

**THIRD QUARTER 2012
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

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October 19, 2012


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October 19, 2012

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1. INTRODUCTION

This report provides the results of groundwater monitoring conducted by Freeport-McMoRan Corporation Copper Queen Branch (CQB) in the third quarter 2012 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 third quarter 2012. 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.

Five new domestic drinking water supply wells, ANDERSON 458, FRANCO 383, HOWARD 312, MCCONNELL 459, and PIONKE 517, were installed as mitigation actions (Clear Creek, 2012) and were in regular use by the third quarter 2012. The new wells were added to the sampling schedule as they became operational. Survey data for the new wells can be found in Appendix A. The five new wells were installed on properties with pre-existing wells. The well names for the pre-existing wells have been changed to the well owner's name followed by the last 3 digits of the ADWR registry number to differentiate between the new well and the old well. For example, the ANDERSON well that has been sampled since 2008 is now updated in the tables and figures as ANDERSON 396. The HOWARD well was not registered and has been relabeled as HOWARD NR.

Wells DURAZO, PARRA, and METZLER, in the San Jose area, were disconnected from household service in June 2012 when the water supply at those properties was switched to Arizona Water Company service per the Mitigation Plan (Clear Creek 2012). The wells remain on the schedule for the groundwater monitoring plan and will be monitored in the future to the degree practicable given their operational status.

2. GROUNDWATER MONITORING RESULTS

2.1 Results of Monitoring

Analytical results and groundwater elevation data for the third quarter 2012 are tabulated in Tables 3 and 4, respectively, along with information previously collected under the Mitigation Order. Figure 2 shows the concentrations of dissolved sulfate in the wells sampled in the third quarter 2012. At wells where multiple samples or water levels were collected during the third quarter 2012, the most recent sample is shown on the figures. The highest sulfate concentration measured at co-located wells was used for concentration contouring. Figure 3 shows groundwater elevations in the third quarter 2012. Groundwater elevations were calculated using depth to water measurements made under static (nonpumping) conditions for all wells shown on Figure 3.

2.2 Quality Assurance/Quality Control Review

Pursuant to Section 6.4 of the QAPP, a data verification report was prepared for quality assurance and quality control purposes. The data verification report, analytical laboratory reports, and groundwater sampling forms for samples collected by Clear Creek and CQB during the third quarter 2012 are included in Appendices B, C, and D, respectively. As determined by the data verification review, the analytical sampling data for samples collected in the third quarter 2012 by Clear Creek and CQB are of acceptable quality for use in the groundwater monitoring being conducted pursuant to the Mitigation Order.

3. FINDINGS

This report provides the results of groundwater monitoring conducted within the vicinity of the CTSA for the third quarter 2012. Groundwater samples were collected from 80 wells and depth to water measurements were collected in 67 wells. The December 2010 Aquifer Characterization Report (Clear Creek, 2010) provides detailed descriptions of the hydrogeology, water quality, and sulfate plume. Findings based on the third quarter 2012 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 third quarter 2012 sulfate concentrations with previous quarters indicates no large scale change in the plume geometry since the Mitigation Order sampling began in the fourth quarter 2008, although concentration contours within the plume have been modified to reflect current concentrations.
- Figure 4 shows sulfate concentrations through time at public drinking water supply wells that are not receiving mitigation actions. Sulfate concentrations have remained relatively stable over time, although NWC-04 displays the greatest variability in concentration.
- Groundwater elevations decrease from 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 decrease measured to date in the basin fill has been 5.65 feet since July 2008 in BMO-2008-3B or a

rate of decline of approximately 1.4 feet per year. Groundwater elevations in most BMO monitor wells screened in bedrock have also declined over time. The maximum decrease measured to date in the bedrock has been 29.42 feet since August 2008 in BMO-2008-GU or a rate of decline of 7.35 feet per year. Water level declines of up to 8 feet have been measured in other bedrock wells from the time the wells were put into service through the third quarter 2012. The groundwater elevations in bedrock wells BMO-2008-10GL and BMO-2008-11G display increasing trends. The water 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.
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- 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.
- Clear Creek. 2012. Feasibility Study and Mitigation Plan for Drinking Water Supplies Affected by Sulfate, Mitigation Order on Consent Docket No. P-121-07. March 28, 2012.
- Freeport McMoRan Copper Queen Branch (CQB). 2010. Correspondence from Rebecca Sawyer, CQB, to Cynthia Campbell, ADEQ, Re: Request to Modify Groundwater Monitoring Program Mitigation Order on Consent No. P-121-07. January 25, 2010.
- Hydro Geo Chem, Inc. (HGC). 2008. Revision 1, Work Plan to Characterize and Mitigate Sulfate with Respect to Drinking Water Supplies in the Vicinity of the Concentrator Tailing Storage Area, Cochise County, Arizona. July 3, 2008.

