.79
					7/13/10	235.68	4447.58
					7/14/11	236.98	4446.28
					7/12/12	238.24	4445.02
2/5/13	239.11	4444.15					

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					
1/9/13	129.28	4436.93					
COB MW-3	906823	599169.225	3468726.000	4538.63	2/28/08	120.84	4417.79
					5/20/08	125.00	4413.63
					7/30/08	118.50	4420.13
					10/23/08	117.93	4420.70
					2/12/09	110.91	4427.72
					4/23/09	125.13	4413.50
					7/22/09	124.09	4414.54
					10/22/09	118.03	4420.60
					3/3/10	120.14	4418.49
					4/26/10	123.12	4415.51
					7/13/10	128.60	4410.03
					7/14/11	132.41	4406.22
					7/12/12	133.89	4404.74
					2/5/13	123.68	4414.95
COB WL	593116	606357.506	3472502.012	4832.06	2/22/08	56.50	4775.56
					5/20/08	57.50	4774.56
					7/30/08	58.64	4773.42
					10/23/08	58.76	4773.30
					2/12/09	58.89	4773.17
					4/23/09	59.73	4772.33
					7/22/09	61.27	4770.79
					10/22/09	62.82	4769.24
					3/3/10	65.24	4766.82
					4/26/10	66.13	4765.93
					7/13/10	67.52	4764.54
					7/14/11	73.86	4758.20
					7/12/12	78.85	4753.21
					2/5/13	82.41	4749.65

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
7/20/10	292.21	4441.51					
COOPER C	637069	601349.987	3468913.011	4599.14	3/4/08	155.08	4444.06
					5/5/08	155.34	4443.80
					7/15/08	156.01	4443.13
					10/16/08	155.85	4443.29
					1/27/09	155.62	4443.52
					4/14/09	155.86	4443.28
					7/14/09	156.50	4442.64
					10/12/09	156.89	4442.25
					1/27/10	157.03	4442.11
					4/22/10	157.31	4441.83
					7/21/10	158.00	4441.14
					10/20/10	158.41	4440.73
					1/17/11	158.37	4440.77
					4/11/11	158.74	4440.40
					8/26/11	159.51	4439.63
					10/13/11	159.81	4439.33
					2/1/12	159.80	4439.34
4/25/12	160.26	4438.88					
7/12/12	160.88	4438.26					
10/10/12	161.10	4438.04					
2/27/13	161.40	4437.74					
DODSON	644927	605594.560	3469063.772	4686.34	5/12/08	81.38	4604.96
					7/24/08	82.20	4604.14
					10/13/08	81.82	4604.52
					1/22/09	82.33	4604.01
					4/9/09	82.84	4603.50
					7/8/09	86.88	4599.46
					10/6/09	87.27	4599.07
					1/21/10	88.54	4597.80
					4/19/10	89.53	4596.81
					7/20/10	90.79	4595.55
					10/18/10	90.33	4596.01
					1/19/11	90.34	4596.00
					4/5/11	91.05	4595.29
					7/12/11	92.07	4594.27
					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					

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					
1/9/13	27.24	4676.03					
DOUGLASS 792	592792	607607.541	3469829.115	4681.73	2/13/08	87.76	4593.97
					5/13/08	87.21	4594.52
					7/22/08	86.90	4594.83
					10/16/08	86.45	4595.28
					1/20/09	86.26	4595.47
					4/8/09	86.04	4595.69
					7/7/09	86.16	4595.57
					10/5/09	86.19	4595.54
					1/21/10	86.45	4595.28
					4/19/10	87.19	4594.54
					7/12/10	87.55	4594.18
					1/18/11	87.8	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					

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					
7/9/12	70.50	4555.51					
10/4/12	73.34	4552.67					
1/17/13	75.04	4550.97					
ECHAVE	219449	599701	3470168	4648	2/1/12	216.71	4431.29
					1/18/13	218.41	4429.59
EPPELE 641	805641	607165.354	3469229.942	4642.86	3/11/08	29.52	4613.34
					5/12/08	30.64	4612.22
					7/21/08	25.59	4617.27
					10/14/08	24.53	4618.33
					1/21/09	27.35	4615.51
					4/8/09	29.08	4613.78
					7/9/09	31.51	4611.35
					10/7/09	29.92	4612.94
					7/20/10	50.38	4592.48
					10/20/10	48.88	4593.98
					1/17/11	51.13	4591.73
					4/5/11	53.81	4589.05
					7/11/11	56.82	4586.04
					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					

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					
1/18/13	373.96	4319.72					
FRANCO 383	221383	602817.854	3468831.563	4636.88	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	10/22/08	40.59	4602.33
					1/21/09	40.66	4602.26
					4/9/09	42.88	4600.04
					7/13/09	54.94	4587.98
					10/8/09	56.16	4586.76
					1/25/10	53.45	4589.47
					4/20/10	63.82	4579.10
7/14/10	119.86	4523.06					
GARNER 557	558557	602659.240	3468962.415	4638.45	2/21/08	191.05	4447.40
					5/5/08	191.28	4447.17
					7/15/08	191.44	4447.01
					10/16/08	191.83	4446.62
					1/28/09	191.92	4446.53
					4/15/09	192.09	4446.36
					7/16/09	192.52	4445.93
					10/14/09	192.82	4445.63
					2/2/10	193.33	4445.12
					4/22/10	193.49	4444.96
					7/20/10	193.93	4444.52
					10/19/10	194.29	4444.16
					1/19/11	194.61	4443.84
					4/6/11	194.86	4443.59
					7/15/11	195.25	4443.20
					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					

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					
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					
1/11/13	190.48	4440.65					
HOBAN ³	805290	601705.848	3468880.329	4607.60	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					

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 ⁴	NR	601281.159	3468770.377	4593.91	3/4/08	150.10	4443.81
					5/8/08	150.70	4443.21
					7/14/08	150.91	4443.00
					10/15/08	150.67	4443.24
					1/28/09	150.67	4443.24
					4/15/09	151.15	4442.76
					7/15/09	151.76	4442.15
					10/12/09	152.08	4441.83
					1/27/10	152.20	4441.71
					4/21/10	152.30	4441.61
					7/19/10	153.16	4440.75
					10/18/10	153.53	4440.38
					1/17/11	153.51	4440.40
					4/11/11	154.24	4439.67
					8/26/11	154.79	4439.12
					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					
2/6/13	156.27	4437.64					
HOWARD 312	221312	601308.920	3468772.630	4594.9356	8/14/12	188.36	4406.58
					10/16/12	193.33	4401.61
					2/6/13	193.74	4401.20
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					
1/10/13	140.80	4431.23					

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)
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					
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
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					

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
2/3/12	591.24	4169.99					
1/9/13	551.35	4209.88					
NOTEMAN	212483	606053.800	3471576.400	4800.68	5/13/08	339.77	4460.91
					8/27/08	344.34	4456.34
					11/22/08	322.26	4478.42
					2/25/09	327.54	4473.14
NSD-02	527587	598820.051	3468821.474	4531.38	10/7/09	101.17	4430.21
					3/16/10	99.43	4431.95
					5/25/10	101.63	4429.75
					8/25/10	102.38	4429.00
					3/17/11	102.68	4428.70
					6/17/11	109.29	4422.09
					12/7/11	104.41	4426.97
					3/6/12	104.30	4427.08
					12/14/12	107.24	4424.14
3/22/13	107.20	4424.18					
NSD-03	527586	598070.538	3468694.259	4518.28	10/7/09	85.62	4432.66
					3/16/10	83.51	4434.77
					5/25/10	84.49	4433.79
					8/25/10	85.70	4432.58
					3/17/11	86.76	4431.52
					6/17/11	88.76	4429.52
					12/7/11	89.30	4428.98
					3/6/12	89.24	4429.04
					12/14/12	90.83	4427.45
3/22/13	88.65	4429.63					
NWC-02	562944	600177.435	3467474.673	4600.44	10/27/08	160.51	4439.93
					4/29/09 ⁵	160.5	4439.94
					9/10/09 ⁵	155	4445.44
					4/2010 ⁵	131	4469.44
NWC-03	203321	601153.857	3468350.838	4574.99	11/3/08	131.48	4443.51
					4/29/09 ⁵	130	4444.99
					9/10/09 ⁵	126	4448.99
					10/9/09 ⁵	125	4449.99

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 ⁵	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 ⁵	328	4362.77
					9/10/09 ⁵	324	4366.77
					4/2010 ⁵	216	4474.77
NWC-06	575700	599822.821	3467749.954	4592.50	4/29/09 ⁵	156	4436.50
					9/10/09 ⁵	155	4437.50
					10/9/09 ⁵	148	4444.50
					4/2010 ⁵	140	4452.50
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					
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					
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

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
					7/14/10	206.58	4432.51
10/20/10	206.74	4432.35					
RAMIREZ	216425	599730.649	3467584.363	4596.61	10/27/08	159.45	4437.16
					1/29/09	158.74	4437.87
					4/16/09	158.66	4437.95
					7/10/09	159.64	4436.97
					10/6/09	160.36	4436.25
					1/25/10	160.10	4436.51
					4/21/10	159.96	4436.65
					7/21/10	161.05	4435.56
					10/19/10	161.23	4435.38
					1/18/11	161.22	4435.39
					4/11/11	161.48	4435.13
					7/18/11	162.39	4434.22
					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					
RAY	803772	607083.422	3469195.147	4647.91	2/15/08	40.85	4607.06
					5/13/08	43.82	4604.09
					7/29/08	45.25	4602.66
					10/22/08	44.54	4603.37
					1/20/09	44.31	4603.60
					4/8/09	44.68	4603.23
					7/9/09	48.99	4598.92
					10/7/09	49.87	4598.04
					1/26/10	47.61	4600.30
					4/20/10	49.78	4598.13
					7/14/10	51.36	4596.55
					10/20/10	49.85	4598.06
					1/17/11	50.51	4597.40
					4/5/11	51.84	4596.07
					7/11/11	55.74	4592.17
					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					

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 ⁷	641750	600977.690	3468417.386	4579.02	2/7/08	129.85	4449.17
					7/29/08	131.86	4447.16
					10/22/08	132.08	4446.94
					2/10/09	130.62	4448.40
					4/29/09	131.33	4447.69
8/3/09	135.07	4443.95					
ROGERS E	216018	600449.648	3467636.029	4590.66	7/17/08	149.65	4441.01
					11/3/08	150.15	4440.51
					2/10/09	149.02	4441.64
					4/16/09	149.53	4441.13
					7/13/09	150.31	4440.35
					10/6/09	150.76	4439.90
					1/25/10	150.64	4440.02
					4/21/10	150.97	4439.69
					8/25/10	151.15	4439.51
					10/19/10	151.57	4439.09
					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					
1/17/13	154.56	4436.10					
RUIZ	531770	602857.357	3471424.219	4735.18	2/5/08	293.29	4441.89
					5/15/08	293.57	4441.61
					7/30/08	293.86	4441.32
					10/20/08	294.18	4441.00
					2/12/09	294.62	4440.56
					4/21/09	294.66	4440.52
					8/3/09	294.98	4440.20
					10/28/09	295.33	4439.85
					2/1/10	295.70	4439.48
					4/26/10	295.96	4439.22
					4/8/11	297.20	4437.98
4/13/12	298.47	4436.71					
1/11/13	299.39	4435.79					

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 ⁸	210865	600811.014	3468269.622	4564.49	2/8/08	121.80	4442.69
					5/19/08	123.49	4441.00
					7/29/08	122.64	4441.85
					10/22/08	123.39	4441.10
					1/29/09	122.87	4441.62
					4/17/09	123.53	4440.96
					7/10/09	124.15	4440.34
					10/6/09	124.55	4439.94
					1/22/10	124.32	4440.17
					4/21/10	124.65	4439.84
					7/21/10	125.80	4438.69
					10/19/10	126.30	4438.19
					1/17/11	125.35	4439.14
					4/11/11	127.50	4436.99
					7/18/11	127.67	4436.82
					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					
10/17/12	128.98	4435.51					
3/13/13	128.81	4435.68					
STEPHENS	808560	606981.766	3469072.799	4651.22	5/13/08	44.94	4606.28
					8/5/08	46.61	4604.61
					10/16/08	46.60	4604.62
					1/21/09	47.19	4604.03
					4/8/09	48.45	4602.77
					7/7/09	49.41	4601.81
					10/7/09	50.33	4600.89
					1/26/10	51.13	4600.09
					4/20/10	51.24	4599.98
					7/14/10	51.91	4599.31
					1/18/11	52.98	4598.24
					7/11/11	54.44	4596.78
					1/31/12	55.65	4595.57
7/9/12	10.69	4640.53					
1/18/13	10.50	4640.72					

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)
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					
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
1/9/13	38.51	4678.08					
TM-02A	522574	604152.059	3472008.794	4808.43	3/4/08	346.62	4461.81
					5/23/08	346.16	4462.27
					8/15/08	353.91	4454.52
					10/30/08	349.45	4458.98
					2/24/09	348.64	4459.79
					5/6/09	349.38	4459.05
					8/12/09	349.13	4459.30
					11/4/09	348.97	4459.46
					3/10/10	348.19	4460.24
					4/6/10	353.86	4454.57
					7/6/10	349.20	4459.23
					2/10/11	347.60	4460.83
					7/13/11	348.14	4460.29
					2/2/12	346.94	4461.49
					8/13/12	344.53	4463.90
2/14/13	343.50	4464.93					

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
					7/7/10	131.25	4766.60
2/1/12	135.04	4762.81					
TM-06 MILLER	522695	606055.975	3468376.658	4707.88	2/26/08	158.78	4549.10
					5/20/08	158.76	4549.12
					8/4/08	158.80	4549.08
					10/29/08	158.85	4549.03
					2/16/09	159.28	4548.60
					5/13/09	158.81	4549.07
					8/18/09	158.91	4548.97
					11/12/09	158.96	4548.92
					3/8/10	158.99	4548.89
					4/14/10	159.02	4548.86
					7/2/10	159.13	4548.75
					7/21/11	159.88	4548.00
					7/9/12	161.40	4546.48
2/14/13	161.05	4546.83					
TM-10 USBP	522696	601586.268	3471816.397	4741.18	3/15/12	279.30	4461.88
					4/24/12	279.03	4462.15
					9/13/12	278.30	4462.88
					10/19/12	277.45	4463.73
					3/7/13	276.55	4464.63
TM-16	522578	605588.075	3469842.199	4717.71	3/5/08	81.00	4636.71
					5/22/08	81.24	4636.47
					8/6/08	81.65	4636.06
					11/5/08	81.75	4635.96
					2/26/09	81.88	4635.83
					5/13/09	82.01	4635.70
					8/19/09	82.37	4635.34
					11/10/09	82.83	4634.88
					3/2/10	83.09	4634.62
					4/14/10	83.22	4634.49
					7/2/10	83.51	4634.20
					7/14/11	80.41	4637.30
					7/9/12	72.55	4645.16

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					
2/15/13	205.30	4440.57					
TM-42	562554	603698.271	3469104.903	4666.67	3/5/08	211.04	4455.63
					5/22/08	210.98	4455.69
					8/6/08	211.55	4455.12
					11/6/08	207.05	4459.62
					2/18/09	212.31	4454.36
					5/7/09	212.37	4454.30
					8/18/09	212.77	4453.90
					11/3/09	213.05	4453.62
					2/24/10	213.36	4453.31
					4/19/10	213.51	4453.16
					7/2/10	213.52	4453.15
					7/12/11	214.62	4452.05
					7/11/12	216.10	4450.57
2/12/13	216.55	4450.12					
TVI 236	802236	600552.215	3467978.431	4561.98	5/7/08	123.30	4438.68
					7/15/08	121.55	4440.43
					10/15/08	122.35	4439.63
					2/11/09	121.28	4440.70
					4/17/09	122.73	4439.25
					7/21/09	123.96	4438.02
					10/19/09	123.88	4438.10
					2/2/10	122.26	4439.72
					4/23/10	122.70	4439.28
					7/15/10	125.08	4436.90
					7/15/11	127.23	4434.75
					7/16/12	127.81	4434.17
10/9/12	128.45	4433.53					

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					
2/6/13	131.14	4436.08					
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					
7/13/12	149.79	4437.10					
10/11/12	149.73	4437.16					
1/16/13	149.49	4437.40					
WEISKOPF 897	221897	601096.780	3468647.358	4585.70	12/6/12	149.27	4436.43
					1/16/13	148.70	4437.00
WMD-2011-03M	913037	605360.830	3470671.273	4746.28	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					

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

² Depth to Water measurement provided by Arizona Water Company

³ Measuring point elevation changed to reflect survey results June 2012 and applied to all measurements collected

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

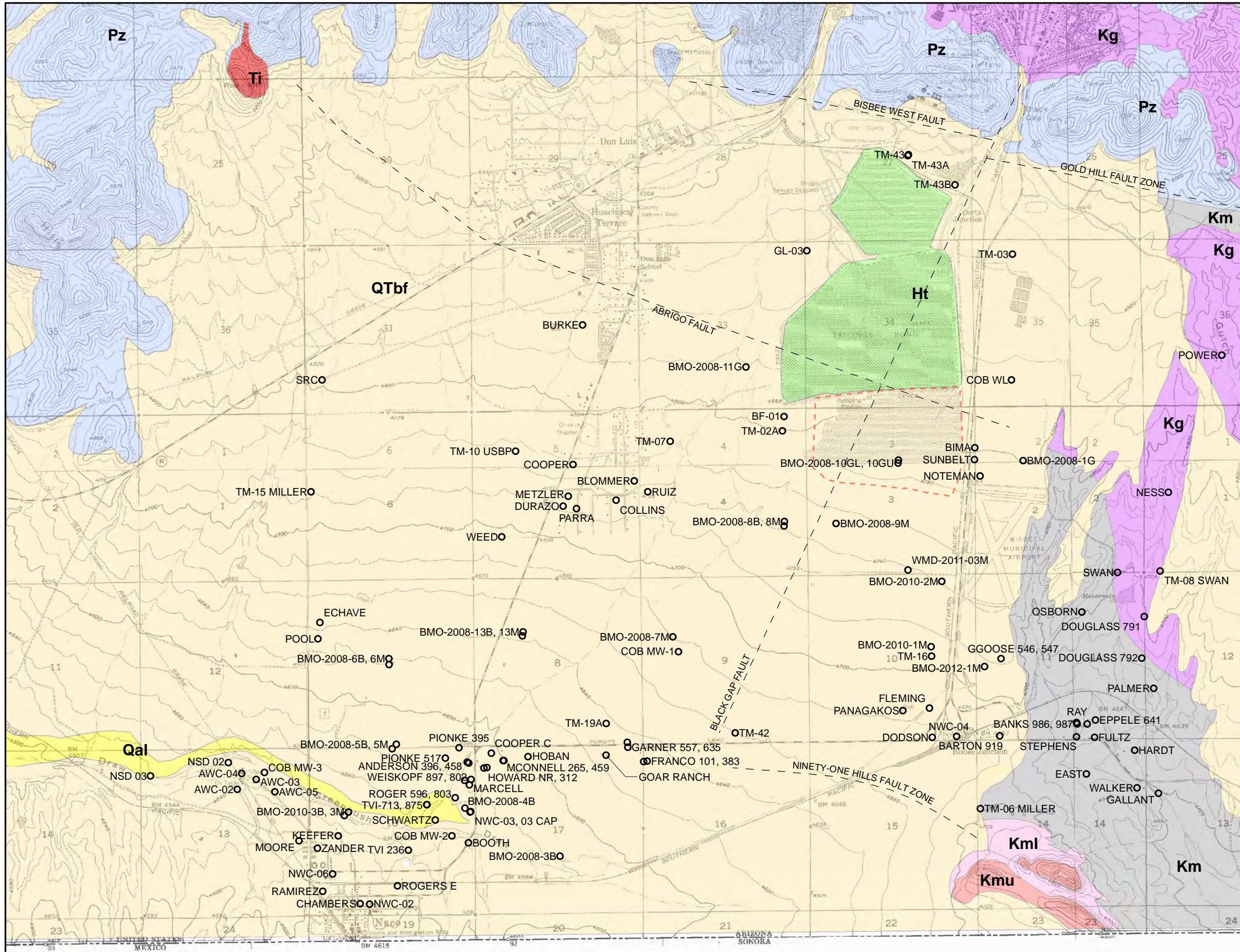
⁵ Depth to Water measurement provided by Naco Water Company

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

⁷ Well previously identified as ROGERS 803

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

FIGURES



Legend

- Sampling / Water Level Location
Not all wells shown are currently sampled. Current sampling locations are based on the Revised Monitoring Program approved by ADEQ in 2010.
- Former Evaporation Pond

Geologic Unit

- Ht - Holocene Tailings
- Qal - Quaternary Alluvium
- QTbf - Quaternary-Tertiary Basin Fill
- Ti - Tertiary Intrusive
- Kc - Cintura Formation
- Kmu - Upper Mural Limestone
- Kml - Lower Mural Limestone
- Km - Morita Formation
- Kg - Glance Conglomerate
- Pz - Paleozoic Sedimentary Formations

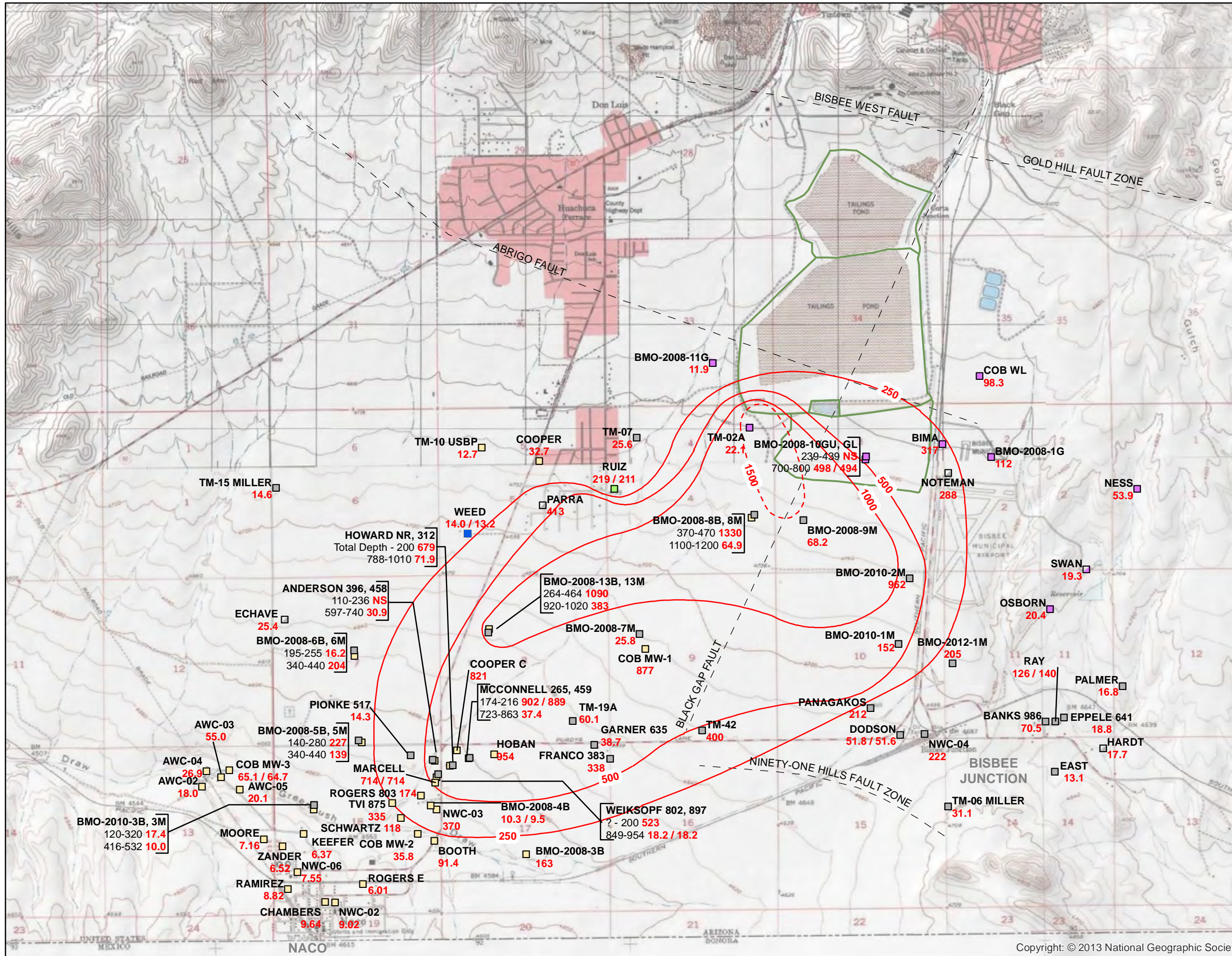
Undifferentiated Bisbee Group



Notes:
Projection: UTM Zone 12N NAD83

Date	10/1/12	File ID	055038-009J

FIGURE 1
Generalized Geology and Well Locations



Legend

- RAY Well ID
- 126 / 140 SO4 Concentration (mg/L)
- SO4 Elevation Contours (dashed where inferred)
- - - Faults (inferred)
- CTSA Facility

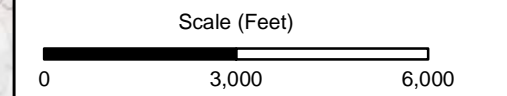
Co-located Wells

- 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

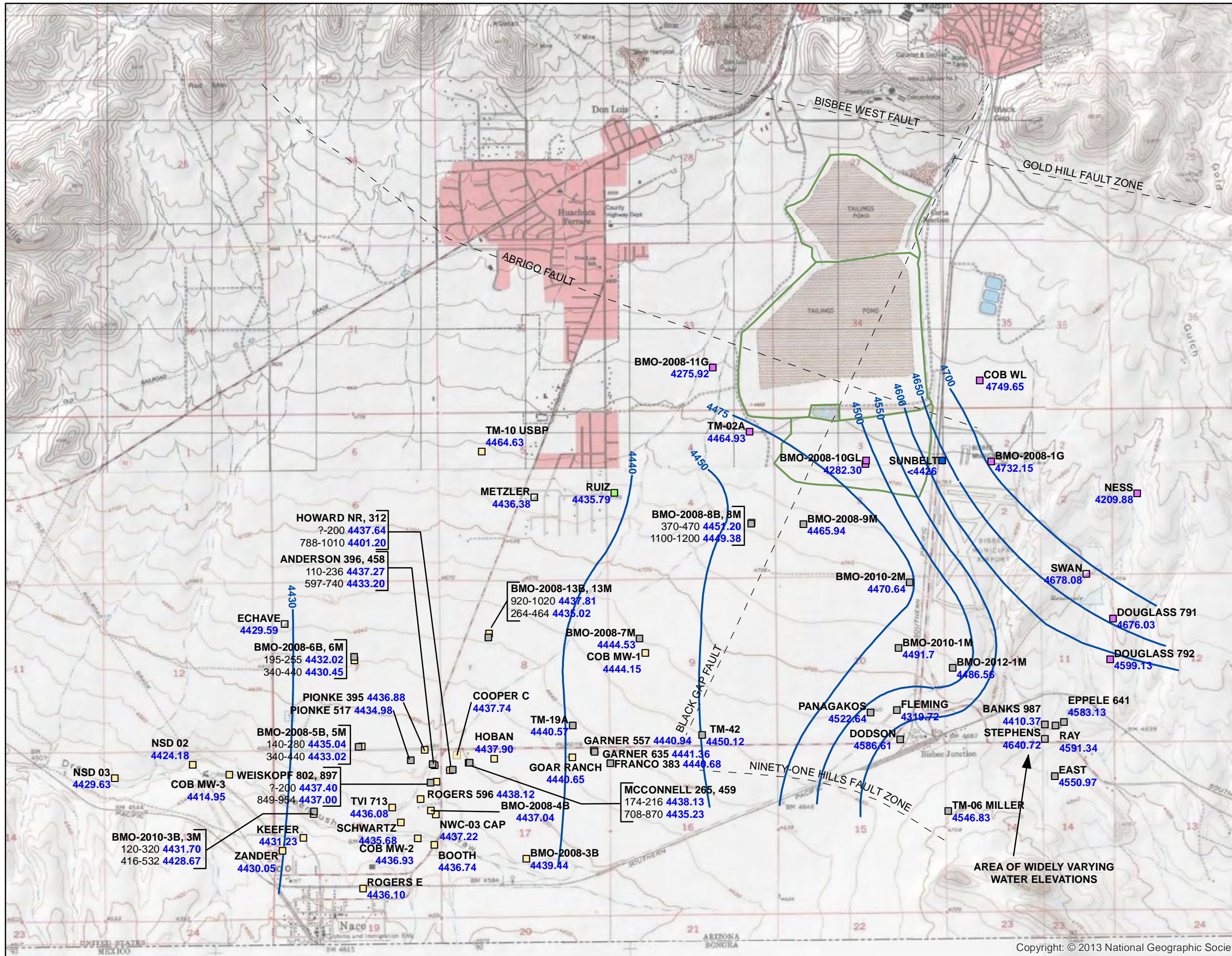
Undifferentiated Bisbee Group: Cintura, Mural Limestone, and Morita Formations



Notes:
 Projection: UTM Zone 12N NAD83
 NS = Not Sampled
 mg/L = milligrams per liter
 In areas where no data were collected in the first quarter, contours are based on third quarter 2012 data.

Date	3/13/13	File ID	055038-252

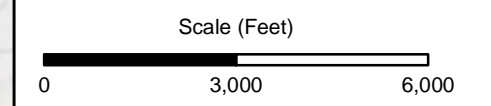
FIGURE 2
 Sulfate Concentrations in Groundwater for First Quarter 2013



- Legend**
- RAY Well ID
 - 4591.34 Groundwater Elevation (ft amsl)
 - Groundwater Elevation Contours (dashed where inferred)
 - - - Faults (inferred)
 - CTSA Facility

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

- Screened Formation**
- Basin Fill
 - Basin Fill and Undifferentiated Bisbee Group
 - Undifferentiated Bisbee Group
 - Undifferentiated Bisbee Group - Estimated
 - Undifferentiated Bisbee Group and Glance Conglomerate
 - Glance Conglomerate
 - Glance Conglomerate-Estimated
 - Undifferentiated Bisbee Group: Cintura, Mural Limestone, and Morita Formations

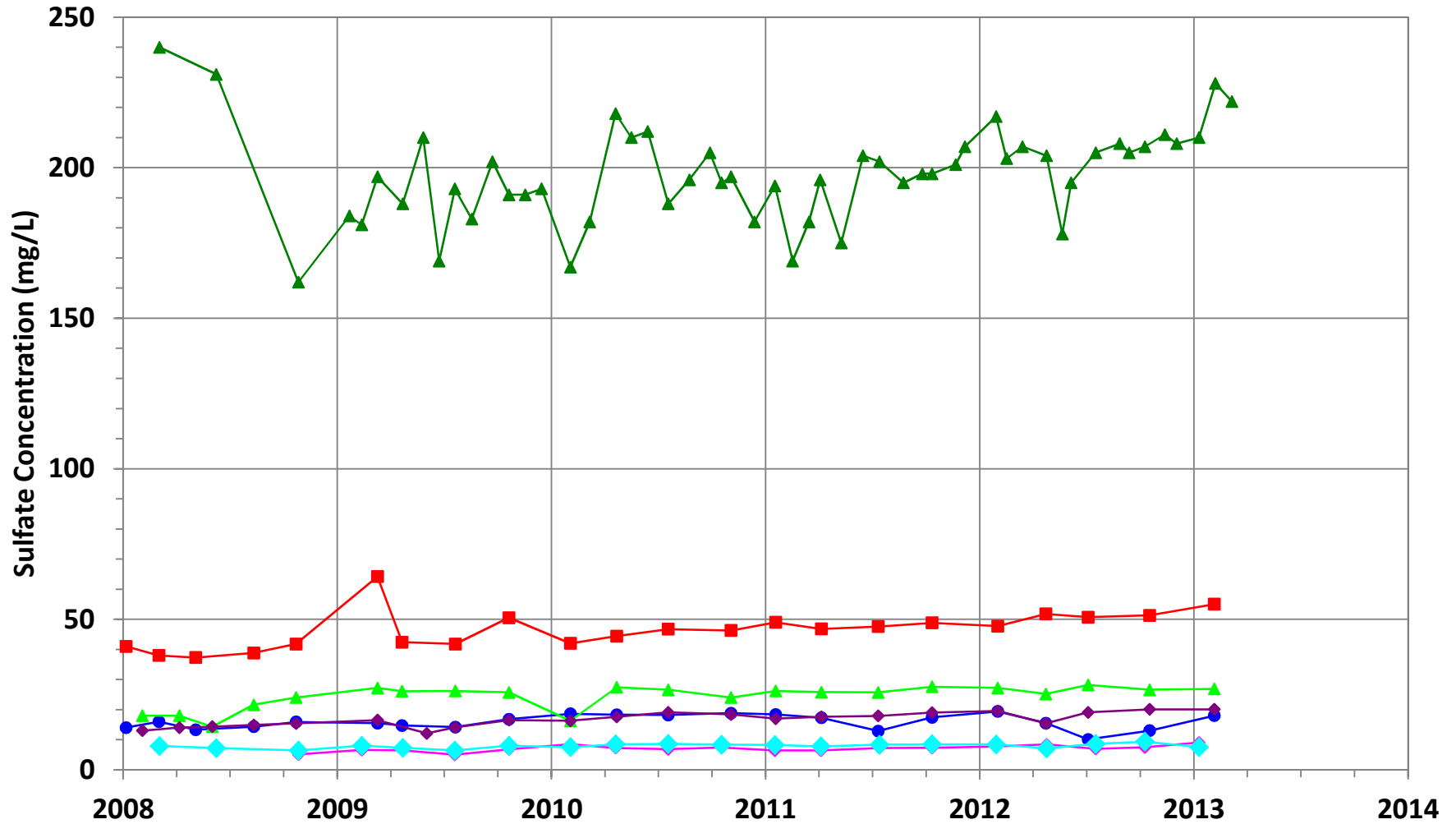


Notes:


Projection: UTM Zone 12N NAD83
amsl = above mean sea level
bls = below land surface
Groundwater elevation contour intervals are irregular. The intervals were chosen to show hydraulic gradient across the study area while maintaining the legibility of the data.

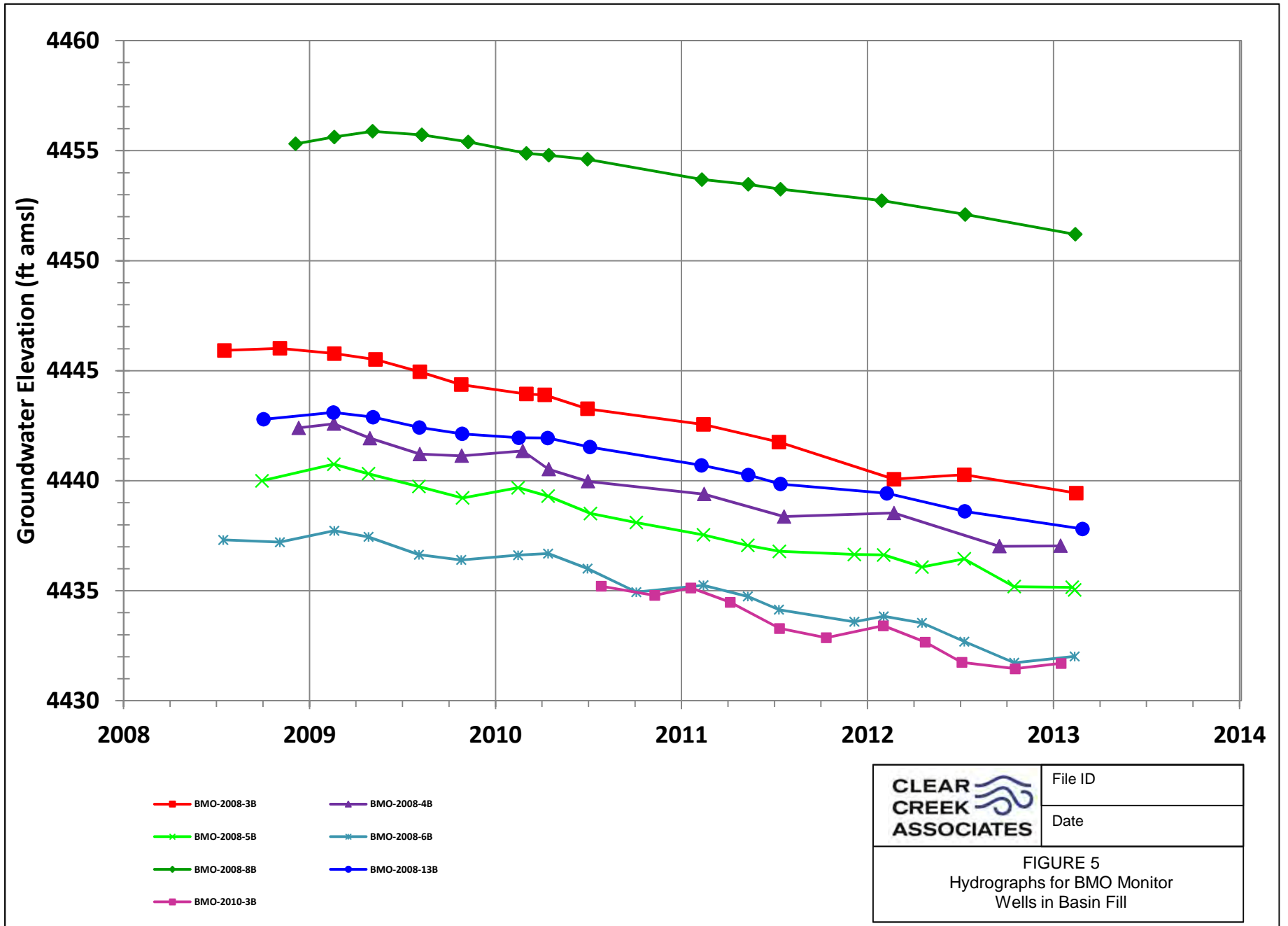
Date	3/7/13	File ID	055038-237

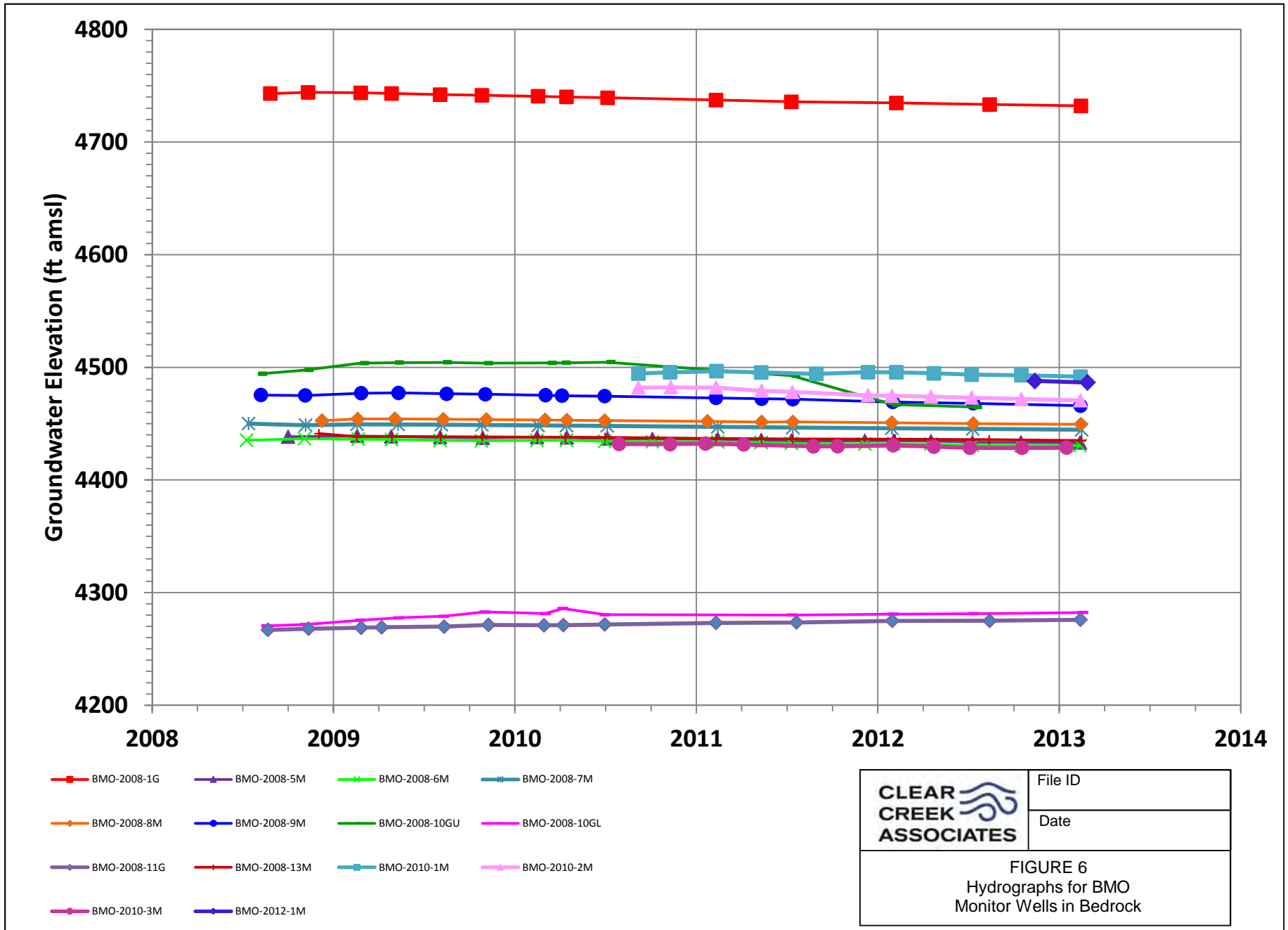
FIGURE 3
Groundwater Elevations for First Quarter 2013



- AWC-02
- ▲ AWC-04
- ◆ NWC-02
- ◆ NWC-06
- AWC-03
- ◆ AWC-05
- ▲ NWC-04

	File ID
	Date
FIGURE 4 Sulfate Concentration Over Time in Public Drinking Water Supply Wells	





APPENDIX A
SURVEY DATA

APPENDIX A
Survey Data

Point ID	Survey Location	Northing (UTM meters)	Easting (UTM meters)	Elevation (meters)
BOOTH	Top of Casing	3468049.945	601132.466	1392.394
ECHAVE	Top of Casing	3470168.485	599703.333	1416.358

All coordinates listed in UTM Zone 12N Geoid 09 (Meters)
Data Provided by CQB

APPENDIX B
DATA VERIFICATION REPORT

APPENDIX B
DATA VERIFICATION REPORT
FIRST QUARTER 2013
GROUNDWATER MONITORING REPORT

Prepared for:

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

Prepared by:

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

April 15, 2013

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1. INTRODUCTION

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

The laboratory reports for the first quarter 2013 samples including COC forms, laboratory correspondence, QC summaries, data qualifiers, 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 all 110 samples collected by Clear Creek and CQB are contained in 9 reports with the SVL laboratory identification numbers in the following table.

SVL ID	WELLS REPORTED
	Number of wells sampled: 80 Number of well samples collected (including duplicates): 95 Number of duplicate samples collected: 10 Number of field and equipment blanks collected: 15 Total number of samples collected: 110
W3A0130	BOOTH
W3A0169	OSBORN, COB MW-2, PIONKE 517, SWAN, NESS, FB20130109, EQB20130109, PALMER, NWC-04, NWC-03, NWC-02, NWC-06, FB20130110, EQB20130110, MCCONNELL 265, DUP20130110
W3A0301	GARNER 635, COOPER, RUIZ, PARRA, DUP20130111, FRANCO 383, MCCONNELL 459, DUP20130115, ROGERS 803, FB20130115, EQB20130114, BMO-2008-4B, MOORE, ZANDER, CHAMBERS, KEEFER
W3A0318	WEISKOPF 802, WEISKOP 897, BMO-2010-3B, BMO-2010-3M, DUP20130116, ANDERSON 458, NOTEMAN, EPPELE 641, FB20130117, EQB20130117, RAY, EAST, RAMIREZ, ROGERS E, DUP20130117, DODSON, BANKS 986, EQB20130118, FB20130118, ECHAVE, DUP20130118
W3B0144	AWC-05, AWC-02, AWC-03, AWC-04, COB MW-3, COB MW-1, COB WL, HARDT, TVI875, HOWARD NR, HOWARD 312, PANAGAKOS, FRANCO 383, MARCELL, NWC-04, BMO-2008-5B, WEED, DUP02052013, DUP02062013, DUP02072013, FB02062013, EQB02062013, FB02072013, FBEQB02072013
W3C0022	TM-7, BMO-2008-13B, COOPER C, BMO-2012-1M
W3B0318	BMO-2008-5M, BMO-2008-5B, BMO-2008-6M, BMO-2008-6B, TM-15, TM-42, BMO-2010-1M, BMO-2010-2M, BMO-2008-9M, BMO-2008-11G, BMO-2008-8B, BMO-2008-8M, BMO-2008-1G, TM-6, TM-19A, HOBAN, BMO-2008-3B, BMO-2008-7M, BMO-2008-13M, BMO-2008-10GL, TM-2A, DUP-021813, EQB-021813
W3C0225	FRANCO 383, TM-10, NWC-04
W3C0284	BIMA, SCHWARTZ

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

During this monitoring period, 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 0.2 standard units for pH, 2 degrees Celsius for temperature and 200 microSiemens/centimeter for specific conductance as described in Section 4.2.1.2 of the QAPP.

During this monitoring period 95 groundwater samples (duplicate and multiple samples included) were collected for analysis from 80 wells. Groundwater samples were collected by filtering the sample into a 250 milliliter bottle using clean filtration apparatus and one disposable 0.45-micron filter. All bottles were provided by 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 a 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 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 five days of sample collection and the time between sample collection and receipt of samples by SVL was one to seven days. The samples were collected, shipped, and received by SVL within the established holding time for dissolved sulfate analysis in accordance with United States Environmental Protection Agency (EPA) Method 300.0.

4. LABORATORY QUALITY CONTROL

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

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

4.1 Licensure

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

4.2 Analytical Method

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

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

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

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

mg/L = milligrams per liter

¹ Target MDL from Table F.2 of QAPP

4.4 Timeliness

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

4.5 Quality Control Measurements

The following QC samples were prepared and analyzed:

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

4.5.1 Calibration Blanks and Calibration Verification Standards

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

4.5.2 Analytical Spike

Analytical spike samples were analyzed for the EPA Method 300.0. The spike samples were prepared by adding a sulfate spike to randomly chosen samples. Instances in which analytical spike recoveries were unusable were qualified with an “M3” flag indicating that the analyte concentration was disproportionate to the spike level or an “M1” flag indicating that the spike level was too high. In each case where an M1 or M3 qualifier was used the laboratory control sample recovery was acceptable and no corrective action was required. The laboratory control samples were prepared by adding a sulfate spike to de-ionized water.

4.5.3 Laboratory Duplicate Samples

Analyses of laboratory duplicate samples were reviewed as part of this quality data verification report. Field duplicate samples are discussed in Section 5.1. In all cases where the relative percent difference (RPD) could be calculated 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

No samples required re-analysis for the first quarter 2013.

4.5.5 Blank Samples

During the first quarter 2013, 15 blank samples were collected, including seven field blanks (FB20130109, FB20130110, FB20130115, FB20130117, FB20130118, FB02062013, and FB02072013) and eight field equipment blanks (EQB20130109, EQB20120110, EQB20130114, EQB20130117, EQB20130118, EQB02062013, EQB02072013, and EQB-021813). None of the blank samples collected in the first quarter 2013 had sulfate concentrations above the reporting limit of 0.30 mg/L. The results demonstrate that the sulfate concentrations reported in the first 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 first 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 10 field filtered duplicate samples (DUP20130110, DUP20130111, DUP20130115, DUP20130116, DUP20130117, DUP20130118, DUP02052013, DUP02062013, DUP02072013, and DUP-0218-13) were collected by Clear Creek and CQB for analysis. The collection of 10 duplicate samples meets the QA/QC method and quantity goal stated in Section 4.2.1.5 of the QAPP.