TABLES

Table 1
Schedule for Water Quality Sampling and Water Level Monitoring

Well Name	ADWR 55 Registry No.	Semiannual Sampling First Quarter	Quarterly Sampling Second Quarter	Annual Sampling Third Quarter	Quarterly Sampling Fourth Quarter
ANDERSON 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	✓	✓	✓	✓
CHAMBERS	629807	✓	✓	✓	✓
COB MW-1	903992			✓	
COB MW-2	903984	✓		✓	
COB MW-3	906823			✓	
COB WL	593116			✓	
COOPER	623564	✓	✓	✓	✓
COOPER C	637069	✓	✓	✓	✓
DODSON	644927	✓	✓	✓	✓

Table 1
Schedule for Water Quality Sampling and Water Level Monitoring

Well Name	ADWR 55 Registry No.	Semiannual Sampling First Quarter	Quarterly Sampling Second Quarter	Annual Sampling Third Quarter	Quarterly Sampling Fourth Quarter
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	✓	✓	✓	✓
RAMIREZ	216425	✓	✓	✓	✓
RAY	803772	✓	✓	✓	✓

Table 1
Schedule for Water Quality Sampling and Water Level Monitoring

Well Name	ADWR 55 Registry No.	Semiannual Sampling First Quarter	Quarterly Sampling Second Quarter	Annual Sampling Third Quarter	Quarterly Sampling Fourth Quarter
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	641802	✓	✓	✓	✓
ZANDER	205126	✓	✓	✓	✓

Notes:

ADWR = Arizona Department of Water Resources

WLO = Water Level Only

NR = No Record

Table 2
Summary of Groundwater Monitoring Program for Third Quarter 2012

Well Name	ADWR 55 Registry No.	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
ANDERSON 396	613396	Anderson	Well Inventory	236	Y	Y	Water quality sample collected in July 2012
ANDERSON 458	221458	Anderson	Plume	734	Y	Y	Water quality sample collected in September 2012.
AWC-02	616586	Arizona Water Company	Plume	330	N	Y	Water quality sample collected in July 2012. Unable to collect water level because well was pumping.
AWC-03	616585	Arizona Water Company	Plume	269	N	Y	Water quality sample collected in July 2012. Unable to collect water level because well was pumping.
AWC-04	616584	Arizona Water Company	Plume	250	N	Y	Water quality sample collected in July 2012. Unable to collect water level because well was pumping.
AWC-05	590620	Arizona Water Company	Plume	1183	N	Y	Water quality sample collected in July 2012. Unable to collect water level because well was pumping.
BANKS 986	647986	Banks	Well Inventory	435	N	Y	Water quality sample collected in July 2012. Unable to collect water level because wellhead is not accessible.
BANKS 987	647987	Banks	Well Inventory	339	Y	N	Water level collected in July 2012.
BARTON 919	644919	Barton	Plume	130	N	N	Unable to access well. Unable to contact well owner.
BF-01	539783	Copper Queen Branch	Plume	400	Y	Y	Water quality sample collected in August 2012.
BIMA	577927	Bisbee Municipal Airport	Plume	465	N	Y	Water quality sample collected in July 2012. Water level not collected due to obstruction in well.
BMO-2008-1G	909474	Copper Queen Branch	Plume	310	Y	Y	Water quality sample collected in August 2012.
BMO-2008-3B	909147	Copper Queen Branch	Plume	260	Y	Y	Water quality sample collected in July 2012.
BMO-2008-4B	910096	Copper Queen Branch	Plume	610	Y	Y	Water quality sample collected in August 2012.
BMO-2008-5B	909653	Copper Queen Branch	Plume	285	Y	Y	Water quality sample collected in July 2012.
BMO-2008-5M	909552	Copper Queen Branch	Plume	450	Y	Y	Water quality sample collected in July 2012.
BMO-2008-6B	909146	Copper Queen Branch	Plume	265	Y	Y	Water quality sample collected in July 2012.
BMO-2008-6M	909019	Copper Queen Branch	Plume	450	Y	Y	Water quality sample collected in July 2012.
BMO-2008-7M	908794	Copper Queen Branch	Plume	670	Y	Y	Water quality sample collected in July 2012.
BMO-2008-8B	910097	Copper Queen Branch	Plume	480	Y	Y	Water quality sample collected in July 2012.
BMO-2008-8M	909711	Copper Queen Branch	Plume	1210	Y	Y	Water quality sample collected in July 2012.
BMO-2008-9M	909255	Copper Queen Branch	Plume	775	Y	Y	Water quality sample collected in July 2012.
BMO-2008-10GL	909435	Copper Queen Branch	Plume	810	Y	Y	Water quality sample collected in July 2012.
BMO-2008-10GU	909272	Copper Queen Branch	Plume	449	Y	N	Well is not operational.
BMO-2008-11G	909434	Copper Queen Branch	Plume	760	Y	Y	Water quality sample collected in August 2012.
BMO-2008-13B	909551	Copper Queen Branch	Plume	474	Y	Y	Water quality sample collected in July 2012.
BMO-2008-13M	909760	Copper Queen Branch	Plume	1030	Y	Y	Water quality sample collected in August 2012.
BMO-2010-1M	219957	Copper Queen Branch	Plume	540	Y	Y	Water quality sample collected in July 2012.
BMO-2010-2M	219958	Copper Queen Branch	Plume	370	Y	Y	Water quality sample collected in July 2012.