Sulfate results for the 10 duplicate samples collected are provided in the table below. The range of RPD values was between 0.00 and 10.53 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
W3A0169	MCCONNELL 265	DUP20130110	902	889	1.45%
W3A0301	RUIZ	DUP20130111	219	211	3.72%
W3A0301	BMO-2008-4B	DUP20130115	10.3	9.5	8.08%
W3A0318	WEISKOPF 897	DUP20130116	18.2	18.2	0.00%
W3A0318	RAY	DUP20130117	126	140	10.53%
W3A0318	DODSON	DUP20130118	51.8	51.6	0.39%
W3B0144	COB MW-3	DUP02052013	65.1	64.7	0.62%
W3B0144	MARCELL	DUP02062103	714	714	0.00%
W3B0144	WEED	DUP02072013	14.0	13.2	5.88%
W3B0318	BMO-2008-10GL	DUP-021813	498	494	0.81%

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 first 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 meet 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. 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.
- 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.

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 Order

Work Order: **W3A0130**

Reported: 14-Jan-13 14:03

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BOOTH	W3A0130-01	Ground Water	05-Jan-13 09:40	BD	10-Jan-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

(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: **W3A0130**

Reported: 14-Jan-13 14:03

Client Sample ID: **BOOTH**

SVL Sample ID: **W3A0130-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 05-Jan-13 09:40

Received: 10-Jan-13

Sampled By: BD

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	91.4	mg/L	3.00	0.70	10	W302220	AEW	01/10/13 12:08	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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 Order
Work Order: **W3A0130**
Reported: 14-Jan-13 14:03

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	W302220	10-Jan-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	10.1	10.0	101	90 - 110	W302220	10-Jan-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	429	411	10.0	R > 4S	90 - 110	W302220	11-Jan-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 SO4	mg/L	426	429	10.0	0.5	20	W302220	10-Jan-13	D2
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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

SVL holds the following certifications:

AZ:0538, CA:2080, FL(NELAC):E87993, ID:ID00019 & ID00965 (Microbiology), NV:ID000192007A, WA:1268



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

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W3A0169**
Reported: 21-Jan-13 13:34

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
OSBORN	W3A0169-01	Ground Water	08-Jan-13 15:53	ML	11-Jan-2013
COB MW-2	W3A0169-02	Ground Water	09-Jan-13 10:01	ML	11-Jan-2013
PIONKE 517	W3A0169-03	Ground Water	09-Jan-13 12:21	ML	11-Jan-2013
SWAN	W3A0169-04	Ground Water	09-Jan-13 14:30	ML	11-Jan-2013
NESS	W3A0169-05	Ground Water	09-Jan-13 16:40	ML	11-Jan-2013
FB20130109	W3A0169-06	Water	09-Jan-13 16:30	ML	11-Jan-2013
EQB20130109	W3A0169-07	Water	09-Jan-13 16:32	ML	11-Jan-2013
PALMER	W3A0169-08	Ground Water	09-Jan-13 17:15	ML	11-Jan-2013
NWC-04	W3A0169-09	Ground Water	10-Jan-13 09:00	ML	11-Jan-2013
NWC-03	W3A0169-10	Ground Water	10-Jan-13 09:40	ML	11-Jan-2013
NWC-02	W3A0169-11	Ground Water	10-Jan-13 10:10	ML	11-Jan-2013
NWC-06	W3A0169-12	Ground Water	10-Jan-13 10:38	ML	11-Jan-2013
FB20130110	W3A0169-13	Water	10-Jan-13 11:42	ML	11-Jan-2013
EQB20130110	W3A0169-14	Water	10-Jan-13 12:10	ML	11-Jan-2013
McCONNELL 265	W3A0169-15	Water	10-Jan-13 12:15	ML	11-Jan-2013
DUP20130110	W3A0169-16	Water	10-Jan-13 18:00	ML	11-Jan-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

(208) 784-1258

Fax (208) 783-0891

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

Client Sample ID: **OSBORN**

SVL Sample ID: **W3A0169-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 08-Jan-13 15:53

Received: 11-Jan-13

Sampled By: ML

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	20.4	mg/L	0.30	0.07		W303091	AEW	01/15/13 12:21	
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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 - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

Client Sample ID: **COB MW-2**

SVL Sample ID: **W3A0169-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 09-Jan-13 10:01

Received: 11-Jan-13

Sampled By: ML

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	35.8	mg/L	0.30	0.07		W303091	AEW	01/15/13 12:34	
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John Kern
Laboratory Director



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

Client Sample ID: **PIONKE 517**

SVL Sample ID: **W3A0169-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 09-Jan-13 12:21

Received: 11-Jan-13

Sampled By: ML

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	14.3	mg/L	0.30	0.07		W303091	AEW	01/15/13 12:46	
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John Kern
Laboratory Director



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

Client Sample ID: **SWAN**

SVL Sample ID: **W3A0169-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 09-Jan-13 14:30

Received: 11-Jan-13

Sampled By: ML

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	19.3	mg/L	0.30	0.07		W303091	AEW	01/15/13 12:58	
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John Kern
Laboratory Director



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

Client Sample ID: **NESS**

SVL Sample ID: **W3A0169-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 09-Jan-13 16:40

Received: 11-Jan-13

Sampled By: ML

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	53.9	mg/L	1.50	0.35	5	W303091	AEW	01/15/13 13:11	D2
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John Kern
Laboratory Director



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

Client Sample ID: **FB20130109**

SVL Sample ID: **W3A0169-06 (Water)**

Sample Report Page 1 of 1

Sampled: 09-Jan-13 16:30

Received: 11-Jan-13

Sampled By: ML

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		W303183	AEW	01/17/13 21:01	
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John Kern
Laboratory Director



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

Client Sample ID: **EQB20130109**

SVL Sample ID: **W3A0169-07 (Water)**

Sample Report Page 1 of 1

Sampled: 09-Jan-13 16:32

Received: 11-Jan-13

Sampled By: ML

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		W303183	AEW	01/17/13 21:10	
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John Kern
Laboratory Director



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

Client Sample ID: **PALMER**

SVL Sample ID: **W3A0169-08 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 09-Jan-13 17:15

Received: 11-Jan-13

Sampled By: ML

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	16.8	mg/L	0.30	0.07		W303091	AEW	01/15/13 13:23	
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John Kern
Laboratory Director



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

Client Sample ID: **NWC-04**

SVL Sample ID: **W3A0169-09 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jan-13 09:00

Received: 11-Jan-13

Sampled By: ML

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	210	mg/L	3.00	0.70	10	W303091	AEW	01/15/13 13:36	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

(208) 784-1258

Fax (208) 783-0891

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

Client Sample ID: **NWC-03**

SVL Sample ID: **W3A0169-10 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jan-13 09:40

Received: 11-Jan-13

Sampled By: ML

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	370	mg/L	3.00	0.70	10	W303091	AEW	01/15/13 14:13	D2
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John Kern
Laboratory Director



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Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

Client Sample ID: **NWC-02**

SVL Sample ID: **W3A0169-11 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jan-13 10:10

Received: 11-Jan-13

Sampled By: ML

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	9.02	mg/L	0.30	0.07		W303091	AEW	01/15/13 14:25	
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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
Laboratory Director



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

Client Sample ID: **NWC-06**

SVL Sample ID: **W3A0169-12 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jan-13 10:38

Received: 11-Jan-13

Sampled By: ML

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	7.55	mg/L	0.30	0.07		W303091	AEW	01/15/13 14:38	
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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 - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

Client Sample ID: **FB20130110**

SVL Sample ID: **W3A0169-13 (Water)**

Sample Report Page 1 of 1

Sampled: 10-Jan-13 11:42

Received: 11-Jan-13

Sampled By: ML

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		W303183	AEW	01/17/13 21:20	
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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 - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

Client Sample ID: **EQB20130110**

SVL Sample ID: **W3A0169-14 (Water)**

Sample Report Page 1 of 1

Sampled: 10-Jan-13 12:10

Received: 11-Jan-13

Sampled By: ML

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		W303183	AEW	01/17/13 21:29	
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John Kern
Laboratory Director



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

Client Sample ID: **McCONNELL 265**

SVL Sample ID: **W3A0169-15 (Water)**

Sample Report Page 1 of 1

Sampled: 10-Jan-13 12:15

Received: 11-Jan-13

Sampled By: ML

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	902	mg/L	15.0	3.50	50	W303091	AEW	01/15/13 14:50	D2
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John Kern
Laboratory Director



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

Client Sample ID: **DUP20130110**

SVL Sample ID: **W3A0169-16 (Water)**

Sample Report Page 1 of 1

Sampled: 10-Jan-13 18:00

Received: 11-Jan-13

Sampled By: ML

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	889	mg/L	15.0	3.50	50	W303091	AEW	01/15/13 15:03	D2
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John Kern
Laboratory Director



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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

Project Name: Copper Queen Branch Sulfate Mitigation Order
 Work Order: **W3A0169**
 Reported: 21-Jan-13 13:34

Quality Control - BLANK Data

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

EPA 300.0 Sulfate as SO4 mg/L <0.30 0.07 0.30 W303183 17-Jan-13

Dissolved Anions by Ion Chromatography

EPA 300.0 Sulfate as SO4 mg/L <0.30 0.07 0.30 W303091 15-Jan-13

Quality Control - LABORATORY CONTROL SAMPLE Data

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

EPA 300.0 Sulfate as SO4 mg/L 9.87 10.0 98.7 90 - 110 W303183 17-Jan-13

Dissolved Anions by Ion Chromatography

EPA 300.0 Sulfate as SO4 mg/L 10.4 10.0 104 90 - 110 W303091 15-Jan-13

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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Anions by Ion Chromatography

EPA 300.0 Sulfate as SO4 mg/L 656 658 10.0 R > 4S 90 - 110 W303183 17-Jan-13 D2

EPA 300.0 Sulfate as SO4 mg/L 313 306 10.0 R > 4S 90 - 110 W303183 17-Jan-13 D2

Dissolved Anions by Ion Chromatography

EPA 300.0 Sulfate as SO4 mg/L 12.3 1.20 10.0 110 90 - 110 W303091 15-Jan-13

EPA 300.0 Sulfate as SO4 mg/L 36.7 25.2 10.0 116 90 - 110 W303091 15-Jan-13 M1

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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Anions by Ion Chromatography

EPA 300.0 Sulfate as SO4 mg/L 651 656 10.0 0.8 20 W303183 17-Jan-13 D2

Dissolved Anions by Ion Chromatography

EPA 300.0 Sulfate as SO4 mg/L 12.1 12.3 10.0 1.4 20 W303091 15-Jan-13



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0169**

Reported: 21-Jan-13 13:34

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.
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



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

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W3A0301**
Reported: 31-Jan-13 14:05

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
GARNER 635	W3A0301-01	Ground Water	11-Jan-13 10:15	ML	18-Jan-2013
COOPER	W3A0301-02	Ground Water	11-Jan-13 11:15	ML	18-Jan-2013
RUIZ	W3A0301-03	Ground Water	11-Jan-13 12:15	ML	18-Jan-2013
PARRA	W3A0301-04	Ground Water	11-Jan-13 13:40	ML	18-Jan-2013
DUP20130111	W3A0301-05	Ground Water	11-Jan-13 18:00	ML	18-Jan-2013
FRANCO 383	W3A0301-06	Ground Water	15-Jan-13 14:45	ML	18-Jan-2013
MCCONNELL 459	W3A0301-07	Ground Water	15-Jan-13 12:50	ML	18-Jan-2013
DUP20130115	W3A0301-08	Ground Water	15-Jan-13 18:00	ML	18-Jan-2013
ROGERS 803	W3A0301-09	Ground Water	15-Jan-13 17:24	ML	18-Jan-2013
FB20130115	W3A0301-10	Ground Water	15-Jan-13 16:21	ML	18-Jan-2013
EQB20130115	W3A0301-11	Other	15-Jan-13 16:40	ML	18-Jan-2013
BMO-2008-4B	W3A0301-12	Ground Water	15-Jan-13 16:47	ML	18-Jan-2013
MOORE	W3A0301-13	Ground Water	10-Jan-13 16:30	ML	18-Jan-2013
ZANDER	W3A0301-14	Ground Water	10-Jan-13 15:45	ML	18-Jan-2013
CHAMBERS	W3A0301-15	Ground Water	10-Jan-13 16:50	ML	18-Jan-2013
KEEFER	W3A0301-16	Ground Water	10-Jan-13 14:40	ML	18-Jan-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

(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: **W3A0301**

Reported: 31-Jan-13 14:05

Client Sample ID: **GARNER 635**

SVL Sample ID: **W3A0301-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 11-Jan-13 10:15

Received: 18-Jan-13

Sampled By: ML

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	38.7	mg/L	0.30	0.07		W305081	AEW	01/29/13 15:29	
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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 Order

Work Order: **W3A0301**

Reported: 31-Jan-13 14:05

Client Sample ID: **COOPER**

SVL Sample ID: **W3A0301-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 11-Jan-13 11:15

Received: 18-Jan-13

Sampled By: ML

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	32.7	mg/L	0.30	0.07		W305081	AEW	01/29/13 16:05	
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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 Order

Work Order: **W3A0301**

Reported: 31-Jan-13 14:05

Client Sample ID: **RUIZ**

SVL Sample ID: **W3A0301-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 11-Jan-13 12:15

Received: 18-Jan-13

Sampled By: ML

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	219	mg/L	3.00	0.70	10	W305081	AEW	01/29/13 16:17	D2
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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 Order

Work Order: **W3A0301**

Reported: 31-Jan-13 14:05

Client Sample ID: **PARRA**

SVL Sample ID: **W3A0301-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 11-Jan-13 13:40

Received: 18-Jan-13

Sampled By: ML

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	413	mg/L	7.50	1.75	25	W305081	AEW	01/29/13 16:29	D2
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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 Order

Work Order: **W3A0301**

Reported: 31-Jan-13 14:05

Client Sample ID: **DUP20130111**

SVL Sample ID: **W3A0301-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 11-Jan-13 18:00

Received: 18-Jan-13

Sampled By: ML

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	7.50	1.75	25	W305081	AEW	01/29/13 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



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: **W3A0301**

Reported: 31-Jan-13 14:05

Client Sample ID: **FRANCO 383**

SVL Sample ID: **W3A0301-06 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Jan-13 14:45

Received: 18-Jan-13

Sampled By: ML

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	333	mg/L	3.00	0.70	10	W305081	AEW	01/29/13 17:16	D2
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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 Order

Work Order: **W3A0301**

Reported: 31-Jan-13 14:05

Client Sample ID: **MCCONNELL 459**

SVL Sample ID: **W3A0301-07 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Jan-13 12:50

Received: 18-Jan-13

Sampled By: ML

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	37.4	mg/L	1.50	0.35	5	W305081	AEW	01/29/13 17:28	D1
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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 Order

Work Order: **W3A0301**

Reported: 31-Jan-13 14:05

Client Sample ID: **DUP20130115**

SVL Sample ID: **W3A0301-08 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Jan-13 18:00

Received: 18-Jan-13

Sampled By: ML

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	9.50	mg/L	1.50	0.35	5	W305081	AEW	01/29/13 17:40	D1
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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 Order

Work Order: **W3A0301**

Reported: 31-Jan-13 14:05

Client Sample ID: **ROGERS 803**

SVL Sample ID: **W3A0301-09 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Jan-13 17:24

Received: 18-Jan-13

Sampled By: ML

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	174	mg/L	3.00	0.70	10	W305081	AEW	01/29/13 17:52	D2
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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 Order

Work Order: **W3A0301**

Reported: 31-Jan-13 14:05

Client Sample ID: **FB20130115**

SVL Sample ID: **W3A0301-10 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Jan-13 16:21

Received: 18-Jan-13

Sampled By: ML

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		W305059	AEW	01/28/13 22:17	
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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 Order

Work Order: **W3A0301**

Reported: 31-Jan-13 14:05

Client Sample ID: **EQB20130115**

SVL Sample ID: **W3A0301-11 (Other)**

Sample Report Page 1 of 1

Sampled: 15-Jan-13 16:40

Received: 18-Jan-13

Sampled By: ML

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		W305059	AEW	01/28/13 22:28	
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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 Order

Work Order: **W3A0301**

Reported: 31-Jan-13 14:05

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

SVL Sample ID: **W3A0301-12 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Jan-13 16:47

Received: 18-Jan-13

Sampled By: ML

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	10.3	mg/L	0.30	0.07		W305081	AEW	01/29/13 18:04	
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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 Order

Work Order: **W3A0301**

Reported: 31-Jan-13 14:05

Client Sample ID: **MOORE**

SVL Sample ID: **W3A0301-13 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jan-13 16:30

Received: 18-Jan-13

Sampled By: ML

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	7.16	mg/L	0.30	0.07		W305081	AEW	01/29/13 18:16	
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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 Order

Work Order: **W3A0301**

Reported: 31-Jan-13 14:05

Client Sample ID: **ZANDER**

SVL Sample ID: **W3A0301-14 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jan-13 15:45

Received: 18-Jan-13

Sampled By: ML

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	6.52	mg/L	0.30	0.07		W305081	AEW	01/29/13 18:28	
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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 Order

Work Order: **W3A0301**

Reported: 31-Jan-13 14:05

Client Sample ID: **CHAMBERS**

SVL Sample ID: **W3A0301-15 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jan-13 16:50

Received: 18-Jan-13

Sampled By: ML

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	9.64	mg/L	0.30	0.07		W305081	AEW	01/29/13 18:40	
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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
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 Order

Work Order: **W3A0301**

Reported: 31-Jan-13 14:05

Client Sample ID: **KEEFER**

SVL Sample ID: **W3A0301-16 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jan-13 14:40

Received: 18-Jan-13

Sampled By: ML

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	6.37	mg/L	0.30	0.07		W305081	AEW	01/29/13 18:52	
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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 Order

Work Order: **W3A0301**

Reported: 31-Jan-13 14:05

Quality Control - BLANK Data

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

EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W305059	28-Jan-13	
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W305081	29-Jan-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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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	10.1	10.0	101	90 - 110	W305059	28-Jan-13	
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	10.1	10.0	101	90 - 110	W305081	29-Jan-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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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	146	136	10.0	102	90 - 110	W305059	28-Jan-13	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	1700	1570	10.0	R > 4S	90 - 110	W305059	29-Jan-13	D2,M3

Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	49.2	38.7	10.0	106	90 - 110	W305081	29-Jan-13	
EPA 300.0	Sulfate as SO4	mg/L	528	523	10.0	R > 4S	90 - 110	W305081	29-Jan-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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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	1680	1700	10.0	1.3	20	W305059	29-Jan-13	D2
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	49.4	49.2	10.0	0.3	20	W305081	29-Jan-13	
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SVL holds the following certifications:

AZ:0538, CA:2080, FL(NELAC):E87993, ID:ID00019 & ID00965 (Microbiology), NV:ID000192007A, WA:1268

Work order Report Page 18 of 19



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0301**

Reported: 31-Jan-13 14:05

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



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

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W3A0318**
Reported: 31-Jan-13 14:07

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
WEISKOPF 802	W3A0318-01	Ground Water	16-Jan-13 16:27	ML	22-Jan-2013
WEISKOPF 897	W3A0318-02	Ground Water	16-Jan-13 17:27	ML	22-Jan-2013
BMO-2010-3B	W3A0318-03	Ground Water	16-Jan-13 11:33	ML	22-Jan-2013
BMO-2010-3M	W3A0318-04	Ground Water	16-Jan-13 14:23	ML	22-Jan-2013
DUP20130116	W3A0318-05	Ground Water	16-Jan-13 18:00	ML	22-Jan-2013
ANDERSON 458	W3A0318-06	Ground Water	17-Jan-13 13:12	ML	22-Jan-2013
NOTEMAN	W3A0318-07	Ground Water	17-Jan-13 17:31	ML	22-Jan-2013
EPPELE 641	W3A0318-08	Ground Water	17-Jan-13 09:59	ML	22-Jan-2013
FB20130117	W3A0318-09	DI WATER	17-Jan-13 10:00	ML	22-Jan-2013
EQB20130117	W3A0318-10	DI WATER	17-Jan-13 10:32	ML	22-Jan-2013
RAY	W3A0318-11	Ground Water	17-Jan-13 10:45	ML	22-Jan-2013
EAST	W3A0318-12	Ground Water	17-Jan-13 11:32	ML	22-Jan-2013
RAMIREZ	W3A0318-13	Ground Water	17-Jan-13 15:15	ML	22-Jan-2013
ROGERS E	W3A0318-14	Ground Water	17-Jan-13 16:30	ML	22-Jan-2013
DUP20130117	W3A0318-15	Ground Water	17-Jan-13 18:00	ML	22-Jan-2013
DODSON	W3A0318-16	Ground Water	18-Jan-13 12:27	ML	22-Jan-2013
BANKS 986	W3A0318-17	Ground Water	18-Jan-13 10:50	ML	22-Jan-2013
EQB20130118	W3A0318-18	DI WATER	18-Jan-13 10:23	ML	22-Jan-2013
FB20130118	W3A0318-19	DI WATER	18-Jan-13 10:21	ML	22-Jan-2013
ECHAVE	W3A0318-20	Ground Water	18-Jan-13 14:48	ML	22-Jan-2013
DUP20130118	W3A0318-21	Ground Water	18-Jan-13 18:00	ML	22-Jan-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

(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: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **WEISKOPF 802**

Sampled: 16-Jan-13 16:27

SVL Sample ID: **W3A0318-01 (Ground Water)**

Received: 22-Jan-13

Sample Report Page 1 of 1

Sampled By: ML

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	523	mg/L	7.50	1.75	25	W305081	AEW	01/29/13 19:04	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

(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: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **WEISKOPF 897**

Sampled: 16-Jan-13 17:27

SVL Sample ID: **W3A0318-02 (Ground Water)**

Received: 22-Jan-13

Sample Report Page 1 of 1

Sampled By: ML

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	18.2	mg/L	0.30	0.07		W305081	AEW	01/29/13 19:51	
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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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

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

SVL Sample ID: **W3A0318-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 16-Jan-13 11:33

Received: 22-Jan-13

Sampled By: ML

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	17.4	mg/L	0.30	0.07		W305081	AEW	01/29/13 20:03	
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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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

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

SVL Sample ID: **W3A0318-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 16-Jan-13 14:23

Received: 22-Jan-13

Sampled By: ML

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	10.0	mg/L	0.30	0.07		W305081	AEW	01/29/13 20:15	
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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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **DUP20130116**

SVL Sample ID: **W3A0318-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 16-Jan-13 18:00

Received: 22-Jan-13

Sampled By: ML

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	18.2	mg/L	0.30	0.07		W305081	AEW	01/29/13 20:27	
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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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **ANDERSON 458**

SVL Sample ID: **W3A0318-06 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 17-Jan-13 13:12

Received: 22-Jan-13

Sampled By: ML

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	30.9	mg/L	0.30	0.07		W305081	AEW	01/29/13 20:39	
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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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **NOTEMAN**

SVL Sample ID: **W3A0318-07 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 17-Jan-13 17:31

Received: 22-Jan-13

Sampled By: ML

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	288	mg/L	3.00	0.70	10	W305082	AEW	01/29/13 12:11	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



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: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **EPPELE 641**

Sampled: 17-Jan-13 09:59

SVL Sample ID: **W3A0318-08 (Ground Water)**

Sample Report Page 1 of 1

Received: 22-Jan-13

Sampled By: ML

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	18.8	mg/L	0.30	0.07		W305082	AEW	01/29/13 12:23	
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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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **FB20130117**

SVL Sample ID: **W3A0318-09 (DI WATER)**

Sample Report Page 1 of 1

Sampled: 17-Jan-13 10:00

Received: 22-Jan-13

Sampled By: ML

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		W305059	AEW	01/28/13 23:03	
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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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **EQB20130117**

SVL Sample ID: **W3A0318-10 (DI WATER)**

Sample Report Page 1 of 1

Sampled: 17-Jan-13 10:32

Received: 22-Jan-13

Sampled By: ML

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		W305059	AEW	01/28/13 23:14	
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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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **RAY**

SVL Sample ID: **W3A0318-11 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 17-Jan-13 10:45

Received: 22-Jan-13

Sampled By: ML

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	126	mg/L	3.00	0.70	10	W305082	AEW	01/29/13 12:34	D2
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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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **EAST**

SVL Sample ID: **W3A0318-12 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 17-Jan-13 11:32

Received: 22-Jan-13

Sampled By: ML

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	13.1	mg/L	0.30	0.07		W305082	AEW	01/29/13 12:46	
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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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **RAMIREZ**

Sampled: 17-Jan-13 15:15

SVL Sample ID: **W3A0318-13 (Ground Water)**

Sample Report Page 1 of 1

Received: 22-Jan-13

Sampled By: ML

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	8.82	mg/L	0.30	0.07		W305082	AEW	01/29/13 12:57	
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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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **ROGERS E**

SVL Sample ID: **W3A0318-14 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 17-Jan-13 16:30

Received: 22-Jan-13

Sampled By: ML

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	6.01	mg/L	0.30	0.07		W305082	AEW	01/29/13 13:09	
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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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **DUP20130117**

SVL Sample ID: **W3A0318-15 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 17-Jan-13 18:00

Received: 22-Jan-13

Sampled By: ML

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	140	mg/L	3.00	0.70	10	W305082	AEW	01/29/13 19:42	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **DODSON**

SVL Sample ID: **W3A0318-16 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Jan-13 12:27

Received: 22-Jan-13

Sampled By: ML

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	51.8	mg/L	3.00	0.70	10	W305082	AEW	01/29/13 14:18	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

(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: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **BANKS 986**

SVL Sample ID: **W3A0318-17 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Jan-13 10:50

Received: 22-Jan-13

Sampled By: ML

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	70.5	mg/L	3.00	0.70	10	W305082	AEW	01/29/13 14:30	D2
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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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **EQB20130118**

SVL Sample ID: **W3A0318-18 (DI WATER)**

Sample Report Page 1 of 1

Sampled: 18-Jan-13 10:23

Received: 22-Jan-13

Sampled By: ML

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		W305059	AEW	01/28/13 23:26	
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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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **FB20130118**

SVL Sample ID: **W3A0318-19 (DI WATER)**

Sample Report Page 1 of 1

Sampled: 18-Jan-13 10:21

Received: 22-Jan-13

Sampled By: ML

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		W305059	AEW	01/28/13 23:37	
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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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **ECHAVE**

SVL Sample ID: **W3A0318-20 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Jan-13 14:48

Received: 22-Jan-13

Sampled By: ML

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	25.4	mg/L	0.30	0.07		W305082	AEW	01/29/13 14:41	
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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 Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

Client Sample ID: **DUP20130118**

SVL Sample ID: **W3A0318-21 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Jan-13 18:00

Received: 22-Jan-13

Sampled By: ML

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	51.6	mg/L	1.50	0.35	5	W305082	AEW	01/29/13 19:53	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



Freeport McMoRan - Bisbee 36 West Hwy 92 Bisbee, AZ 85603	Project Name: Copper Queen Branch Sulfate Mitigation Order Work Order: W3A0318 Reported: 31-Jan-13 14:07
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Quality Control - BLANK Data									
Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes	

Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W305059	28-Jan-13	
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W305081	29-Jan-13	
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W305082	29-Jan-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 SO4	mg/L	10.1	10.0	101	90 - 110	W305059	28-Jan-13	
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	10.1	10.0	101	90 - 110	W305082	29-Jan-13	
EPA 300.0	Sulfate as SO4	mg/L	10.1	10.0	101	90 - 110	W305081	29-Jan-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 SO4	mg/L	146	136	10.0	102	90 - 110	W305059	28-Jan-13	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	1700	1570	10.0	R > 4S	90 - 110	W305059	29-Jan-13	D2,M3

Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	66.3	56.4	10.0	99.6	90 - 110	W305082	29-Jan-13	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	49.2	38.7	10.0	106	90 - 110	W305081	29-Jan-13	
EPA 300.0	Sulfate as SO4	mg/L	11.7	<0.30	10.0	115	90 - 110	W305082	29-Jan-13	M1
EPA 300.0	Sulfate as SO4	mg/L	528	523	10.0	R > 4S	90 - 110	W305081	29-Jan-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 SO4	mg/L	1680	1700	10.0	1.3	20	W305059	29-Jan-13	D2
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	49.4	49.2	10.0	0.3	20	W305081	29-Jan-13	
EPA 300.0	Sulfate as SO4	mg/L	63.6	66.3	10.0	4.2	20	W305082	29-Jan-13	D2



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3A0318**

Reported: 31-Jan-13 14:07

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



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
AWC-05	W3B0144-01	Ground Water	05-Feb-13 08:55	VH	08-Feb-2013
AWC-02	W3B0144-02	Ground Water	05-Feb-13 09:28	VH	08-Feb-2013
AWC-03	W3B0144-03	Ground Water	05-Feb-13 09:11	VH	08-Feb-2013
AWC-04	W3B0144-04	Ground Water	05-Feb-13 09:43	VH	08-Feb-2013
COB-3	W3B0144-05	Ground Water	05-Feb-13 10:27	VH	08-Feb-2013
COB-1	W3B0144-06	Ground Water	05-Feb-13 13:32	VH	08-Feb-2013
COB-WL	W3B0144-07	Ground Water	05-Feb-13 15:38	VH	08-Feb-2013
HARDT	W3B0144-08	Ground Water	05-Feb-13 18:03	VH	08-Feb-2013
TVI 875	W3B0144-09	Ground Water	06-Feb-13 09:52	VH	08-Feb-2013
HOWARD NR	W3B0144-10	Ground Water	06-Feb-13 11:20	VH	08-Feb-2013
HOWARD 312	W3B0144-11	Ground Water	06-Feb-13 14:00	VH	08-Feb-2013
PANAGAKOS	W3B0144-12	Ground Water	06-Feb-13 15:42	VH	08-Feb-2013
FRANCO 383	W3B0144-13	Ground Water	06-Feb-13 17:04	VH	08-Feb-2013
MARCELL	W3B0144-14	Ground Water	06-Feb-13 17:45	VH	08-Feb-2013
NWC-04	W3B0144-15	Ground Water	07-Feb-13 11:29	VH	08-Feb-2013
BMO-2008-5B	W3B0144-16	Ground Water	07-Feb-13 13:28	VH	08-Feb-2013
WEED	W3B0144-17	Ground Water	07-Feb-13 14:10	VH	08-Feb-2013
DUP02052013	W3B0144-18	Ground Water	05-Feb-13 18:00	VH	08-Feb-2013
DUP02062013	W3B0144-19	Ground Water	06-Feb-13 18:00	VH	08-Feb-2013
DUP02072013	W3B0144-20	Ground Water	07-Feb-13 18:00	VH	08-Feb-2013
FB02062013	W3B0144-21	Ground Water	06-Feb-13 18:00	VH	08-Feb-2013
EQB02062013	W3B0144-22	Ground Water	06-Feb-13 18:00	VH	08-Feb-2013
FB02072013	W3B0144-23	Ground Water	07-Feb-13 18:00	VH	08-Feb-2013
EQB02072013	W3B0144-24	Ground Water	07-Feb-13 18:00	VH	08-Feb-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

(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: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **AWC-05**

SVL Sample ID: **W3B0144-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 05-Feb-13 08:55

Received: 08-Feb-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	20.1	mg/L	0.30	0.07		W307222	AEW	02/14/13 14:43	
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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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **AWC-02**

SVL Sample ID: **W3B0144-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 05-Feb-13 09:28

Received: 08-Feb-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	18.0	mg/L	0.30	0.07		W307222	AEW	02/14/13 15:18	
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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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **AWC-03**

SVL Sample ID: **W3B0144-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 05-Feb-13 09:11

Received: 08-Feb-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	55.0	mg/L	1.50	0.35	5	W307222	AEW	02/14/13 15:29	D2
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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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **AWC-04**

SVL Sample ID: **W3B0144-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 05-Feb-13 09:43

Received: 08-Feb-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	26.9	mg/L	0.30	0.07		W307222	AEW	02/14/13 15:41	
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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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **COB-3**

SVL Sample ID: **W3B0144-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 05-Feb-13 10:27

Received: 08-Feb-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	65.1	mg/L	1.50	0.35	5	W307222	AEW	02/14/13 15:53	D2
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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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **COB-1**

SVL Sample ID: **W3B0144-06 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 05-Feb-13 13:32

Received: 08-Feb-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	877	mg/L	15.0	3.50	50	W307222	AEW	02/14/13 16:27	D2
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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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **COB-WL**

SVL Sample ID: **W3B0144-07 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 05-Feb-13 15:38

Received: 08-Feb-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	98.3	mg/L	3.00	0.70	10	W307222	AEW	02/14/13 16:39	D2
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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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **HARDT**

SVL Sample ID: **W3B0144-08 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 05-Feb-13 18:03

Received: 08-Feb-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	17.7	mg/L	1.50	0.35	5	W307222	AEW	02/14/13 16:50	D1
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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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **TVI 875**

Sampled: 06-Feb-13 09:52

SVL Sample ID: **W3B0144-09 (Ground Water)**

Sample Report Page 1 of 1

Received: 08-Feb-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	335	mg/L	3.00	0.70	10	W307222	AEW	02/14/13 17:02	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



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: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **HOWARD NR**

SVL Sample ID: **W3B0144-10 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 06-Feb-13 11:20

Received: 08-Feb-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	679	mg/L	7.50	1.75	25	W307222	AEW	02/14/13 17:13	D2
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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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **HOWARD 312**

SVL Sample ID: **W3B0144-11 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 06-Feb-13 14:00

Received: 08-Feb-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	71.9	mg/L	1.50	0.35	5	W307222	AEW	02/14/13 17:25	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

(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: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **PANAGAKOS**

SVL Sample ID: **W3B0144-12 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 06-Feb-13 15:42

Received: 08-Feb-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	212	mg/L	3.00	0.70	10	W307222	AEW	02/14/13 17:48	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



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: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **FRANCO 383**

SVL Sample ID: **W3B0144-13 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 06-Feb-13 17:04

Received: 08-Feb-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	353	mg/L	3.00	0.70	10	W307222	AEW	02/14/13 17:59	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

(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: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **MARCELL**

SVL Sample ID: **W3B0144-14 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 06-Feb-13 17:45

Received: 08-Feb-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	714	mg/L	15.0	3.50	50	W307222	AEW	02/14/13 18:11	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



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: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **NWC-04**

SVL Sample ID: **W3B0144-15 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 07-Feb-13 11:29

Received: 08-Feb-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	0.70	10	W307222	AEW	02/14/13 18:46	D2
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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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

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

Sampled: 07-Feb-13 13:28

SVL Sample ID: **W3B0144-16 (Ground Water)**

Received: 08-Feb-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	229	mg/L	3.00	0.70	10	W307222	AEW	02/14/13 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.

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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **WEED**

SVL Sample ID: **W3B0144-17 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 07-Feb-13 14:10

Received: 08-Feb-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	14.0	mg/L	0.30	0.07		W307222	AEW	02/14/13 19:09	
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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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **DUP02052013**

SVL Sample ID: **W3B0144-18 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 05-Feb-13 18:00

Received: 08-Feb-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	64.7	mg/L	1.50	0.35	5	W307222	AEW	02/14/13 19:20	D2
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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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **DUP02062013**

SVL Sample ID: **W3B0144-19 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 06-Feb-13 18:00

Received: 08-Feb-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	714	mg/L	15.0	3.50	50	W307222	AEW	02/14/13 19:32	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

(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: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **DUP02072013**

SVL Sample ID: **W3B0144-20 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 07-Feb-13 18:00

Received: 08-Feb-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	13.2	mg/L	1.50	0.35	5	W307222	AEW	02/14/13 19:43	D1
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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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **FB02062013**

SVL Sample ID: **W3B0144-21 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 06-Feb-13 18:00

Received: 08-Feb-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		W307273	AEW	02/15/13 12:18	
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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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **EQB02062013**

SVL Sample ID: **W3B0144-22 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 06-Feb-13 18:00

Received: 08-Feb-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		W307273	AEW	02/15/13 12:27	
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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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **FB02072013**

Sampled: 07-Feb-13 18:00

SVL Sample ID: **W3B0144-23 (Ground Water)**

Sample Report Page 1 of 1

Received: 08-Feb-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		W307273	AEW	02/15/13 12:36	
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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



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: **W3B0144**

Reported: 19-Feb-13 12:48

Client Sample ID: **EQB02072013**

Sampled: 07-Feb-13 18:00

SVL Sample ID: **W3B0144-24 (Ground Water)**

Received: 08-Feb-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		W307273	AEW	02/15/13 12:45	
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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 Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

Quality Control - BLANK Data

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

EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W307273	15-Feb-13	
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W307222	14-Feb-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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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	9.86	10.0	98.6	90 - 110	W307273	15-Feb-13	
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	9.96	10.0	99.6	90 - 110	W307222	14-Feb-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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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	79.1	69.2	10.0	98.8	90 - 110	W307273	15-Feb-13	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	1010	1030	10.0	R > 4S	90 - 110	W307273	15-Feb-13	D2,M3

Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	31.8	20.1	10.0	117	90 - 110	W307222	14-Feb-13	M1
EPA 300.0	Sulfate as SO4	mg/L	86.2	71.9	10.0	R > 4S	90 - 110	W307222	14-Feb-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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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	78.2	79.1	10.0	1.1	20	W307273	15-Feb-13	D2
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	31.9	31.8	10.0	0.3	20	W307222	14-Feb-13	
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SVL holds the following certifications:

AZ:0538, CA:2080, FL(NELAC):E87993, ID:ID00019 & ID00965 (Microbiology), NV:ID000192007A, WA:1268

Work order Report Page 26 of 27



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3B0144**

Reported: 19-Feb-13 12:48

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



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

Project Name: Copper Queen Branch Sulfate Mitigation Order
Work Order: **W3B0318**
Reported: 05-Mar-13 11:31

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BMO-2008-5M	W3B0318-01	Ground Water	12-Feb-13 07:35	CLS	19-Feb-2013
BMO-2008-5B	W3B0318-02	Ground Water	12-Feb-13 08:10	CLS	19-Feb-2013
BMO-2008-6M	W3B0318-03	Ground Water	12-Feb-13 09:05	CLS	19-Feb-2013
BMO-2008-6B	W3B0318-04	Ground Water	12-Feb-13 10:00	CLS	19-Feb-2013
TM-15	W3B0318-05	Ground Water	12-Feb-13 13:30	CLS	19-Feb-2013
TM-42	W3B0318-06	Ground Water	12-Feb-13 16:50	CLS	19-Feb-2013
BMO-2010-1M	W3B0318-07	Ground Water	13-Feb-13 11:30	CLS	19-Feb-2013
BMO-2010-2M	W3B0318-08	Ground Water	13-Feb-13 12:10	CLS	19-Feb-2013
BMO-2008-9M	W3B0318-09	Ground Water	13-Feb-13 13:50	CLS	19-Feb-2013
BMO-2008-11G	W3B0318-10	Ground Water	13-Feb-13 15:35	CLS	19-Feb-2013
BMO-2008-8B	W3B0318-11	Ground Water	13-Feb-13 16:45	CLS	19-Feb-2013
BMO-2008-8M	W3B0318-12	Ground Water	14-Feb-13 09:05	CLS	19-Feb-2013
BMO-2008-1G	W3B0318-13	Ground Water	14-Feb-13 14:55	CLS	19-Feb-2013
TM-6	W3B0318-14	Ground Water	14-Feb-13 15:45	CLS	19-Feb-2013
TM-19A	W3B0318-15	Ground Water	15-Feb-13 07:40	CLS	19-Feb-2013
HOBAN	W3B0318-16	Ground Water	15-Feb-13 09:15	CLS	19-Feb-2013
BMO-2008-3B	W3B0318-17	Ground Water	15-Feb-13 11:05	CLS	19-Feb-2013
BMO-2008-7M	W3B0318-18	Ground Water	15-Feb-13 12:20	CLS	19-Feb-2013
BMO-2008-13M	W3B0318-19	Ground Water	15-Feb-13 16:35	CLS	19-Feb-2013
BMO-2008-10GL	W3B0318-20	Ground Water	18-Feb-13 10:40	CLS	19-Feb-2013
DUP-021813	W3B0318-21	Ground Water	18-Feb-13 10:40	CLS	19-Feb-2013
EQB-021813	W3B0318-22	Ground Water	18-Feb-13 10:00	CLS	19-Feb-2013
TM-2A	W3B0318-23	Ground Water	15-Feb-13 15:15	CLS	19-Feb-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

(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: **W3B0318**

Reported: 05-Mar-13 11:31

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

SVL Sample ID: **W3B0318-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 12-Feb-13 07:35

Received: 19-Feb-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	139	mg/L	3.00	0.70	10	W308153	AEW	02/20/13 16:09	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

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: **W3B0318**

Reported: 05-Mar-13 11:31

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

Sampled: 12-Feb-13 08:10

SVL Sample ID: **W3B0318-02 (Ground Water)**

Received: 19-Feb-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	227	mg/L	3.00	0.70	10	W308153	AEW	02/20/13 16:20	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

(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: **W3B0318**

Reported: 05-Mar-13 11:31

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

SVL Sample ID: **W3B0318-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 12-Feb-13 09:05

Received: 19-Feb-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	204	mg/L	3.00	0.70	10	W308235	AEW	02/21/13 15:55	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

(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: **W3B0318**

Reported: 05-Mar-13 11:31

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

SVL Sample ID: **W3B0318-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 12-Feb-13 10:00

Received: 19-Feb-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	16.2	mg/L	0.30	0.07		W308235	AEW	02/21/13 16:30	
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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 Order

Work Order: **W3B0318**

Reported: 05-Mar-13 11:31

Client Sample ID: **TM-15**

SVL Sample ID: **W3B0318-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 12-Feb-13 13:30

Received: 19-Feb-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	14.6	mg/L	0.30	0.07		W308235	AEW	02/21/13 16:41	
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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 Order

Work Order: **W3B0318**

Reported: 05-Mar-13 11:31

Client Sample ID: **TM-42**

SVL Sample ID: **W3B0318-06 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 12-Feb-13 16:50

Received: 19-Feb-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	400	mg/L	7.50	1.75	25	W308235	AEW	02/21/13 16:53	D2
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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 Order

Work Order: **W3B0318**

Reported: 05-Mar-13 11:31

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

SVL Sample ID: **W3B0318-07 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 13-Feb-13 11:30

Received: 19-Feb-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	152	mg/L	3.00	0.70	10	W308235	AEW	02/21/13 17:04	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

(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: **W3B0318**

Reported: 05-Mar-13 11:31

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

SVL Sample ID: **W3B0318-08 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 13-Feb-13 12:10

Received: 19-Feb-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	962	mg/L	15.0	3.50	50	W308235	AEW	02/21/13 17:15	D2
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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 Order

Work Order: **W3B0318**

Reported: 05-Mar-13 11:31

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

SVL Sample ID: **W3B0318-09 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 13-Feb-13 13:50

Received: 19-Feb-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	68.2	mg/L	1.50	0.35	5	W308235	AEW	02/21/13 17:50	D2
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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 Order

Work Order: **W3B0318**

Reported: 05-Mar-13 11:31

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

Sampled: 13-Feb-13 15:35

SVL Sample ID: **W3B0318-10 (Ground Water)**

Received: 19-Feb-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	11.9	mg/L	0.30	0.07		W308235	AEW	02/21/13 18:01	
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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 Order

Work Order: **W3B0318**

Reported: 05-Mar-13 11:31

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

SVL Sample ID: **W3B0318-11 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 13-Feb-13 16:45

Received: 19-Feb-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	1330	mg/L	15.0	3.50	50	W308235	AEW	02/21/13 18:12	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

(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: **W3B0318**

Reported: 05-Mar-13 11:31

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

SVL Sample ID: **W3B0318-12 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 14-Feb-13 09:05

Received: 19-Feb-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	64.9	mg/L	1.50	0.35	5	W308235	AEW	02/21/13 18:24	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

(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: **W3B0318**

Reported: 05-Mar-13 11:31

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

SVL Sample ID: **W3B0318-13 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 14-Feb-13 14:55

Received: 19-Feb-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	112	mg/L	1.50	0.35	5	W308235	AEW	02/21/13 18:35	D2
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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 Order

Work Order: **W3B0318**

Reported: 05-Mar-13 11:31

Client Sample ID: **TM-6**

SVL Sample ID: **W3B0318-14 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 14-Feb-13 15:45

Received: 19-Feb-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	31.1	mg/L	0.30	0.07		W308235	AEW	02/21/13 18:47	
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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 Order

Work Order: **W3B0318**

Reported: 05-Mar-13 11:31

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

SVL Sample ID: **W3B0318-15 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Feb-13 07:40

Received: 19-Feb-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	60.1	mg/L	1.50	0.35	5	W308235	AEW	02/21/13 19:10	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



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: **W3B0318**

Reported: 05-Mar-13 11:31

Client Sample ID: **HOBAN**

SVL Sample ID: **W3B0318-16 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Feb-13 09:15

Received: 19-Feb-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	954	mg/L	15.0	3.50	50	W308235	AEW	02/21/13 19:21	D2
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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 Order

Work Order: **W3B0318**

Reported: 05-Mar-13 11:31

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

SVL Sample ID: **W3B0318-17 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Feb-13 11:05

Received: 19-Feb-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	163	mg/L	1.50	0.35	5	W308235	AEW	02/21/13 19:32	D2
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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 Order

Work Order: **W3B0318**

Reported: 05-Mar-13 11:31

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

SVL Sample ID: **W3B0318-18 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Feb-13 12:20

Received: 19-Feb-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	25.8	mg/L	0.30	0.07		W308235	AEW	02/21/13 20:07	
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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 Order

Work Order: **W3B0318**

Reported: 05-Mar-13 11:31

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

SVL Sample ID: **W3B0318-19 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Feb-13 16:35

Received: 19-Feb-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	383	mg/L	3.00	0.70	10	W308235	AEW	02/21/13 20:18	D2
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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 Order

Work Order: **W3B0318**

Reported: 05-Mar-13 11:31

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

SVL Sample ID: **W3B0318-20 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Feb-13 10:40

Received: 19-Feb-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	498	mg/L	7.50	1.75	25	W308235	AEW	02/21/13 20:30	D2
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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 Order

Work Order: **W3B0318**

Reported: 05-Mar-13 11:31

Client Sample ID: **DUP-021813**

Sampled: 18-Feb-13 10:40

SVL Sample ID: **W3B0318-21 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Feb-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	494	mg/L	7.50	1.75	25	W308235	AEW	02/21/13 20:41	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



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: **W3B0318**

Reported: 05-Mar-13 11:31

Client Sample ID: **EQB-021813**

SVL Sample ID: **W3B0318-22 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Feb-13 10:00

Received: 19-Feb-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		W309242	AEW	03/01/13 23:35	
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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
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 Order

Work Order: **W3B0318**

Reported: 05-Mar-13 11:31

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

SVL Sample ID: **W3B0318-23 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Feb-13 15:15

Received: 19-Feb-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	22.1	mg/L	0.30	0.07		W308235	AEW	02/21/13 20:52	
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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



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

Project Name: Copper Queen Branch Sulfate Mitigation Order
 Work Order: **W3B0318**
 Reported: 05-Mar-13 11:31

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W309242	28-Feb-13	
Dissolved Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W308153	20-Feb-13	
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.07	0.30	W308235	21-Feb-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 SO4	mg/L	10.1	10.0	101	90 - 110	W309242	28-Feb-13	
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO4	mg/L	10.2	10.0	102	90 - 110	W308153	20-Feb-13	
EPA 300.0	Sulfate as SO4	mg/L	9.86	10.0	98.6	90 - 110	W308235	21-Feb-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 SO4	mg/L	22.5	11.6	10.0	109	90 - 110	W309242	01-Mar-13	
EPA 300.0	Sulfate as SO4	mg/L	23.2	12.2	10.0	110	90 - 110	W309242	28-Feb-13	
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	mg/L	11.1	0.47	10.0	107	90 - 110	W308153	20-Feb-13	
EPA 300.0	Sulfate as SO4	mg/L	83.8	73.5	10.0	103	90 - 110	W308153	20-Feb-13	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	206	204	10.0	R > 4S	90 - 110	W308235	21-Feb-13	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	41.8	31.1	10.0	107	90 - 110	W308235	21-Feb-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 SO4	mg/L	23.5	23.2	10.0	1.1	20	W309242	28-Feb-13	
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO4	mg/L	11.3	11.1	10.0	1.9	20	W308153	20-Feb-13	
EPA 300.0	Sulfate as SO4	mg/L	208	206	10.0	0.9	20	W308235	21-Feb-13	D2



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3B0318**

Reported: 05-Mar-13 11:31

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 - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W3C0022**

Reported: 06-Mar-13 11:38

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
TM-7	W3C0022-01	Ground Water	27-Feb-13 09:58	CLS	01-Mar-2013
BMO-2008-13B	W3C0022-02	Ground Water	27-Feb-13 11:25	CLS	01-Mar-2013
COOPER C	W3C0022-03	Ground Water	27-Feb-13 12:35	CLS	01-Mar-2013
BMO-2012-1M	W3C0022-04	Ground Water	27-Feb-13 14:30	CLS	01-Mar-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

(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: **W3C0022**

Reported: 06-Mar-13 11:38

Client Sample ID: **TM-7**

SVL Sample ID: **W3C0022-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 27-Feb-13 09:58

Received: 01-Mar-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	25.6	mg/L	1.50	0.35	5	W310067	AEW	03/04/13 17:38	D1
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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 Order

Work Order: **W3C0022**

Reported: 06-Mar-13 11:38

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

Sampled: 27-Feb-13 11:25

SVL Sample ID: **W3C0022-02 (Ground Water)**

Sample Report Page 1 of 1

Received: 01-Mar-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	1090	mg/L	30.0	7.00	100	W310067	AEW	03/04/13 18:11	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



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: **W3C0022**

Reported: 06-Mar-13 11:38

Client Sample ID: **COOPER C**

SVL Sample ID: **W3C0022-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 27-Feb-13 12:35

Received: 01-Mar-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	821	mg/L	15.0	3.50	50	W310067	AEW	03/04/13 18:22	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

(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: **W3C0022**

Reported: 06-Mar-13 11:38

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

SVL Sample ID: **W3C0022-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 27-Feb-13 14:30

Received: 01-Mar-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	205	mg/L	1.50	0.35	5	W310067	AEW	03/04/13 18:33	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



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

Project Name: Copper Queen Branch Sulfate Mitigation Order
 Work Order: **W3C0022**
 Reported: 06-Mar-13 11:38

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	W310067	04-Mar-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	10.4	10.0	104	90 - 110	W310067	04-Mar-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	214	207	10.0	R > 4S	90 - 110	W310067	04-Mar-13	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	34.7	23.5	10.0	113	90 - 110	W310067	04-Mar-13	M1

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	211	214	10.0	1.5	20	W310067	04-Mar-13	D2
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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.
- 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: **W3C0225**

Reported: 18-Mar-13 10:34

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
FRANCO 383	W3C0225-01	Ground Water	07-Mar-13 11:00	BD	12-Mar-2013
TM-10	W3C0225-02	Ground Water	07-Mar-13 14:15	BD	12-Mar-2013
NWC-04	W3C0225-03	Ground Water	07-Mar-13 10:20	BD	12-Mar-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

(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: **W3C0225**

Reported: 18-Mar-13 10:34

Client Sample ID: **FRANCO 383**

SVL Sample ID: **W3C0225-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 07-Mar-13 11:00

Received: 12-Mar-13

Sampled By: BD

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	338	mg/L	7.50	1.75	25	W311340	AEW	03/15/13 16:54	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

(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: **W3C0225**

Reported: 18-Mar-13 10:34

Client Sample ID: **TM-10**

SVL Sample ID: **W3C0225-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 07-Mar-13 14:15

Received: 12-Mar-13

Sampled By: BD

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	12.7	mg/L	1.50	0.35	5	W311340	AEW	03/15/13 17:06	D1
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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 Order

Work Order: **W3C0225**

Reported: 18-Mar-13 10:34

Client Sample ID: **NWC-04**

SVL Sample ID: **W3C0225-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 07-Mar-13 10:20

Received: 12-Mar-13

Sampled By: BD

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	222	mg/L	3.00	0.70	10	W311340	AEW	03/15/13 17:18	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



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

Project Name: Copper Queen Branch Sulfate Mitigation Order
 Work Order: **W3C0225**
 Reported: 18-Mar-13 10:34

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	W311340	15-Mar-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	10.6	10.0	106	90 - 110	W311340	15-Mar-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	36.4	24.7	10.0	117	90 - 110	W311340	15-Mar-13	M1
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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	36.9	36.4	10.0	1.2	20	W311340	15-Mar-13	
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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.
- 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



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: **W3C0284**

Reported: 18-Mar-13 10:32

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BIMA	W3C0284-01	Ground Water	13-Mar-13 12:15	BD	14-Mar-2013
SCHWARTZ	W3C0284-02	Ground Water	13-Mar-13 11:42	BD	14-Mar-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

(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: **W3C0284**

Reported: 18-Mar-13 10:32

Client Sample ID: **BIMA**

SVL Sample ID: **W3C0284-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 13-Mar-13 12:15

Received: 14-Mar-13

Sampled By: BD

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	317	mg/L	7.50	1.75	25	W311340	AEW	03/15/13 17:30	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

(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: **W3C0284**

Reported: 18-Mar-13 10:32

Client Sample ID: **SCHWARTZ**

SVL Sample ID: **W3C0284-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 13-Mar-13 11:42

Received: 14-Mar-13

Sampled By: BD

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	118	mg/L	3.00	0.70	10	W311340	AEW	03/15/13 17:42	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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 Order
Work Order: **W3C0284**
Reported: 18-Mar-13 10:32

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	W311340	15-Mar-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	10.6	10.0	106	90 - 110	W311340	15-Mar-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	36.4	24.7	10.0	117	90 - 110	W311340	15-Mar-13	M1
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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	36.9	36.4	10.0	1.2	20	W311340	15-Mar-13	
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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.
- 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: 1 Date: 1/17/13
 Well ID: Anderson 396 Weather: sunny 50
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>151.24</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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 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 checked="" type="checkbox"/> Other: <u>Failed</u>

Additional Comments: old well pipes broken unable to collect sample.



Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/17/13
 Well ID: Anderson 458 Weather: sunny 50
 ADWR No: _____ Sampler: NMC

WELL DATA		
Well Depth (ft bls): <u>734</u>	Casing Capacity	
Casing Diameter (in): <u>5</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>152.17</u>	2	0.16
Casing Volume (gal): <u>594</u> x3 = <u>1782</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>1226</u>	<u>Pump On</u>						
<u>1236</u>	<u>10</u>	<u>180</u>	<u>180</u>	<u>8.08</u>	<u>22.7</u>	<u>422.3</u>	
<u>1246</u>	<u>20</u>		<u>360</u>	<u>8.07</u>	<u>23.2</u>	<u>420.3</u>	
<u>1256</u>	<u>30</u>		<u>540</u>	<u>8.07</u>	<u>23.8</u>	<u>417.3</u>	
<u>1306</u>	<u>40</u>		<u>720</u>	<u>8.06</u>	<u>23.7</u>	<u>416.0</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>ANDERSON 458</u>	<u>1312</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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 volume and field parameters stabilized.</u>

Additional Comments: SRB part collected at 12:40 (~250 gals)
IRB part collected at 12:42 (~280 gal)

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 2/5/13
 Well ID: AWC-02 Weather: Sunny, 70's
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): _____	2	0.16
Casing Volume (gal): _____ x3 =	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						
0924				7.54	19.3	473.6	
	Pump Off						

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
AWC-02	0928	Poly	250ml	1	300.0	NA	✓

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: _____



Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 2/5/13
 Well ID: AWC-03 Weather: Sunny, 60's
 ADWR No: _____ Sampler: VWH

WELL DATA		
Well Depth (ft bis): _____	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): _____	2	0.16
Static Water Level (ft bmp): _____	4	0.65
Casing Volume (gal): _____ x3 = _____	5	1.02
	6	1.47
Total Volume Purged (gal): _____	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							
0905				7.73	19.2	481.2	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
AWC-03	0911	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 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 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: 2/5/13
 Well ID: AWC-04 Weather: Sunny, 70's
 ADWR No: _____ Sampler: WHL

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): _____	2	0.16
Casing Volume (gal): _____ $\times 3 =$ _____	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						
0940				7.29	19.7	616.8	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
AWC-04	0943	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 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 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: 2/5/13
 Well ID: AWC-5 Weather: Sunny, 60's
 ADWR No: _____ Sampler: JNH

WELL DATA		
Well Depth (ft bis): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): _____	2	0.16
Casing Volume (gal): _____ x3 = _____	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							
0845				7.57	20.2	437.7	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
AWC-05	0855	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 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 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: 1 Date: 1/18/13
 Well ID: Banks 986 Weather: sunny 40's
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls):	<u>435</u>	Casing Capacity
Casing Diameter (in):	<u>6"</u>	Nominal Size (inches)
Static Water Level (ft bmp):	<u>Banks 987 = 237.81</u>	Gallons per Linear Foot
Casing Volume (gal):	<u>290 x3 = 870</u>	2 0.16
Total Volume Purged (gal):		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>0901</u>	<u>Pump On</u>						
<u>0931</u>	<u>30</u>	<u>8.5</u>	<u>255</u>	<u>7.74</u>	<u>21.7</u>	<u>879.8</u>	<u>clear</u>
<u>0951</u>	<u>50</u>		<u>425</u>	<u>7.84</u>	<u>21.5</u>	<u>862.4</u>	
<u>1011</u>	<u>70</u>		<u>595</u>	<u>7.81</u>	<u>21.8</u>	<u>841.0</u>	
<u>1031</u>	<u>90</u>		<u>765</u>	<u>7.82</u>	<u>21.4</u>	<u>837.4</u>	
<u>1046</u>	<u>105</u>		<u>892</u>	<u>7.82</u>	<u>21.9</u>	<u>832.4</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BANKS 986</u>	<u>1050</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>250</u>	<u>N</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: Use Banks 987 water level

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/18/13
 Well ID: BANKS 987 Weather: sunny 40's
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>237.81</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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 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 paremeters stabilized.

Purged well until field parameters stabilized.

Other: _____

Additional Comments: WLO



Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 002-1.0 Date: 3-13-13
 Well ID: B1M1A Weather: Sunny 70s
 ADWR No: _____ Sampler: BJO

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): _____	4	0.65
Casing Volume (gal): _____ x3 = _____	5	1.02
	6	1.47
	8	2.61
Total Volume Purged (gal): _____	10	4.08
Casing Volume = gallons/foot * water column (feet)		

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
Pump On							
				7.29	19.8	166 1175	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
B1M1A	12:15	poly	250ml	1	300°	φ	φ

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 paremeters stabilized.
 Purged well until field parameters stabilized.
 Other: No purge at request of owner - well is going dry

Additional Comments: _____

Groundwater Sampling Form

Project No: _____	Client: Freeport Copper Queen Branch
Task No: _____	Date: <u>2-14-13</u>
Well ID: <u>BMO-2008-16</u>	Weather: <u>Sunny</u>
ADWR No: _____	Sampler: <u>Christopher L. Shivers</u>

WELL DATA

Well Depth (ft bbs): <u>310</u> Casing Diameter (in): <u>54</u> Static Water Level (ft bmp): <u>72.95</u> Casing Volume (gals): <u>241.7</u> Casing Volumes (gals): <u>725.1</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">Casing Capacity</th> </tr> <tr> <th style="text-align: center;">Nominal Size (inches)</th> <th style="text-align: center;">Gallons per Linear Foot</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">2</td><td style="text-align: center;">0.16</td></tr> <tr><td style="text-align: center;">4</td><td style="text-align: center;">0.65</td></tr> <tr><td style="text-align: center;">6</td><td style="text-align: center;">1.02</td></tr> <tr><td style="text-align: center;">8</td><td style="text-align: center;">1.47</td></tr> <tr><td style="text-align: center;">8</td><td style="text-align: center;">2.51</td></tr> <tr><td style="text-align: center;">10</td><td style="text-align: center;">4.08</td></tr> </tbody> </table> <p style="text-align: center; font-size: small;">Casing Volume = gallons/foot * water column (feet)</p>	Casing Capacity		Nominal Size (inches)	Gallons per Linear Foot	2	0.16	4	0.65	6	1.02	8	1.47	8	2.51	10	4.08
Casing Capacity																	
Nominal Size (inches)	Gallons per Linear Foot																
2	0.16																
4	0.65																
6	1.02																
8	1.47																
8	2.51																
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>1325</u>							
<u>1355</u>	<u>30</u>	<u>8.3</u>	<u>249</u>	<u>6.98</u>	<u>21.5</u>	<u>981</u>	
<u>1415</u>	<u>50</u>	<u>8.3</u>	<u>415</u>	<u>7.04</u>	<u>21.1</u>	<u>983</u>	
<u>1435</u>	<u>70</u>	<u>8.3</u>	<u>581</u>	<u>7.06</u>	<u>21.0</u>	<u>982</u>	
<u>1455</u>	<u>90</u>	<u>8.3</u>	<u>747</u>	<u>7.09</u>	<u>21.2</u>	<u>986</u>	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: _____

237.

Groundwater Sampling Form

Project No: _____	Client: <u>Freeport Copper Queen Branch</u>
Task No: _____	Date: <u>2-15-13</u>
Well ID: <u>Bmo-2008-3B</u>	Weather: <u>Partly Cloudy</u>
ADWR No: _____	Sampler: <u>Christopher V. Sherman</u>

WELL DATA

Wall Depth (ft bbs): <u>260</u>	Casing Capacity	
Casing Diameter (in): <u>3"</u>	Nominal Size (Inches)	Gallons per Linear Foot
Static Water Level (ft amp): <u>144.53</u>	2	0.16
Casing Volume (gals): <u>118</u>	4	0.63
3 Casing Volumes (gals): <u>354</u>	5	1.02
	6	1.47
	8	2.01
	10	2.68
	Casing Volume = gallons/foot * water 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>1045</u>							
<u>1055</u>	<u>10</u>	<u>9.7</u>	<u>135</u>	<u>6.55</u>	<u>20.3</u>	<u>688</u>	
<u>1100</u>	<u>15</u>	<u>2.7</u>	<u>405</u>	<u>6.60</u>	<u>20.3</u>	<u>690</u>	
<u>1105</u>	<u>20</u>	<u>2.7</u>	<u>540</u>	<u>6.63</u>	<u>20.4</u>	<u>692</u>	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		<u>plastic</u>	<u>250 ml</u>	<u>1</u>	<u>EPA 300.0</u>	<u>none</u>	<u>filtered</u>

Additional Comments: 115.4

Groundwater Sampling Form

3

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/15/13
 Well ID: BMO-2008-4B Weather: Sunny 30's
 ADWR No: 55-910096 Sampler: MML

WELL DATA		
Well Depth (ft bls): <u>1010</u>	Casing Capacity	
Casing Diameter (in): <u>5</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>136.13</u>	2	0.16
Casing Volume (gal): <u>484</u> x3 = <u>1450</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>1535</u>	Pump On						
<u>1555</u>	<u>20</u>	<u>21</u>	<u>420</u>	<u>7.94</u>	<u>21.9</u>	<u>342.9</u>	
<u>1615</u>	<u>40</u>		<u>840</u>	<u>7.79</u>	<u>22.2</u>	<u>361.1</u>	
<u>1635</u>	<u>60</u>		<u>1260</u>	<u>7.68</u>	<u>22.5</u>	<u>368.3</u>	
<u>1645</u>	<u>70</u>		<u>1470</u>	<u>7.63</u>	<u>22.7</u>	<u>370.2</u>	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2008-4B</u>	<u>1647</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</u>	<u>Y</u>
<u>DUP 20130115</u>	<u>1800</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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: 2/7/13
 Well ID: BMO 2008 5B Weather: Sunny, 70's
 ADWR No: _____ Sampler: VNlt

WELL DATA		
Well Depth (ft bls): <u>295</u>	Casing Capacity	
Casing Diameter (in): <u>5'</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>149.94</u>	2	0.16
Casing Volume (gal): <u>148 x3 = 444</u>	4	0.65
Total Volume Purged (gal): <u>450</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>1232</u>	<u>Pump On</u>						
<u>1242</u>	<u>10</u>	<u>9</u>	<u>90</u>	<u>7.48</u>	<u>21.5</u>	<u>800.7</u>	<u>Cloudy brown</u>
<u>1252</u>	<u>20</u>	<u>9</u>	<u>180</u>	<u>7.36</u>	<u>21.6</u>	<u>772.9</u>	<u>Cloudy yellow</u>
<u>1302</u>	<u>30</u>	<u>9</u>	<u>270</u>	<u>7.34</u>	<u>21.5</u>	<u>762.2</u>	<u>Cloudy</u>
<u>1312</u>	<u>40</u>	<u>9</u>	<u>360</u>	<u>7.38</u>	<u>21.3</u>	<u>765.5</u>	<u>clear</u>
<u>1322</u>	<u>50</u>	<u>9</u>	<u>450</u>	<u>7.40</u>	<u>21.4</u>	<u>771.4</u>	<u>"</u>
							<u>Pump Off</u>

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2008-5B</u>	<u>1328</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</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: _____

Groundwater Sampling Form

Project No: _____	Client: Freeport Copper Queen Branch
Task No: _____	Date: <u>2-12-13</u>
Well ID: <u>BMO-2008-5B</u>	Weather: <u>Cloudy</u>
ADWR No: _____	Sampler: <u>Christopher L Sherman</u>

WELL DATA

Well Depth (ft bgs): <u>285</u> Casing Diameter (in): <u>5 1/2</u> Static Water Level (ft bgs): <u>150.9</u> Casing Volume (gals): <u>138</u> 3 Casing Volumes (gals): <u>414</u>	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>0745</u>							
<u>0750</u>	<u>5</u>	<u>27</u>	<u>135</u>	<u>6.47</u>	<u>20.3</u>	<u>757</u>	
<u>0800</u>	<u>15</u>	<u>27</u>	<u>405</u>	<u>6.48</u>	<u>20.5</u>	<u>754</u>	
<u>0810</u>	<u>25</u>	<u>27</u>	<u>675</u>	<u>6.49</u>	<u>20.7</u>	<u>752</u>	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: 0745 134.9

Groundwater Sampling Form

Project No: _____	Client: Freeport Copper Queen Branch
Task No: _____	Date: 2-12-13
Well ID: BMD-2008-5M	Weather: Cloudy
ADWR No: _____	Sampler: Christopher L. Sherman

WELL DATA

Well Depth (ft b/c): 450.	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): 5"	2	0.16
Static Water Level (ft bwp): 152'	4	0.65
Casing Volume (gals): 304	5	1.32
3 Casing Volumes (gals): 912	6	1.47
	8	2.61
	10	4.85

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

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0640							
0645	5	18	90	6.47	21.5	610	
0705	25	18	450	6.62	21.7	609	
0725	45	18	810	6.63	21.6	611	
0735	55	18	990	6.65	21.6	610	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: **0640 298**
Collected Meter - 7 35653-02 Exp 5-17 = 2008 4 35653-01 Exp 11-13

Groundwater Sampling Form

Project No: _____	Client: Freeport Copper Queen Branch
Task No: _____	Date: <u>2-12-13</u>
Well ID: <u>BMO-2008-6B</u>	Weather: <u>Cloudy</u>
ADWR No: _____	Sampler: <u>Christopher E. Swann</u>

WELL DATA

Well Depth (ft bts): <u>265</u> Casing Diameter (in): <u>5"</u> Static Water Level (ft bms): <u>195.42</u> Casing Volume (gals): <u>70.8</u> Casing Volumes (gals): <u>213</u>	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	4.06
Casing Volume = gallons/foot * water 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>0915</u>							
<u>0920</u>	<u>5</u>	<u>5.1</u>	<u>25</u>	<u>6.78</u>	<u>20.5</u>	<u>330</u>	
<u>0930</u>	<u>15</u>	<u>5.1</u>	<u>75</u>	<u>6.84</u>	<u>20.7</u>	<u>334</u>	
<u>0945</u>	<u>30</u>	<u>5.1</u>	<u>150</u>	<u>6.88</u>	<u>20.7</u>	<u>344</u>	
<u>1000</u>	<u>45</u>	<u>5.1</u>	<u>225</u>	<u>6.87</u>	<u>20.7</u>	<u>339</u>	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: _____

Groundwater Sampling Form

Project No: _____ Task No: _____ Well ID: <u>BMO-2008-6M</u> ADWR No: _____	Client: <u>Freeport Copper Queen Branch</u> Date: <u>2-12-13</u> Weather: <u>Cloudy</u> Sampler: <u>Christopher L. Sherman</u>
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WELL DATA

Well Depth (ft bis): <u>450</u> Casing Diameter (in): <u>5"</u> Static Water Level (ft bmp): <u>196.45</u> Casing Volume (gals): <u>258.5</u> Casing Volume (gals): <u>775.5</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">Casing Capacity</th> </tr> <tr> <th style="text-align: center;">Nominal Size (inches)</th> <th style="text-align: center;">Gallons per Linear Foot</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">2</td><td style="text-align: center;">0.16</td></tr> <tr><td style="text-align: center;">4</td><td style="text-align: center;">0.65</td></tr> <tr><td style="text-align: center;">5</td><td style="text-align: center;">1.02</td></tr> <tr><td style="text-align: center;">6</td><td style="text-align: center;">1.47</td></tr> <tr><td style="text-align: center;">8</td><td style="text-align: center;">2.61</td></tr> <tr><td style="text-align: center;">10</td><td style="text-align: center;">4.08</td></tr> </tbody> </table> <p style="text-align: center; font-size: small;">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>0825</u>							
<u>0835</u>	<u>10</u>	<u>21</u>	<u>210</u>	<u>6.68</u>	<u>20.4</u>	<u>745</u>	
<u>0845</u>	<u>20</u>	<u>21</u>	<u>420</u>	<u>6.70</u>	<u>20.6</u>	<u>747</u>	
<u>0855</u>	<u>30</u>	<u>21</u>	<u>630</u>	<u>6.74</u>	<u>20.3</u>	<u>744</u>	
<u>0905</u>	<u>40</u>	<u>21</u>	<u>840</u>	<u>6.76</u>	<u>20.5</u>	<u>740</u>	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		<u>plastic</u>	<u>250 ml</u>	<u>1</u>	<u>EPA 300.0</u>	<u>none</u>	<u>filtered</u>

Additional Comments: 258.55

Groundwater Sampling Form

Project No: _____	Client: <u>Freeport Copper Queen Branch</u>
Task No: _____	Date: <u>2-15-13</u>
Well ID: <u>BMD-2008-7M</u>	Weather: <u>Cloudy</u>
ADWE No: _____	Sampler: <u>Christopher K. Slominger</u>

WELL DATA

Well Depth (ft bto): <u>670</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>243.8'</u>	2	0.16
Casing Volume (gals): <u>434.7</u>	4	0.65
3 Casing Volumes (gals): <u>1304</u>	5	1.02
	6	1.47
	8	2.81
	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>1115</u>							
<u>1120</u>	<u>5</u>	<u>21</u>	<u>105</u>	<u>7.22</u>	<u>21.5</u>	<u>469</u>	
<u>1140</u>	<u>25</u>	<u>21</u>	<u>525</u>	<u>7.23</u>	<u>21.6</u>	<u>470</u>	
<u>1200</u>	<u>45</u>	<u>21</u>	<u>945</u>	<u>7.24</u>	<u>21.7</u>	<u>469</u>	
<u>1220</u>	<u>65</u>	<u>21</u>	<u>1365</u>	<u>7.23</u>	<u>21.8</u>	<u>471</u>	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		<u>plastic</u>	<u>250 ml</u>	<u>1</u>	<u>EPA 300.0</u>	<u>none</u>	<u>filtered</u>

Additional Comments: 426.2

Groundwater Sampling Form

Project No: _____	Client: Freeport Copper Queen Branch
Task No: _____	Date: <u>2-13-13</u>
Well ID: <u>BMO-2008-8B</u>	Weather: <u>Sunny</u>
ADNR No: _____	Sampler: <u>Christopher L Sherman</u>

WELL DATA

Well Depth (ft bbs): <u>480</u> Casing Diameter (in): <u>5 1/2</u> Static Water Level (ft bmp): <u>302.05</u> Casing Volume (gals): <u>181.5</u> Casing Volumes (gals): <u>544</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">Casing Capacity</th> </tr> <tr> <th style="text-align: center;">Nominal Size (inches)</th> <th style="text-align: center;">Gallons per Linear Foot</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">2</td><td style="text-align: center;">0.15</td></tr> <tr><td style="text-align: center;">4</td><td style="text-align: center;">0.65</td></tr> <tr><td style="text-align: center;">6</td><td style="text-align: center;">1.02</td></tr> <tr><td style="text-align: center;">8</td><td style="text-align: center;">1.67</td></tr> <tr><td style="text-align: center;">10</td><td style="text-align: center;">2.61</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	0.15	4	0.65	6	1.02	8	1.67	10	2.61
Casing Capacity															
Nominal Size (inches)	Gallons per Linear Foot														
2	0.15														
4	0.65														
6	1.02														
8	1.67														
10	2.61														

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1600</u>							
<u>1615</u>	<u>15</u>	<u>14.2</u>	<u>213</u>	<u>6.30</u>	<u>20.8</u>	<u>2840</u>	
<u>1625</u>	<u>25</u>	<u>14.2</u>	<u>355</u>	<u>6.29</u>	<u>20.7</u>	<u>2830</u>	
<u>1635</u>	<u>35</u>	<u>14.2</u>	<u>497</u>	<u>6.27</u>	<u>20.8</u>	<u>2830</u>	
<u>1645</u>	<u>45</u>	<u>14.2</u>	<u>639</u>	<u>6.25</u>	<u>20.7</u>	<u>2830</u>	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: 178
A little bottom cgg sand

Groundwater Sampling Form

Project No: _____	Client: Freeport Copper Queen Branch
Task No: _____	Date: <u>2-14-13</u>
Well ID: <u>BMO-2008-8M</u>	Weather: <u>Sunny</u>
ADWR No: _____	Sampler: <u>Christopher L Sherman</u>

WELL DATA

Well Depth (ft b/c): <u>1210</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>303.07</u>	4	0.65
Casing Volume (gals): <u>925.1</u>	5	1.02
3 Casing Volumes (gals): <u>2,775.3</u>	6	1.67
	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>0625</u>							
<u>0725</u>	<u>60</u>	<u>17.6</u>	<u>1056</u>	<u>6.90</u>	<u>23.9</u>	<u>561</u>	
<u>0825</u>	<u>120</u>	<u>17.6</u>	<u>2112</u>	<u>7.07</u>	<u>24.1</u>	<u>562</u>	
<u>0855</u>	<u>150</u>	<u>17.6</u>	<u>2640</u>	<u>7.08</u>	<u>24.7</u>	<u>562</u>	
<u>0905</u>	<u>160</u>	<u>17.6</u>	<u>2816</u>	<u>7.10</u>	<u>24.3</u>	<u>565</u>	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: 907
Collected water - 7 3565702 Exp. 5-14 = 4 3565701 Exp. 11-13

Groundwater Sampling Form

Project No: _____	Client: Freeport Copper Queen Branch
Task No: _____	Date: <u>2-13-13</u>
Well ID: <u>BMO-2008-9M</u>	Weather: <u>Sunny</u>
ADWR No: _____	Sampler: <u>Christopher L. Sturman</u>

WELL DATA

Well Depth (ft bis): <u>775</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>296.67</u>	4	0.55
Casing Volume (gals): <u>488.1</u>	6	1.02
3 Casing Volumes (gals): <u>1,464</u>	8	1.47
	10	2.01
	4.08	
	Casing Volume = gallons/foot * water column (feet)	

296.67

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1230							
1250	20	18.8	376	7.25	23.5	521	
1310	40	18.8	752	7.32	23.8	529	
1330	60	18.8	1128	7.36	23.7	528	
1350	80	18.8	1504	7.37	23.8	531	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: 478.3

Groundwater Sampling Form

Project No: _____	Client: <u>Freeport Copper Queen Branch</u>
Task No: _____	Date: <u>2-18-13</u>
Well ID: <u>BMO-2008-106L</u>	Weather: <u>Sunny</u>
ADWR No: _____	Sampler: <u>Christopher L Shannon</u>

WELL DATA

Well Depth (ft bsl): <u>81.0</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>509.91</u>	2	0.16
Casing Volume (gals): <u>306.1</u>	4	0.65
3 Casing Volumes (gals): <u>918.3</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>0640</u>							
<u>0645</u>	<u>5</u>	<u>4.5</u>	<u>22.5</u>	<u>6.42</u>	<u>25.8</u>	<u>1529</u>	
<u>0740</u>	<u>60</u>	<u>4.1</u>	<u>270</u>	<u>6.48</u>	<u>25.5</u>	<u>1520</u>	
<u>0840</u>	<u>120</u>	<u>3.7</u>	<u>516</u>	<u>6.50</u>	<u>25.1</u>	<u>1524</u>	
<u>0940</u>	<u>180</u>	<u>3.4</u>	<u>778</u>	<u>6.49</u>	<u>25.2</u>	<u>1521</u>	
<u>1040</u>	<u>240</u>	<u>3.4</u>	<u>947</u>	<u>6.45</u>	<u>25.4</u>	<u>1530</u>	
							<u>Rather Egg Small</u>

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
<u>BMO-2008-106L</u>	<u>7040</u>	<u>plastic</u>	<u>250 ml</u>	<u>1</u>	<u>EPA 300.0</u>	<u>none</u>	<u>filtered</u>
<u>Duplicate</u>							
<u>Dup 021813</u>	<u>1040</u>						

Additional Comments: 300 Duplicate
Calibration - 7 35653-02 EPA-54 4 35653-01 Exp 11-13

Groundwater Sampling Form

Project No: _____	Client: Freeport Copper Queen Branch
Task No: _____	Date: <u>2-13-13</u>
Well ID: <u>BMO-2008-116</u>	Weather: <u>Sunny</u>
ADWR No: _____	Sampler: <u>Christopher R. Shuman</u>

WELL DATA

Well Depth (ft bbs): <u>76.0</u> Casing Diameter (in): <u>5"</u> Static Water Level (ft bwp): <u>568.75</u> Casing Volume (gals): <u>195</u> 3 Casing Volumes (gals): <u>585</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
	2	0.16
	4	0.65
	5	1.52
	6	1.47
	8	2.61
	10	4.88
Casing Volume = gallons/foot * water 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>1420</u>							
<u>1430</u>	<u>10</u>	<u>8</u>	<u>80</u>	<u>7.40</u>	<u>24.1</u>	<u>344</u>	
<u>1450</u>	<u>30</u>	<u>8</u>	<u>240</u>	<u>7.48</u>	<u>24.1</u>	<u>341</u>	
<u>1500</u>	<u>60</u>	<u>8</u>	<u>480</u>	<u>7.50</u>	<u>24.1</u>	<u>340</u>	
<u>1535</u>	<u>75</u>	<u>8</u>	<u>600</u>	<u>7.54</u>	<u>24.2</u>	<u>343</u>	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: 191.25

Groundwater Sampling Form

Project No: _____	Client: Freeport Copper Queen Branch
Task No: _____	Date: 2-27-13
Well ID: BMD-2008-13B	Weather: ☀ Sunny
ADWR No: _____	Sampler: Christopher L. Spencer

WELL DATA

Well Depth (ft bbs): 475	Casing Capacity	
Casing Diameter (in): 5 1/2	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): 211.40	2	0.16
Casing Volume (gals): 268.7	4	0.65
3 Casing Volumes (gals): 806	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
1040							
1050	10	20	200	6.53	20.4	2140	
1105	25	20	500	6.52	20.5	2150	
1115	35	20	700	6.50	20.4	2140	
1125	45	20	900	6.54	20.3	2160	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: **2/27/13**

817.8

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	2-15-13
Well ID:	BMO-2008-13M	Weather:	Sunny
ADWR No:		Sampler:	Christopher L Sherman

WELL DATA

Well Depth (ft bis):	1030	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	5"	2	0.16
Static Water Level (ft bmp):	212.13	4	0.65
Casing Volume (gals):	834.1	6	1.02
3 Casing Volumes (gals):	2503	8	1.47
		10	2.61
			4.08

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

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0615							
0835	140	5.7	298	9.10	21.8	1240	
0935	500	4.6	1140	9.20	22.0	1206	
1035	260	3.8	1416	9.27	22.0	1210	
1235	380	3.8	1872	8.89	22.6	1255	
1335	440	2.8	2100	8.82	22.8	1260	
1635	620	2.8	2604	8.80	22.4	1280	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

Rotter egg smell

Groundwater Sampling Form

Project No:	Client: Freeport Copper Queen Branch
Task No:	Date: 2-13-13
Well ID: BMO-2010-1M	Weather: Sunny
ADWR No:	Sampler: Christopher L. Shuman

WELL DATA

Well Depth (ft bgs): 550	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): 5 1/2	2	0.16
Static Water Level (ft bgs): 226.85	4	0.65
Casing Volume (gals): 329.5	5	1.02
3 Casing Volumes (gals): 988.5	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
0700							
0710	10	10	100	6.75	22.4	692	
0715	15	10	150	7.03	22.2	694	
0800	60	5	325	6.96	22.2	698	
0900	120	3	555	7.05	22.4	697	
1000	180	3	735	6.98	22.0	700	
1100	240	3	915	7.05	22.0	710	
1130	270	3	1005	7.09	22.2	712	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: *Calibrated meter 7 35653-02 Exp 5-14 / 4 35653-01 Exp 11-11*

Groundwater Sampling Form

Project No: _____	Client: Freeport Copper Queen Branch
Task No: _____	Date: 2-13-13
Well ID: BMO-2010-2M	Weather: Sunny
ADWR No: _____	Sampler: Christopher L. Shuman

WELL DATA

Well Depth (ft bis): 380	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): 5"	2	0.16
Static Water Level (ft bmp): 275.52	4	0.63
Casing Volume (gals): 106.4	5	1.02
3 Casing Volumes (gals): 319	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
1140							
1150	10	27	270	6.43	21.4	2.22	
1200	20	27	540	6.40	21.2	2.20	
1210	30	27	810	6.45	21.0	2.19	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: **104.4**

Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/16/13
 Well ID: BMC-2010-3B Weather: sunny 30<
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bis): <u>330</u>	Casing Capacity	
Casing Diameter (in): <u>5</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>118.89</u>	2	0.16
Casing Volume (gal): <u>215</u> x3 = <u>645</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>1014</u>	<u>Pump On</u>						
<u>1029</u>	<u>15</u>	<u>9</u>	<u>135</u>	<u>7.50</u>	<u>20.7</u>	<u>419.9</u>	<u>smells like dirt mostly clear, yellow</u>
<u>1044</u>			<u>270</u>	<u>7.60</u>	<u>20.7</u>	<u>416.7</u>	<u>clear, dirt smell</u>
<u>1059</u>			<u>405</u>	<u>7.62</u>	<u>20.6</u>	<u>419.0</u>	
<u>1114</u>			<u>540</u>	<u>7.59</u>	<u>20.8</u>	<u>420.3</u>	
<u>1129</u>			<u>675</u>	<u>7.58</u>	<u>20.8</u>	<u>420.5</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMC-2010-3B</u>	<u>1133</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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: 1 Date: 1/16/13
 Well ID: BMO-2010-3M Weather: Sunny 30's
 ADWR No: _____ Sampler: MWL

WELL DATA		
Well Depth (ft bls):	<u>531</u>	Casing Capacity
Casing Diameter (in):	<u>5</u>	Nominal Size (inches)
Static Water Level (ft bmp):	<u>121.86</u>	Gallons per Linear Foot
Casing Volume (gal):	<u>417 x3 = 1252</u>	2 0.16
Total Volume Purged (gal):		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>1140</u>	<u>Pump On</u>						
<u>1200</u>	<u>20</u>	<u>8</u>	<u>160</u>	<u>7.74</u>	<u>21.3</u>	<u>357.9</u>	<u>mostly clear, yellow w/ odor</u>
<u>1220</u>	<u>40</u>		<u>320</u>	<u>7.77</u>	<u>21.8</u>	<u>386.3</u>	<u>mostly clear, orange w/ odor</u>
<u>1240</u>	<u>60</u>		<u>480</u>	<u>7.72</u>	<u>22.0</u>	<u>382.0</u>	<u>clear w/ faint odor</u>
<u>1300</u>	<u>80</u>		<u>640</u>	<u>7.76</u>	<u>21.9</u>	<u>382.3</u>	
<u>1320</u>	<u>100</u>		<u>800</u>	<u>7.74</u>	<u>21.9</u>	<u>382.5</u>	<u>clear w/ faint odor</u>
<u>1340</u>	<u>120</u>		<u>960</u>	<u>7.70</u>	<u>22.0</u>	<u>382.1</u>	"
<u>1400</u>	<u>140</u>		<u>1120</u>	<u>7.67</u>	<u>22.2</u>	<u>383.2</u>	"
<u>1420</u>	<u>160</u>		<u>1280</u>	<u>7.68</u>	<u>22.1</u>	<u>383.1</u>	<u>clear w/ faint odor</u>
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2010-3M</u>	<u>1423</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</u>	<u>Y</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: _____

Groundwater Sampling Form

Project No: _____	Client: Freeport Copper Queen Branch
Task No: _____	Date: <u>2-27-13</u>
Well ID: <u>BMO-2012-1M</u>	Weather: <u>Sunny</u>
ADWR No: _____	Sampler: <u>Christopher L. Gorman</u>

WELL DATA

Well Depth (ft bls): <u>405</u> Casing Diameter (in): <u>5"</u> Static Water Level (ft bmp): <u>233.2</u> Casing Volume (gals): <u>175.2</u> 3 Casing Volumes (gals): <u>525.6</u>	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>1300</u>							
<u>1310</u>	<u>10</u>	<u>6</u>	<u>60</u>	<u>6.95</u>	<u>21.8</u>	<u>776</u>	
<u>1320</u>	<u>30</u>	<u>6</u>	<u>180</u>	<u>6.94</u>	<u>22.0</u>	<u>780</u>	
<u>1400</u>	<u>60</u>	<u>6</u>	<u>360</u>	<u>6.90</u>	<u>22.2</u>	<u>789</u>	
<u>1430</u>	<u>90</u>	<u>6</u>	<u>540</u>	<u>6.97</u>	<u>22.4</u>	<u>793</u>	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		<u>plastic</u>	<u>250 ml</u>	<u>1</u>	<u>EPA 300.D</u>	<u>none</u>	<u>filtered</u>

Additional Comments: _____

1712
50,541

88

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 2.1 Date: 1.5.13
 Well ID: BOOTH Weather: 40's SUNNY
 ADWR No: _____ Sampler: BJD

WELL DATA			Casing Capacity	
Well Depth (ft bls):	<u>240</u>		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	<u>6"</u>		2	0.16
Static Water Level (ft bmp):	<u>131.47</u>		4	0.65
Casing Volume (gal):	<u>480</u> x3 =		5	1.02
Total Volume Purged (gal):	<u>~ 250</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>9:00</u>	<u>Pump On</u>						
<u>9:10</u>	<u>10</u>	<u>6.5</u>	<u>65</u>	<u>7.31</u>	<u>19.0</u>	<u>568.5</u>	
<u>9:20</u>	<u>20</u>	<u>6.5</u>	<u>130</u>	<u>7.59</u>	<u>18.9</u>	<u>566.1</u>	
<u>9:30</u>	<u>30</u>	<u>6.5</u>	<u>195</u>	<u>7.61</u>	<u>19.4</u>	<u>567.2</u>	
<u>9:35</u>	<u>35</u>	<u>6.5</u>	<u>225</u>	<u>7.67</u>	<u>18.5</u>	<u>574.3</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BOOTH</u>	<u>9:40</u>	<u>poly</u>	<u>250ml</u>	<u>3001</u>	<u>200.0</u>	<u>∅</u>	<u>Y</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: owner was filling poly tank requested we collect sample after filling.

Additional Comments: Mailing box 562
JACO B5620
owner filled 800 gallons into tank earlier this week



Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/10/13
 Well ID: CHAMBERS Weather: cloudy, windy 50's
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls): <u>245</u>	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>N/A</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
<u>1641</u>	Pump On						
<u>1643</u>	<u>2</u>	<u>10</u>	<u>20</u>	<u>7.73</u>	<u>20.1</u>	<u>436.9</u>	
<u>1645</u>	<u>4</u>		<u>40</u>	<u>7.62</u>	<u>21.6</u>	<u>441.8</u>	
<u>1649</u>				<u>7.57</u>	<u>21.5</u>	<u>440.8</u>	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>CHAMBERS</u>	<u>1650</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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: Minimal time to prevent flooding.

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 2/5/13
 Well ID: COR 1 Weather: Sunny, 70's
 ADWR No: _____ Sampler: YNit

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>239.11</u>	2	0.16
Casing Volume (gal): <u>472 x3 = 1416</u>	4	0.65
Total Volume Purged (gal): <u>1400</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>1107</u>	<u>Pump On</u>						
<u>1127</u>	<u>20</u>	<u>10</u>	<u>200</u>	<u>7.04</u>	<u>21.3</u>	<u>1636</u>	
<u>1147</u>	<u>40</u>	<u>10</u>	<u>400</u>	<u>7.03</u>	<u>21.4</u>	<u>1668</u>	
<u>1207</u>	<u>60</u>	<u>10</u>	<u>600</u>	<u>7.09</u>	<u>21.3</u>	<u>1698</u>	
<u>1227</u>	<u>80</u>	<u>10</u>	<u>800</u>	<u>7.01</u>	<u>21.4</u>	<u>1721</u>	
<u>1247</u>	<u>100</u>	<u>10</u>	<u>1000</u>	<u>7.00</u>	<u>21.5</u>	<u>1741</u>	
<u>1307</u>	<u>120</u>	<u>10</u>	<u>1200</u>	<u>7.01</u>	<u>21.5</u>	<u>1758</u>	
<u>1327</u>	<u>140</u>	<u>10</u>	<u>1400</u>	<u>6.95</u>	<u>21.5</u>	<u>1773</u>	
							<u>Pump Off</u>

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>COR-1</u>	<u>1332</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: 1 Date: 1/9/13
 Well ID: COB-2 Weather: sunny 35
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls): <u>170</u>	Casing Capacity	
Casing Diameter (in): <u>4</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>129.28</u>	2	0.16
Casing Volume (gal): <u>27 x3 = 80</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>0944</u>	Pump On						
<u>0949</u>	<u>5</u>	<u>10</u>	<u>50</u>	<u>7.42</u>	<u>19.9</u>	<u>471.3</u>	
<u>0954</u>	<u>10</u>		<u>100</u>	<u>7.50</u>	<u>19.9</u>	<u>469.4</u>	
<u>0959</u>	<u>15</u>		<u>150</u>	<u>7.48</u>	<u>20.0</u>	<u>473.5</u>	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>COB MW-2</u>	<u>1001</u>	<u>POLY</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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: 2/5/13
 Well ID: LOB # 3 (Sentinal Well) Weather: Sunny, 70's
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>269</u>	Casing Capacity	
Casing Diameter (in): <u>4"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>123.68</u>	2	0.16
Casing Volume (gal): <u>95 x3 = 285</u>	4	0.65
Total Volume Purged (gal): <u>438</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>0957</u>	<u>Pump On</u>						
<u>1002</u>	<u>5</u>	<u>17.5</u>	<u>87.5</u>	<u>7.54</u>	<u>20.1</u>	<u>465.7</u>	<u>Brown, odorless</u>
<u>1012</u>	<u>15</u>	<u>17.5</u>	<u>262.5</u>	<u>7.64</u>	<u>20.5</u>	<u>483.1</u>	<u>Clear, odorless</u>
<u>1022</u>	<u>25</u>	<u>17.5</u>	<u>437.5</u>	<u>7.60</u>	<u>20.4</u>	<u>476.4</u>	<u>" "</u>
							<u>Pump Off</u>

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>LOB - 3</u>	<u>1027</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>
<u>DUP 62052013</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: Well is next to Greenbush Draw, on AWC property



Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 2/5/13
 Well ID: COB - WL Weather: Sunny, 70's
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bis): <u>150</u>	Casing Capacity	
Casing Diameter (in): <u>4"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>82.41'</u>	2	0.16
Casing Volume (gal): <u>44</u> x3 = <u>132</u>	4	0.65
Total Volume Purged (gal): <u>135</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>1413</u>	<u>Pump On</u>						
<u>1418</u>	<u>5</u>	<u>7.5</u>	<u>37.5</u>	<u>7.28</u>	<u>20.8</u>	<u>1029</u>	
<u>1423</u>	<u>10</u>	<u>1.3</u>	<u>44</u>	<u>7.26</u>	<u>20.5</u>	<u>1036</u>	
<u>1433</u>	<u>20</u>	<u>1.3</u>	<u>57</u>	<u>7.51</u>	<u>21.5</u>	<u>1048</u>	
<u>1443</u>	<u>30</u>	<u>1.3</u>	<u>70</u>	<u>7.48</u>	<u>21.5</u>	<u>1054</u>	
<u>1453</u>	<u>40</u>	<u>1.3</u>	<u>83</u>	<u>7.83</u>	<u>21.6</u>	<u>1039</u>	
<u>1513</u>	<u>60</u>	<u>1.3</u>	<u>109</u>	<u>7.72</u>	<u>21.4</u>	<u>1052</u>	
<u>1533</u>	<u>80</u>	<u>1.3</u>	<u>135</u>	<u>7.91</u>	<u>21.5</u>	<u>1057</u>	
							<u>Pump Off</u>

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>COB - WL</u>	<u>1538</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: 1 Date: 1/11/13
 Well ID: COOPER Weather: Sunny 40
 ADWR No: _____ Sampler: mml

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): <u>N/A</u>	2	0.16
Casing Volume (gal): <u>x3 =</u>	4	0.65
Total Volume Purged (gal): <u>190</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>1054</u>	<u>Pump On</u>						
<u>1101</u>	<u>5</u>	<u>10</u>	<u>50</u>	<u>7.68</u>	<u>20.0</u>	<u>432.9</u>	
<u>1106</u>	<u>10</u>		<u>100</u>	<u>7.67</u>	<u>21.4</u>	<u>431.3</u>	
<u>1111</u>	<u>15</u>		<u>150</u>	<u>7.76</u>	<u>21.5</u>	<u>434.1</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>COOPER</u>	<u>1115</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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 type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: _____

Groundwater Sampling Form

Project No: _____	Client: Fresport Copper Queen Branch
Task No: _____	Date: 2-27-13
Well ID: Copper C	Weather: Sunny
ADWR No: _____	Sampler: Christopher L. Sherman

WELL DATA

Well Depth (ft bsl): 220 Casing Diameter (in): 6" Static Water Level (ft bmap): 166.4 Casing Volume (gals): 86.1 3 Casing Volumes (gals): 258.3	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
1200							
1210	10	8.5	85	6.59	20.8	1803	
1220	20	8.5	170	6.67	20.8	1802	
1235	35	8.5	297	6.58	20.9	1805	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

586

Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/18/13
 Well ID: DODSON Weather: Sunny 50's
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls):	<u>200</u>	Casing Capacity
Casing Diameter (in):	<u>6</u>	Nominal Size (inches)
Static Water Level (ft bmp):	<u>99.73</u>	Gallons per Linear Foot
Casing Volume (gal):	<u>147 x3 = 442</u>	2 0.16
Total Volume Purged (gal):		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>1139</u>	<u>Pump On</u>						
<u>1149</u>	<u>10</u>	<u>12</u>	<u>120</u>	<u>7.26</u>	<u>19.9</u>	<u>2054</u>	
<u>1159</u>	<u>20</u>		<u>240</u>	<u>7.28</u>	<u>20.2</u>	<u>1933</u>	
<u>1209</u>	<u>30</u>		<u>360</u>	<u>7.33</u>	<u>20.1</u>	<u>1815</u>	
<u>1219</u>	<u>40</u>		<u>480</u>	<u>7.28</u>	<u>20.1</u>	<u>1778</u>	
<u>1224</u>	<u>45</u>		<u>540</u>	<u>7.27</u>	<u>20.2</u>	<u>1743</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>DODSON</u>	<u>1227</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</u>	<u>Y</u>
<u>NUP20130118</u>	<u>1500</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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: sampled from spigot on SW corner of garage.

Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/9/13
 Well ID: DOUGLASS 791 Weather: sunny 50s
 ADWR No: _____ Sampler: mmL

WELL DATA		
Well Depth (ft bls): _____ Casing Diameter (in): _____ Static Water Level (ft bmp): <u>27.24</u> Casing Volume (gal): _____ x3 = _____ Total Volume Purged (gal): _____	Casing Capacity Nominal Size (inches)	Gallons per Linear Foot
	2	0.16
	4	0.65
	5	1.02
	6	1.47
	8	2.61
	10	4.08
Casing Volume = gallons/foot * water column (feet)		

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

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

SAMPLE INFORMATION							
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



Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 1/9/13
 Well ID: DOUGLASS 792 Weather: sunny 80's
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
	2	0.16
Casing Diameter (in): _____	4	0.65
	5	1.02
Static Water Level (ft bmp): <u>82.60</u>	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
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 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: WLO



Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/17/13
 Well ID: EAST Weather: sunny 50
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls):	<u>125</u>	Casing Capacity
Casing Diameter (in):	<u>4</u>	Nominal Size (inches)
Static Water Level (ft bmp):	<u>75.04</u>	Gallons per Linear Foot
Casing Volume (gal):	<u>74 x3 = 220</u>	2
Total Volume Purged (gal):		4
		5
		6
		8
		10
		Casing Volume = gallons/foot * water 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>11</u>	<u>55</u>	<u>7.59</u>	<u>19.8</u>	<u>619.9</u>	
<u>1118</u>	<u>10</u>		<u>110</u>	<u>7.58</u>	<u>20.1</u>	<u>618.6</u>	
<u>1123</u>	<u>15</u>		<u>165</u>	<u>7.55</u>	<u>20.1</u>	<u>616.9</u>	
<u>1128</u>	<u>20</u>		<u>220</u>	<u>7.46</u>	<u>20.0</u>	<u>613.0</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>EAST</u>	<u>1132</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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: 1 Date: 1/18/13
 Well ID: ECHAVE Weather: Sunny 60
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls):	<u>345</u>	Casing Capacity
Casing Diameter (in):	<u>6</u>	Nominal Size (inches)
Static Water Level (ft bmp):	<u>218.41</u>	Gallons per Linear Foot
Casing Volume (gal):	<u>186 x3 = 558</u>	2
Total Volume Purged (gal):		4
		5
		6
		8
		10
		Casing Volume = gallons/foot * water 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>1336</u>	<u>Pump On</u>						
<u>1351</u>	<u>15</u>	<u>8.5</u>	<u>127.5</u>	<u>7.59</u>	<u>21.6</u>	<u>408.6</u>	
<u>1406</u>	<u>30</u>		<u>255</u>	<u>7.68</u>	<u>21.8</u>	<u>407.7</u>	
<u>1421</u>	<u>45</u>		<u>382.5</u>	<u>7.63</u>	<u>21.7</u>	<u>407.4</u>	
<u>1436</u>	<u>60</u>		<u>510</u>	<u>7.67</u>	<u>21.7</u>	<u>407.6</u>	
<u>1446</u>	<u>70</u>		<u>595</u>	<u>7.61</u>	<u>21.7</u>	<u>408.5</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>ECHAVE</u>	<u>1448</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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:



Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/17/13
 Well ID: EPPELE W41 Weather: sunny, breezy, 30's
 ADWR No: _____ Sampler: MML

WELL DATA			
Well Depth (ft bls): <u>265</u>	Casing Capacity		
Casing Diameter (in): <u>8</u>	Nominal Size (inches)	Gallons per Linear Foot	
	2	0.16	
Static Water Level (ft bmp): <u>59.73</u>	4	0.65	
	5	1.02	
Casing Volume (gal): <u>536 x3 = 1608</u>	6	1.47	
	8	2.61	
Total Volume Purged (gal): _____	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>0842</u>	<u>Pump On</u>						
<u>0852</u>	<u>10</u>	<u>10</u>	<u>100</u>	<u>7.73</u>	<u>19.8</u>	<u>563.3</u>	
<u>0902</u>	<u>20</u>		<u>200</u>	<u>7.69</u>	<u>19.8</u>	<u>560.8</u>	
<u>0912</u>	<u>30</u>		<u>300</u>	<u>7.75</u>	<u>19.7</u>	<u>562.1</u>	
<u>0922</u>	<u>40</u>		<u>400</u>	<u>7.75</u>	<u>19.6</u>	<u>563.8</u>	
<u>0932</u>	<u>50</u>		<u>500</u>	<u>7.82</u>	<u>19.7</u>	<u>567.0</u>	
<u>0941</u>	<u>59</u>		<u>590</u>	<u>7.76</u>	<u>19.1</u>	<u>559.6</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>EPPELE W41</u>	<u>0959</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</u>	<u>Y</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: Well dry at 0941 wait 15 minutes to collect sample

Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/18/13
 Well ID: Fleming Weather: Sunny 55
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>373.96</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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 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: WLO



Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/15/13
 Well ID: Franco 383 Weather: Sunny 30's
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>196.30</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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>1437</u>	<u>Pump On</u>						
<u>1440</u>	<u>3</u>	<u>12</u>	<u>36</u>	<u>7.49</u>	<u>11.4</u>	<u>1011</u>	
<u>1441</u>							<u>Booster Pump turns on.</u>
<u>1443</u>	<u>6</u>		<u>72</u>	<u>7.52</u>	<u>13.5</u>	<u>1010</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>FRANCO 383</u>	<u>1445</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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 until booster pump kicks on</u>

Additional Comments: _____

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 2/6/13
 Well ID: Franco 383 Weather: Sunny, 70's
 ADWR No: _____ Sampler: VNA

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>195.62</u>	2	0.16
Casing Volume (gal): <u>526 x3 = 1578</u>	4	0.65
Total Volume Purged (gal): <u>180</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>1625</u>	<u>Pump On</u>						
<u>1635</u>	<u>10</u>	<u>6</u>	<u>60</u>	<u>7.58</u>	<u>18.9</u>	<u>1002</u>	
<u>1645</u>	<u>20</u>	<u>6</u>	<u>120</u>	<u>7.56</u>	<u>19.0</u>	<u>1003</u>	
<u>1655</u>	<u>30</u>	<u>6</u>	<u>180</u>	<u>7.55</u>	<u>18.9</u>	<u>1004</u>	
							<u>Pump Off</u>

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Franco 383</u>	<u>1704</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. <input type="checkbox"/> Other:

Additional Comments: _____

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 002 1.0 Date: 3-7-13
 Well ID: FRANCO 383 Weather: SUNNY 60's
 ADWR No: _____ Sampler: BSD

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>196.20</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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>11:00</u>	Pump On						
<u>11:15</u>		<u>5</u>	<u>75</u>	<u>7.4</u>	<u>20.5</u>	<u>997.9</u>	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>FRANCO 383</u>	<u>11:20</u>	<u>Pol</u>	<u>250 mL</u>	<u>1</u>	<u>300.0</u>	<u>φ</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>Sample from black poly tank</u>

Additional Comments: _____



Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 1/11/13
 Well ID: Garner 557 Weather: partly cloudy 34°
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bis): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>197.51</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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 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 paremeters stabilized.
- Purged well until field parameters stabilized.
- Other:

Additional Comments: WLO

Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/11/13
 Well ID: Garner 635 Weather: sunny 30's
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls):	<u>680</u>	Casing Capacity
Casing Diameter (in):	<u>5</u>	Nominal Size (inches)
Static Water Level (ft bmp):	<u>199.38</u>	Gallons per Linear Foot
Casing Volume (gal):	<u>480 x3 = 1440</u>	2
Total Volume Purged (gal):	<u>1520</u>	4
		5
		6
		8
		10
		Casing Volume = gallons/foot * water 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>	<u>Pump On</u>						
<u>0900</u>	<u>20</u>	<u>16</u>	<u>320</u>	<u>7.73</u>	<u>17.8</u>	<u>472.5</u>	
<u>0920</u>	<u>40</u>		<u>640</u>	<u>7.80</u>	<u>23.0</u>	<u>471.2</u>	
<u>0940</u>	<u>60</u>	<u>16</u>	<u>960</u>	<u>7.77</u>	<u>23.9</u>	<u>471.3</u>	
<u>1000</u>	<u>80</u>		<u>1280</u>	<u>7.81</u>	<u>23.8</u>	<u>471.4</u>	
<u>1010</u>	<u>90</u>		<u>1440</u>	<u>7.83</u>	<u>23.7</u>	<u>470.8</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>GARNER 635</u>	<u>1015</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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: 1 Date: 1/11/13
 Well ID: Goar Ranch Weather: sunny 30's
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
	2	0.16
Casing Diameter (in): _____	4	0.65
Static Water Level (ft bmp): <u>190.48</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 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 paremeters stabilized.
 Purged well until field parameters stabilized.
 Other: _____

Additional Comments: _____



Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 2/5/13
 Well ID: Hardt Weather: Sunny, 60's
 ADWR No: _____ Sampler: VNT4

WELL DATA		
Well Depth (ft bls): <u>125'</u>	Casing Capacity	
Casing Diameter (in): <u>/</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>/</u>	2	0.16
Casing Volume (gal): <u>/ x3 =</u>	4	0.65
Total Volume Purged (gal): <u>170</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>1739</u>	<u>Pump On</u>						
<u>1744</u>	<u>5</u>	<u>8.5</u>	<u>42.5</u>	<u>7.12</u>	<u>13.1</u>	<u>663.8</u>	
<u>1749</u>	<u>10</u>	<u>8.5</u>	<u>85</u>	<u>7.17</u>	<u>15.7</u>	<u>664.3</u>	
<u>1754</u>	<u>15</u>	<u>8.5</u>	<u>127.5</u>	<u>7.06</u>	<u>17.2</u>	<u>669.1</u>	
<u>1759</u>	<u>20</u>	<u>8.5</u>	<u>170</u>	<u>7.15</u>	<u>17.5</u>	<u>670.6</u>	
							<u>Pump Off</u>

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Hardt</u>	<u>1803</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: _____	Client: <u>Freeport Copper Queen Branch</u>
Task No: _____	Date: <u>2-15-13</u>
Well ID: <u>Hoboo</u>	Weather: <u>Sunny</u>
ADWR No: _____	Sampler: <u>Christopher L Sherman</u>

WELL DATA

Well Depth (ft bgs): <u>300</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>169.7</u>	2	0.16
Casing Volume (gals): <u>133</u>	4	0.65
3 Casing Volumes (gals): <u>399</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
0845							
0855	10	17.6	176	6.57	20.7	1936	
0905	20	17.6	352	6.64	20.8	1940	
0915	30	17.6	528	6.64	20.7	1934	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: 1303

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 2/6/13
 Well ID: Howard 312 Weather: Sunny, 70's
 ADWR No: _____ Sampler: UNIT

WELL DATA		
Well Depth (ft bls): <u>980</u>	Casing Capacity	
Casing Diameter (in): <u>5</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>193.74</u>	2	0.16
Casing Volume (gal): <u>802 x3 = 2406</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>1150</u>	<u>Pump On</u>						
<u>1200</u>	<u>10</u>	<u>7.5</u>	<u>75</u>	<u>8.16</u>	<u>21.4</u>	<u>642.8</u>	<u>Odorless</u>
<u>1220</u>	<u>30</u>	<u>8</u>	<u>235</u>	<u>8.15</u>	<u>21.5</u>	<u>643.1</u>	<u>Odorless</u>
<u>1250</u>	<u>60</u>	<u>8</u>	<u>475</u>	<u>8.17</u>	<u>23.0</u>	<u>645.6</u>	<u>" "</u>
<u>1320</u>	<u>90</u>	<u>8</u>	<u>715</u>	<u>8.19</u>	<u>23.4</u>	<u>651.4</u>	<u>" "</u>
<u>1350</u>	<u>120</u>	<u>8</u>	<u>955</u>	<u>8.18</u>	<u>24.1</u>	<u>650.3</u>	<u>" "</u>
							<u>Pump Off</u>

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Howard 312</u>	<u>1400</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</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: Purge 1 well vol IFF parameters stabilize

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 2/16/13
 Well ID: Howard NR Weather: Sunny, 70's
 ADWR No: _____ Sampler: 1/11/13

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>156.27</u>	2	0.16	
Casing Volume (gal): <u>64</u> x3 = <u>192</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
1038	Pump On						
1043	5	9.5	47.5	7.05	19.9	1352	
1048	10	9.5	95	7.09	20.4	1419	
1053	15	9.5	142.5	7.12	20.2	1452	
1058	20	9.5	190	7.00	20.5	1765	
1103	25	9.5	237.5	7.07	20.4	1472	
1108	30	9.5	285	7.05	20.1	1496	
1113	35	9.5		7.06	20.3	1499	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Howard NR	1120	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 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: 1 Date: 1/10/13
 Well ID: Keeper Weather: cloudy 50's
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls):	<u>245</u>	Casing Capacity
Casing Diameter (in):	<u>6</u>	Nominal Size (inches)
Static Water Level (ft bmp):	<u>140.80</u>	Gallons per Linear Foot
Casing Volume (gal):	<u>153 x3 = 460</u>	2 0.16
Total Volume Purged (gal):		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>1402</u>	<u>Pump On</u>						
<u>1414</u>	<u>12</u>	<u>14</u>	<u>168</u>	<u>7.56</u>	<u>19.9</u>	<u>447.3</u>	
<u>1426</u>	<u>24</u>		<u>336</u>	<u>7.58</u>	<u>19.8</u>	<u>459.5</u>	
<u>1436</u>	<u>34</u>		<u>476</u>	<u>7.55</u>	<u>19.3</u>	<u>466.3</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>KEEPER</u>	<u>1440</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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: 2/6/13
 Well ID: Marcell Weather: Sunny, Breezy, 60's
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bis): <u>~ 220'</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>~ 180'</u>	2	0.16
Casing Volume (gal): <u>60 x3 = 180</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>1727</u>	<u>Pump On</u>						
<u>1732</u>	<u>5</u>	<u>11.5</u>	<u>57.5</u>	<u>7.28</u>	<u>19.5</u>	<u>1604</u>	
<u>1737</u>	<u>10</u>	<u>11.5</u>	<u>115</u>	<u>7.21</u>	<u>19.6</u>	<u>1609</u>	
<u>1742</u>	<u>15</u>	<u>11.5</u>	<u>172.5</u>	<u>7.25</u>	<u>19.8</u>	<u>1553</u>	
							<u>Pump Off</u>

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Marcell</u>	<u>1745</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>
<u>DUP 02062013</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 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: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/10/13
 Well ID: McConnell 2105 (old) Weather: cloudy 50
 ADWR No: _____ Sampler: MML

WELL DATA			
Well Depth (ft bis):	210	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	6"	2	0.16
		4	0.65
		5	1.02
		6	1.47
		8	2.61
Static Water Level (ft bmp):	162.57	8	2.61
Casing Volume (gal):	93 x3 = 280	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
11:17	Pump On						
11:27	10	7	70	6.96	19.7	1866	
11:37	20		140	6.90	17.3	1907	
11:47	30		210	6.88	20.8	1852	
11:57	40		280	6.90	20.7	1808	
12:07	50		350	6.89	20.9	1854	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
McConnell 2105	1215	Poly	250	1	300.0	N	Y
DUP20130110	"1800"	Poly	250	1	300.0	N	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: * New sampling location - South side of garage (of southern house) Gasport. *

Groundwater Sampling Form

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Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/15/13
 Well ID: McCONNELL 459 (new) Weather: sunny 30°
 ADWR No: 221459 Sampler: MML

WELL DATA		
Well Depth (ft bls): <u>863</u>	Casing Capacity	
Casing Diameter (in): <u>5</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>166.32'</u>	2	0.16
Casing Volume (gal): <u>711 x3 = 2132</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>1037</u>	<u>Pump On</u>						
<u>1052</u>	<u>15</u>	<u>11</u>	<u>165</u>	<u>8.05</u>	<u>22.6</u>	<u>525.9</u>	
<u>1102</u>	<u>25</u>	<u>11</u>	<u>275</u>	<u>8.11</u>	<u>23.5</u>	<u>524.7</u>	
<u>1112</u>	<u>35</u>	<u>12</u>	<u>395</u>	<u>8.09</u>	<u>23.9</u>	<u>532.1</u>	
<u>1127</u>	<u>50</u>	<u>12</u>	<u>575</u>	<u>8.04</u>	<u>24.2</u>	<u>527.8</u>	
<u>1142</u>	<u>65</u>	<u>12</u>	<u>755</u>	<u>8.04</u>	<u>24.2</u>	<u>532.5</u>	
<u>1157</u>	<u>80</u>	<u>12</u>	<u>935</u>	<u>8.07</u>	<u>24.3</u>	<u>521.1</u>	
<u>1212</u>	<u>95</u>	<u>12</u>	<u>1115</u>	<u>8.05</u>	<u>23.9</u>	<u>520.4</u>	
<u>1227</u>	<u>110</u>	<u>12</u>	<u>1295</u>	<u>8.04</u>	<u>24.5</u>	<u>516.4</u>	
<u>1242</u>	<u>125</u>	<u>12</u>	<u>1475</u>	<u>8.06</u>	<u>24.5</u>	<u>512.6</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>McCONNELL 459</u>	<u>1250</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</u>	<u>Y</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: Purge 1 well volume + field parameters stabilize.

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/11/13
 Well ID: Metzler Weather: Sunny 40
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>292.15</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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 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: WLO

Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/10/13
 Well ID: MOORE Weather: cloudy 50's
 ADWR No: _____ Sampler: MML

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>N/A</u>	2	0.16
Casing Volume (gal): <u>30 minute purge 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>1556</u>	<u>Pump On</u>						
<u>1606</u>		<u>9.5</u>	<u>95</u>	<u>7.49</u>	<u>15.2</u>	<u>425.6</u>	
<u>1616</u>			<u>190</u>	<u>7.47</u>	<u>20.7</u>	<u>436.0</u>	
<u>1621</u>			<u>246</u>	<u>7.54</u>	<u>20.9</u>	<u>442.7</u>	
<u>1626</u>			<u>285</u>	<u>7.50</u>	<u>20.8</u>	<u>439.9</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>MOORE</u>	<u>1630</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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: 1 Date: 1/9/13
 Well ID: Ness Weather: sunny 85
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls): <u>812</u>	Casing Capacity	
Casing Diameter (in): <u>5</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>551.35</u>	2	0.16
Casing Volume (gal): <u>266 x3 = 798</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>1522</u>	<u>Pump On</u>						
<u>1542</u>	<u>20</u>	<u>11</u>	<u>220</u>	<u>7.58</u>	<u>17.8</u>	<u>545.3</u>	
<u>1602</u>	<u>40</u>	<u>11</u>	<u>440</u>	<u>7.61</u>	<u>18.5</u>	<u>547.9</u>	
<u>1622</u>	<u>60</u>	<u>11</u>	<u>660</u>	<u>7.58</u>	<u>18.8</u>	<u>548.8</u>	
<u>1637</u>	<u>75</u>		<u>825</u>	<u>7.57</u>	<u>19.1</u>	<u>549.6</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>NESS</u>	<u>1640</u>	<u>POLY</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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: 1 Date: 1/17/13
 Well ID: NOTEMAN Weather: Sunny 50
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>N/A</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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>1704</u>	<u>Pump On</u>						
<u>1714</u>	<u>10</u>	<u>14</u>	<u>140</u>	<u>6.88</u>	<u>20.8</u>	<u>1413</u>	
<u>1724</u>	<u>20</u>		<u>280</u>	<u>6.71</u>	<u>22.1</u>	<u>1421</u>	
<u>1734</u>	<u>30</u>		<u>420</u>	<u>6.69</u>	<u>22.3</u>	<u>1417</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>NOTEMAN</u>	<u>1738</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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: 3-22-13
 Well ID: NSD-02 Weather: Sunny
 ADWR No: _____ Sampler: B50

WELL DATA		
Well Depth (ft bis): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>107.20</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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 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

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 2.1 Date: 3-22-13
 Well ID: NED-03 Weather: Sunny
 ADWR No: _____ Sampler: _____

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>88.65</u>	4	0.65
Casing Volume (gal): <u>x3 =</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
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 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: LLO



Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/10/13
 Well ID: NWC-02 Weather: Partly Cloudy 45
 ADWR No: _____ Sampler: MWL

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>N/A</u>	4	0.65
	5	1.02
Casing Volume (gal): _____ x3 = _____	6	1.47
	8	2.61
Total Volume Purged (gal): _____	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							
<u>0957</u>				<u>7.45</u>	<u>21.6</u>	<u>395.5</u>	
<u>1002</u>				<u>7.50</u>	<u>21.7</u>	<u>396.8</u>	
<u>1007</u>				<u>7.58</u>	<u>21.8</u>	<u>396.4</u>	
Pump Off							

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>NWC-02</u>	<u>1010</u>	<u>poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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 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: 1/10/13
 Well ID: NWC-03 Weather: partly cloudy, 45
 ADWR No: _____ Sampler: _____

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>N/A</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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						
<u>0928</u>				<u>7.23</u>	<u>20.3</u>	<u>1065</u>	
<u>0933</u>				<u>7.21</u>	<u>20.8</u>	<u>1059</u>	
<u>0938</u>				<u>7.18</u>	<u>20.8</u>	<u>1057</u>	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>NWC-03</u>	<u>0940</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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 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: 1/10/13
 Well ID: NWC-03 CAP Weather: partly cloudy 45
 ADWR No: _____ Sampler: mmh

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>135.60</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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 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: WLO



Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch ✓
 Task No: 1 Date: 1/10/13
 Well ID: NWC-04 Weather: Sunny 45
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>N/A</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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							
<u>0843</u>				<u>7.44</u>	<u>21.8</u>	<u>890.3</u>	
<u>0848</u>				<u>7.32</u>	<u>22.2</u>	<u>912.9</u>	
<u>0853</u>				<u>7.39</u>	<u>22.3</u>	<u>921.2</u>	
<u>0858</u>				<u>7.37</u>	<u>22.2</u>	<u>903.1</u>	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>NWC-04</u>	<u>0900</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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 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: 2/7/13
 Well ID: NWC-04 Weather: Sunny, 70s
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): _____	2	0.16
Casing Volume (gal): _____ x3 = _____	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						
<u>1111</u>				<u>7.71</u>	<u>22.9</u>	<u>912.5</u>	
<u>1116</u>				<u>7.53</u>	<u>22.9</u>	<u>942.9</u>	
<u>1121</u>				<u>7.54</u>	<u>23.0</u>	<u>917.5</u>	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>NWC-04</u>	<u>1129</u>	<u>250mL Poly</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: 002 1.0 Date: 3-7-13
 Well ID: NWC-09 Weather: Sunny 60's
 ADWR No: _____ Sampler: B50

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	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
10:05	Pump On			7.38			
10:10		23		7.05	22.3	905.5	
10:15		↓	230	7.46	22.4	888.1	
10:20		↓	345	7.49	22.4	892.4	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NWC-04	10:20	Poly	250	1	300.0	∅	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: well has been out of off - collect 3 readings and sample

Additional Comments: _____



Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/10/13
 Well ID: NWC-06 Weather: cloudy 45
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bis): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>N/A</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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						
<u>1024</u>				<u>7.42</u>	<u>21.3</u>	<u>428.9</u>	
<u>1029</u>				<u>7.48</u>	<u>21.4</u>	<u>428.3</u>	
<u>1034</u>				<u>7.47</u>	<u>21.3</u>	<u>429.2</u>	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>NWC-06</u>	<u>1038</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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 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: 1 Date: 1/8/13
 Well ID: OSBORN Weather: sunny, 100
 ADWR No: _____ Sampler: MML

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): _____	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						
1533				7.86	10.5	544.4	
	Pump Off						

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
OSBORN	1533	POLY	250	1	300.0	N	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. @ 6ft <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>Tank</u>

Additional Comments: Sample from Tank

Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/9/13
 Well ID: PALMER Weather: Sunny 50
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bis): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): _____	2	0.16
Casing Volume (gal): _____ x3 = _____	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
17	Pump On						
1715				7.90	17.5	532.8	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
PALMER	1715	Poly	250	1	300.0	N	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 paremeters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input checked="" type="checkbox"/> Other: _____

Additional Comments: Sample from tank atop garage space



Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/18/13
 Well ID: Panagakos Weather: Sunny 50's
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls):	<u>200</u>	Casing Capacity
Casing Diameter (in):	<u>6</u>	Nominal Size (inches)
Static Water Level (ft bmp):	<u>169.12</u>	Gallons per Linear Foot
Casing Volume (gal):	<u>45 x3 = 135</u>	2
Total Volume Purged (gal):		4
		5
		6
		8
		10
		Casing Volume = gallons/foot * water 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 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: BROKEN PIPE - UNABLE to sample today

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 2/6/13
 Well ID: Panagakos Weather: Sunny, 70's
 ADWR No: _____ Sampler: VN:1

WELL DATA		
Well Depth (ft bls): <u>200.0</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>168.76</u>	2	0.16
Casing Volume (gal): <u>46</u> x3 = <u>138</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>1520</u>	<u>Pump On</u>						
<u>1525</u>	<u>5</u>	<u>8.5</u>	<u>42.5</u>	<u>7.08</u>	<u>19.7</u>	<u>1053</u>	
<u>1530</u>	<u>10</u>	<u>8.5</u>	<u>85</u>	<u>7.09</u>	<u>19.8</u>	<u>1021</u>	
<u>1535</u>	<u>15</u>	<u>8.5</u>	<u>127.5</u>	<u>7.05</u>	<u>19.9</u>	<u>1054</u>	
<u>1540</u>	<u>20</u>	<u>8.5</u>	<u>170</u>	—	—	—	<u>OFF</u>
							<u>Pump Off</u>

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Panagakos</u>	<u>1542</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: 1 Date: 1/11/13
 Well ID: PARRA Weather: Sunny 40's
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bis): <u>355</u>	Casing Capacity	
Casing Diameter (in): <u>6</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>N/A (280.99)</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>1229</u>	<u>Pump On</u>						
<u>1244</u>	<u>15</u>	<u>5</u>	<u>75</u>	<u>7.58</u>	<u>17.7</u>	<u>1217</u>	
<u>1259</u>	<u>30</u>		<u>150</u>	<u>7.64</u>	<u>19.9</u>	<u>1227</u>	
<u>1314</u>	<u>45</u>		<u>225</u>	<u>7.65</u>	<u>20.4</u>	<u>1224</u>	
<u>1329</u>	<u>60</u>		<u>300</u>	<u>7.65</u>	<u>19.9</u>	<u>1221</u>	
<u>1335</u>	<u>66</u>		<u>330</u>	<u>7.64</u>	<u>20.3</u>	<u>1217</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>PARRA</u>	<u>1340</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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: 280.99' on 7/20/09

Groundwater Sampling Form

✓
(WLO)

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 1/9/13
 Well ID: PIONKE 395 (old) Weather: _____
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bis): <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>155.25</u>	4	0.65
Casing Volume (gal): <u>213 x3 = ~640</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>1241</u>	<u>Pump On</u>	<u>at 2.5 gpm</u>					
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>PIONKE 395</u>		<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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: → gpm to a trickle at ~20 minutes, then stopped.



Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/2/13
 Well ID: PIONKE 517 (new) Weather: sunny 50
 ADWR No: _____ Sampler: MML

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>152.23</u>	2	0.16
Casing Volume (gal): <u>461</u> x3 = <u>1385</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>1053</u>	<u>Pump On</u>						
<u>1103</u>	<u>10</u>	<u>15</u>	<u>150</u>	<u>7.66</u>	<u>19.8</u>	<u>389.4</u>	<u>No odor, tiny bubbles give milky appearance</u>
<u>1118</u>	<u>25</u>		<u>375</u>	<u>7.73</u>	<u>20.9</u>	<u>393.6</u>	<u>clear at first.</u>
<u>1133</u>	<u>40</u>		<u>600</u>	<u>7.76</u>	<u>22.2</u>	<u>392.5</u>	<u>clear</u>
<u>1138</u>	<u>45</u>	<u>15</u>	<u>600</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>2nd Hose on</u>
<u>1148</u>	<u>55</u>	<u>19</u>	<u>850</u>	<u>7.79</u>	<u>22.5</u>	<u>389.6</u>	
<u>1203</u>	<u>70</u>		<u>1135</u>	<u>7.77</u>	<u>22.6</u>	<u>390.4</u>	
<u>1218</u>	<u>85</u>		<u>1420</u>	<u>7.79</u>	<u>22.6</u>	<u>389.9</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>PIONKE 517</u>	<u>12:20</u>	<u>POLY</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</u>	<u>Y</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: * SRB BART sample collected at 1107 *
~210 gal discharged



Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/17/13
 Well ID: RAMIREZ Weather: sunny, 55, windy
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bis): <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>N/A</u> *from 10/8/12 -> 1164.38	4	0.65
Casing Volume (gal): <u>200 x3 = 600</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>1423</u>	<u>Pump On</u>						
<u>1433</u>	<u>10</u>	<u>12</u>	<u>120</u>	<u>7.51</u>	<u>22.6</u>	<u>394.4</u>	
<u>1443</u>	<u>20</u>		<u>240</u>	<u>7.52</u>	<u>22.6</u>	<u>398.5</u>	
<u>1453</u>	<u>30</u>		<u>360</u>	<u>7.54</u>	<u>22.3</u>	<u>404.0</u>	
<u>1503</u>	<u>40</u>		<u>480</u>	<u>7.49</u>	<u>22.4</u>	<u>406.3</u>	
<u>1513</u>	<u>50</u>		<u>600</u>	<u>7.52</u>	<u>22.2</u>	<u>409.6</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>RAMIREZ</u>	<u>1515</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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. ~85' <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 type="checkbox"/> Other:

Additional Comments: Multiple obstructions encountered when trying to sound, ultimately would not go past 85'



Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/17/13
 Well ID: RAY Weather: Sunny, breezy 40's
 ADWR No: _____ Sampler: MML

WELL DATA			
Well Depth (ft bls):	<u>100</u>	Casing Capacity	
Casing Diameter (in):	<u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	<u>56.57</u>	2	0.16
Casing Volume (gal):	<u>64</u> x3 = <u>192</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>1015</u>	Pump On						
<u>1025</u>	<u>10</u>	<u>9</u>	<u>90</u>	<u>7.04</u>	<u>20.0</u>	<u>1545</u>	
<u>1030</u>	<u>15</u>		<u>135</u>	<u>7.06</u>	<u>19.3</u>	<u>1533</u>	
<u>1035</u>	<u>20</u>		<u>180</u>	<u>7.04</u>	<u>19.2</u>	<u>1535</u>	
<u>1040</u>	<u>25</u>		<u>225</u>	<u>7.05</u>	<u>19.5</u>	<u>1527</u>	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>RAY</u>	<u>1045</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</u>	<u>Y</u>
<u>DUP20130117</u>	<u>"1800"</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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

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Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/15/13
 Well ID: Rogers 596 Weather: sunny 30's
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>139.23</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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 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: WLO



Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/15/13
 Well ID: Rogers 803 Weather: sunny 30's
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bis): <u>140</u>	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>Rogers 596 = 139.23</u>	2	0.16
Casing Volume (gal): <u>x3 = 3 gal</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>1701</u>	<u>Pump On</u>						
<u>1703</u>	<u>2</u>	<u>6</u>	<u>12</u>	<u>7.50</u>	<u>3.1</u>	<u>685.5</u>	
<u>1706</u>	<u>5</u>		<u>30</u>	<u>7.39</u>	<u>13.9</u>	<u>684.4</u>	
<u>1711</u>	<u>10</u>		<u>60</u>	<u>7.35</u>	<u>17.3</u>	<u>682.8</u>	
<u>1714</u>	<u>15</u>		<u>90</u>	<u>7.39</u>	<u>17.9</u>	<u>690.1</u>	
<u>1721</u>	<u>20</u>		<u>120</u>	<u>7.37</u>	<u>16.9</u>	<u>681.1</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>ROGERS 803</u>	<u>1724</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</u>	<u>Y</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: _____



Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/17/13
 Well ID: Rogers E Weather: sunny, windy, 53
 ADWR No: _____ Sampler: MML

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>154.56</u>	2	0.16
Casing Volume (gal):	<u>200 x3 = 600</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>1532</u>	<u>Pump On</u>						
<u>1542</u>	<u>10</u>	<u>11</u>	<u>110</u>	<u>7.46</u>	<u>21.6</u>	<u>431.9</u>	
<u>1552</u>	<u>20</u>		<u>220</u>	<u>7.48</u>	<u>21.5</u>	<u>430.8</u>	
<u>1602</u>	<u>30</u>		<u>330</u>	<u>7.49</u>	<u>21.7</u>	<u>431.8</u>	
<u>1612</u>	<u>40</u>		<u>440</u>	<u>7.51</u>	<u>21.5</u>	<u>430.3</u>	
<u>1622</u>	<u>50</u>		<u>550</u>	<u>7.48</u>	<u>21.5</u>	<u>430.5</u>	
<u>1627</u>	<u>55</u>		<u>605</u>	<u>7.46</u>	<u>21.5</u>	<u>431.5</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>ROGERS E</u>	<u>1630</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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: 1 Date: 1/11/13
 Well ID: RUIZ Weather: Sunny 40
 ADWR No: _____ Sampler: MML

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
	4	0.65
Static Water Level (ft bmp): <u>299.39</u>	5	1.02
	6	1.47
Casing Volume (gal): <u>18.5 x3 = 55.5</u>	8	2.61
	10	4.08
Total Volume Purged (gal): <u>95</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>1156</u>	<u>Pump On</u>						
<u>1201</u>	<u>5</u>	<u>5</u>	<u>25</u>	<u>7.22</u>	<u>20.6</u>	<u>897.7</u>	
<u>1206</u>	<u>10</u>		<u>50</u>	<u>7.24</u>	<u>20.7</u>	<u>896.1</u>	
<u>1211</u>	<u>15</u>		<u>75</u>	<u>7.21</u>	<u>20.7</u>	<u>895.8</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>RUIZ</u>	<u>12:15</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</u>	<u>Y</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: * well switch on NW post that holds tank up. Leave on when done per owners request



Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 002 1.0 Date: 3-13-13
 Well ID: Schwartz Weather: SUNNY, 60s
 ADWR No: _____ Sampler: BSD

WELL DATA

Well Depth (ft bbs): <u>305</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>128.81</u>	2	0.16
Casing Volume (gal): <u>250 x3 =</u>	4	0.65
Total Volume Purged (gal): <u>780</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>10:20</u>	<u>Pump On</u>						
<u>10:40</u>	<u>20</u>	<u>10</u>	<u>200</u>	<u>7.61</u>	<u>21.9</u>	<u>627.3</u>	
<u>11:00</u>	<u>40</u>	<u>10</u>	<u>400</u>	<u>7.57</u>	<u>20.7</u>	<u>628.7</u>	
<u>11:20</u>	<u>60</u>	<u>10</u>	<u>600</u>	<u>7.66</u>	<u>20.6</u>	<u>626.7</u>	
<u>11:40</u>	<u>80</u>	<u>10</u>	<u>800</u>	<u>7.57</u>	<u>20.7</u>	<u>623.6</u>	
							Pump Off

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

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Schwartz</u>	<u>11:42</u>	<u>poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>φ</u>	<u>y</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:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/18/13
 Well ID: STEPHENS Weather: sunny 40's
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>10.50</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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 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

Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/17/13
 Well ID: SUNBELT Weather: sunny 50
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>DRY</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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 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 paremeters stabilized.
 Purged well until field parameters stabilized.
 Other: _____

Additional Comments: WLO



Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/9/13
 Well ID: SWAN Weather: sunny, 50
 ADWR No: _____ Sampler: MML

WELL DATA			
Well Depth (ft bls):	<u>98</u>	Casing Capacity	
Casing Diameter (in):	<u>4</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	<u>38.51</u>	2	0.16
Casing Volume (gal):	<u>39</u> x3 = <u>117</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>1412</u>	Pump On						
<u>1417</u>	<u>5</u>	<u>9</u>	<u>45</u>	<u>7.45</u>	<u>19.7</u>	<u>489.5</u>	
<u>1422</u>	<u>10</u>		<u>90</u>	<u>7.37</u>	<u>20.0</u>	<u>483.6</u>	
<u>1427</u>	<u>15</u>		<u>135</u>	<u>7.38</u>	<u>20.0</u>	<u>489.0</u>	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>SWAN</u>	<u>1430</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</u>	<u>Y</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:



465

Groundwater Sampling Form

Project No:	Client: <u>Freeport Copper Queen Branch</u>
Task No:	Date: <u>2-14-13</u>
Well ID: <u>TM-2A</u>	Weather: <u>Sunny</u>
ADWR No:	Sampler: <u>Christopher L Sherman</u>

WELL DATA

Well Depth (ft bis): <u>925</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>4"</u>	2	0.16
Static Water Level (ft amp): <u>343.5'</u>	4	0.65
Casing Volume (gals): <u>378-</u>	5	1.02
3 Casing Volumes (gals): <u>1134</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 (20)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0925							
0930	5	7.5	32	7.75	24.0	351	
1025	60	5.5	450	7.74	23.8	350	
1105	100	3.2	670	7.71	24.2	349	
1205	160	1.86		7.76	24.4	354	
1245	200	1.75	912	7.79	24.6	358	
1445				7.77	22.1	365	
1500				7.76	22.0	361	660 - 451.62
1515				7.72	22.2	369	

2-15-13

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: 5815

Groundwater Sampling Form

Project No: _____	Client: <u>Freeport Copper Queen Branch</u>
Task No: _____	Date: <u>2-14-13</u>
Well ID: <u>TM-6</u>	Weather: <u>Sunny</u>
ADWR No: _____	Sampler: <u>Christopher L. Sherman</u>

WELL DATA

Well Depth (ft bbl): <u>200'</u>	Casing Capacity	
Casing Diameter (in): <u>4"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bwp): <u>161.05</u>	2	0.16
Casing Volume (gals): <u>25.2</u>	4	0.65
3 Casing Volumes (gals): <u>75.6</u>	6	1.92
	8	2.61
	10	4.08
	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1530							
1535	5	11.5	57	6.88	19.9	531	
1540	10	11.5	115	6.90	19.8	529 529	
1545	15	11.5	172	6.92	19.6	527	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: 38.9

Groundwater Sampling Form

Project No: _____	Client: Freeport Copper Queen Branch
Task No: _____	Date: <u>2-27-13</u>
Well ID: <u>TM-7</u>	Weather: <u>Sunny</u>
ADWR No: _____	Sampler: <u>Christopher L. Sherman</u>

WELL DATA

Well Depth (ft bta): _____ Casing Diameter (in): _____ Static Water Level (ft bmp): _____ Casing Volume (gals): _____ 3 Casing Volumes (gals): _____	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
	2	0.16
	4	0.65
	5	1.02
	6	1.47
8	2.61	
10	4.08	
Casing Volume = gallons/foot * water column (feet)		

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0920							
0922	2	10	20	6.76	19.5	374	
0932	—						
0934	4	10	40	6.78	19.6	371	
0944	—						
0946	6	10	60	6.79	19.8	374	
0956	—						
0958	8	10	80	6.81	19.9	380	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: Collected on 2/27/13 on 7-35653-02 Exp 5-14 / 4 35653-01 - Exp 11-13

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 002 1-0 Date: 3-7-12 B
 Well ID: TM-10 Weather: Sunny 60°
 ADWR No: _____ Sampler: B50

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>276.55</u>	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
<u>13:35</u>	<u>Pump On</u>						
<u>13:37</u>	<u>2</u>			<u>8.19</u>	<u>20.5</u>	<u>422.1</u>	<u>Dry</u>
<u>13:47</u>	<u>28</u>			<u>8.12</u>	<u>20.6</u>	<u>420.6</u>	<u>30 sec f dry</u>
<u>14:00</u>	<u>29</u>			<u>8.33</u>	<u>21.2</u>	<u>415.1</u>	<u>20 sec thundry</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>TM-10</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: _____

Groundwater Sampling Form

Project No: _____ Task No: _____ Well ID: <u>TM-15</u> ADWR No: <u>4</u>	Client: <u>Freeport Copper Queen Branch</u> Date: <u>2-12-13</u> Weather: <u>Partly Cloudy</u> Sampler: <u>Christopher L. Swanson</u>
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WELL DATA

Well Depth (ft bis): <u>325</u> Casing Diameter (in): <u>4"</u> Static Water Level (ft bmp): <u>NA</u> Casing Volume (gals): _____ Casing Volumes (gals): _____	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">Casing Capacity</th> </tr> <tr> <th style="text-align: center;">Nominal Size (inches)</th> <th style="text-align: center;">Gallons per Linear Foot</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">2</td><td style="text-align: center;">0.16</td></tr> <tr><td style="text-align: center;">4</td><td style="text-align: center;">0.55</td></tr> <tr><td style="text-align: center;">5</td><td style="text-align: center;">1.02</td></tr> <tr><td style="text-align: center;">6</td><td style="text-align: center;">1.47</td></tr> <tr><td style="text-align: center;">8</td><td style="text-align: center;">2.61</td></tr> <tr><td style="text-align: center;">10</td><td style="text-align: center;">4.08</td></tr> </tbody> </table> <p style="text-align: center; font-size: small;">Casing Volume = gallons/foot * water column (feet)</p>	Casing Capacity		Nominal Size (inches)	Gallons per Linear Foot	2	0.16	4	0.55	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	0.55																
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>1230</u>							
<u>1250</u>	<u>20</u>	<u>7</u>	<u>140</u>	<u>6.89</u>	<u>21.9</u>	<u>391</u>	
<u>1310</u>	<u>40</u>	<u>7</u>	<u>280</u>	<u>6.93</u>	<u>21.8</u>	<u>390</u>	
<u>1330</u>	<u>60</u>	<u>7</u>	<u>420</u>	<u>6.6</u>	<u>21.7</u>	<u>393</u>	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		<u>plastic</u>	<u>250 ml</u>	<u>1</u>	<u>EPA 300.0</u>	<u>none</u>	<u>filtered</u>

Additional Comments: _____

494.7

Groundwater Sampling Form

Project No:	Client: Freeport Copper Queen Branch
Task No:	Date: 2-15-13
Well ID: TM-19A	Weather: Sunny
ADWR No:	Sampler: Christopher J. Sherman

WELL DATA

Well Depth (ft bls): 700	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): 4"	2	0.16
Static Water Level (ft bmp): 205.3	4	0.65
Casing Volume (gals): 321.5	5	1.02
3 Casing Volumes (gals): 965	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
0700							
0715	15	25	375	6.72	23.1	520	
0725	25	25	625	6.76	23.2	520	
0740	40	25	1000	6.74	23.2	522	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: **Calibrated meter 73565302 Exp-5-14-14-3565301 Exp 11-13**

Groundwater Sampling Form

Project No: _____	Client: Freeport Copper Queen Branch
Tank No: _____	Date: <u>2-12-13</u>
Well ID: <u>TM-42</u>	Weather: <u>Sunny</u>
ADWR No: _____	Sampler: <u>Christopher L. Stormo</u>

WELL DATA

Well Depth (ft bbs): <u>250</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>216.55</u>	4	0.65
Casing Volume (gals): <u>34.1</u>	5	1.02
3 Casing Volumes (gals): <u>103.3</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>16:20</u>							
<u>16:30</u>	<u>10</u>	<u>5</u>	<u>50</u>	<u>6.65</u>	<u>20.3</u>	<u>1175</u>	
<u>16:40</u>	<u>20</u>	<u>5</u>	<u>100</u>	<u>6.64</u>	<u>20.7</u>	<u>1180</u>	
<u>16:50</u>	<u>30</u>	<u>5</u>	<u>150</u>	<u>6.69</u>	<u>20.2</u>	<u>1185</u>	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: 33.45

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 2/6/13
 Well ID: TVE 713 Weather: Sunny, 60's
 ADWR No: _____ Sampler: VWH

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>131.14'</u>	2	0.16
Casing Volume (gal): _____ x3 = _____	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 0.2 su pH, 2 degrees C, and 200 µS/cm)

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

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: 2/6/13
 Well ID: TVE 875 Weather: Sunny, 60's
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>330'</u>	Casing Capacity	
Casing Diameter (in): <u>8"</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>0940</u>	<u>Pump On</u>						
<u>0943</u>	<u>3</u>	<u>500</u>	<u>1500</u>	<u>7.12</u>	<u>20.4</u>	<u>935.7</u>	
<u>0946</u>	<u>6</u>	<u>500</u>	<u>3000</u>	<u>7.25</u>	<u>20.9</u>	<u>946.7</u>	
<u>0948</u>	<u>8</u>	<u>500</u>	<u>4000</u>	<u>7.23</u>	<u>20.8</u>	<u>946.1</u>	
							<u>Pump Off</u>

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>TVE 875</u>	<u>0952</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: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 2/7/13
 Well ID: Weed Weather: Sunny, 70's
 ADWR No: _____ Sampler: VWH

WELL DATA		
Well Depth (ft bis): <u>320</u>	Casing Capacity	
Casing Diameter (in): _____	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>1358</u>	<u>Pump On</u>						
<u>1400</u>	<u>2</u>	<u>6</u>	<u>12</u>	<u>7.57</u>	<u>20.3</u>	<u>391.1</u>	
<u>1403</u>	<u>5</u>	<u>6</u>	<u>30</u>	<u>7.71</u>	<u>21.2</u>	<u>390.3</u>	
<u>1408</u>	<u>10</u>	<u>6</u>	<u>60</u>	<u>7.70</u>	<u>21.4</u>	<u>389.7</u>	
							<u>Pump Off</u>

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Weed</u>	<u>1410</u>	<u>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>
<u>DUP 02072013</u>	<u>800</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: 1 Date: 1/16/13
 Well ID: WEISKOPF 802 Weather: sunny breezy 40's
 ADWR No: _____ Sampler: MML

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>149.49</u>	2	0.16
Casing Volume (gal): <u>74 x3 = 222</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>1537</u>	<u>Pump On</u>						
<u>1547</u>	<u>10</u>	<u>6</u>	<u>60</u>	<u>7.50</u>	<u>19.7</u>	<u>532.7</u>	<u>water yellows cloudy</u>
<u>1557</u>	<u>20</u>		<u>120</u>	<u>7.36</u>	<u>20.4</u>	<u>1065</u>	<u>at first, clear by 60 gal</u>
<u>1607</u>	<u>30</u>		<u>180</u>	<u>7.20</u>	<u>20.3</u>	<u>1236</u>	
<u>1617</u>	<u>40</u>		<u>240</u>	<u>7.15</u>	<u>20.4</u>	<u>1287</u>	
<u>1622</u>	<u>45</u>		<u>270</u>	<u>7.14</u>	<u>20.5</u>	<u>1298</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>WEISKOPF 802</u>	<u>1626</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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: 1/16/13
 Well ID: WEISKOPF 897 Weather: Sunny, breezy, 40's
 ADWR No: _____ Sampler: mml

WELL DATA			
Well Depth (ft bis):	<u>1030</u>	Casing Capacity	
Casing Diameter (in):	<u>5</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	<u>148.70</u>	2	0.16
Casing Volume (gal):	<u>899 x3 = 2697</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>1633</u>	<u>Pump On</u>						
<u>1643</u>	<u>10</u>	<u>20</u>	<u>200</u>	<u>7.86</u>	<u>21.6</u>	<u>397.5</u>	<u>clear</u>
<u>1653</u>	<u>20</u>		<u>400</u>	<u>7.79</u>	<u>22.7</u>	<u>397.1</u>	
<u>1703</u>	<u>30</u>		<u>600</u>	<u>7.92</u>	<u>23.2</u>	<u>400.4</u>	
<u>1713</u>	<u>40</u>		<u>800</u>	<u>7.90</u>	<u>22.8</u>	<u>403.9</u>	
<u>1723</u>	<u>50</u>		<u>1000</u>	<u>7.88</u>	<u>23.1</u>	<u>398.9</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>WEISKOPF 897</u>	<u>1727</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</u>	<u>Y</u>
<u>DUP 20130116</u>	<u>"1800"</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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 volume + field parameters stabilizing</u>

Additional Comments: *SRB Part collected at 1645 (~240 gal)



Groundwater Sampling Form



Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 1/10/13
 Well ID: ZANDER Weather: Partly Cloudy 66
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls):	<u>280</u>	Casing Capacity
Casing Diameter (in):	<u>6</u>	Nominal Size (inches)
Static Water Level (ft bmp):	<u>150.89</u>	Gallons per Linear Foot
Casing Volume (gal):	<u>190 x3 = 570</u>	2 0.16
Total Volume Purged (gal):		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>1500</u>	<u>Pump On</u>						
<u>1510</u>	<u>10</u>	<u>110</u>	<u>1160</u>	<u>7.59</u>	<u>20.5</u>	<u>438.5</u>	
<u>1520</u>	<u>20</u>		<u>320</u>	<u>7.64</u>	<u>20.6</u>	<u>435.5</u>	
<u>1530</u>	<u>30</u>		<u>480</u>	<u>7.63</u>	<u>20.5</u>	<u>434.7</u>	
<u>1540</u>	<u>40</u>		<u>640</u>	<u>7.58</u>	<u>20.7</u>	<u>436.1</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 ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>ZANDER</u>	<u>1545</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</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: _____