Table 2
Summary of Groundwater Monitoring Program for Third Quarter 2012

Well Name	ADWR 55 Registry No.	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
BMO-2010-3B	219970	Copper Queen Branch	Plume	330	Y	Y	Water quality sample collected in July 2012.
BMO-2010-3M	219969	Copper Queen Branch	Plume	532	Y	Y	Water quality sample collected in July 2012.
CHAMBERS	629807	Chambers	Well Inventory	245	N	Y	Water quality sample collected in July 2012. Unable to collect water level because wellhead is not accessible.
COB MW-1	903992	City of Bisbee	Plume	420	Y	Y	Water quality sample collected in July 2012.
COB MW-2	903984	City of Bisbee	Plume	170	Y	Y	Water quality sample collected in July 2012.
COB MW-3	906823	City of Bisbee	Plume	269	Y	Y	Water quality sample collected in July 2012.
COB WL	593116	City of Bisbee	Plume	150	Y	Y	Water quality sample collected in July 2012.
COOPER	623564	Cooper	Plume	325	N	Y	Water quality sample collected in July 2012. Unable to collect water because wellhead was not accessible.
COOPER C	637069	Hutson	Plume	220	Y	Y	Water quality sample collected in July 2012.
DODSON	644927	Dodson	Plume	200	N	Y	Water quality sample collected in July 2012. Unable to collect water level because wellhead is not accessible.
DOUGLASS 791	592791	Douglass	Well Inventory	200	Y	N	Well identified for water level measurements only. Water level measurement taken in July 2012
DOUGLASS 792	592792	Douglass	Well Inventory	200	Y	N	Well identified for water level measurements only. Water level measurement taken in July 2012.
DURAZO	NR	Durazo	Well Inventory	ND	N	N	Unable to collect water level or water quality sample because well is not operational.
EAST	599796	East	Well Inventory	125	Y	Y	Water quality sample collected in July 2012.
ECHAVE	219449	Echave	Well Inventory	345	N	Y	Water quality sample collected in July 2012. Unable to collect water level due to obstruction in well.
EPPELE 641	805641	Eppele	Well Inventory	265	Y	Y	Water quality sample collected in July 2012.
FLEMING	218386	Fleming	Well Inventory	400	Y	N	Well identified for water level measurements only. Water level measurement taken in July 2012.
FRANCO 101	500101	Franco	Well Inventory	200	N	N	Well is not currently operational.
FRANCO 383	221383	Franco	Plume	711	Y	Y	Water quality sample collected in September 2012.
FULTZ	212447	Fultz	Well Inventory	300	N	N	Water quality sample not collected per owner request. Unable to collect water level due to obstruction in well.
GARNER 557	558557	Garner	Plume	300	Y	N	Well identified for water level measurements only. Water level measurement taken in July 2012.
GARNER 635	587635	Garner	Plume	680	Y	Y	Water quality sample collected in July 2012.
GGOOSE 547	628547	Copper Queen Branch	Plume	800	N	N	Well not operational.
GOAR RANCH	610695	Goar	Well Inventory	250	Y	N	Well identified for water level measurements only. Water level measurement taken in September 2012.
HOBAN	805290	Copper Queen Branch	Well Inventory	316	Y	Y	Water quality sample collected in July 2012.
HOWARD NR	NR	Howard	Well Inventory	200	Y	Y	Water quality sample collected in September 2012.

Table 2
Summary of Groundwater Monitoring Program for Third Quarter 2012

Well Name	ADWR 55 Registry No.	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
HOWARD 312	221312	Howard	Plume	980	Y	Y	Water quality sample collected in August 2012.
KEEFER	209744	Keefer	Well Inventory	245	Y	Y	Water quality sample collected in July 2012.
MARCELL	NR	Marcell	Well Inventory	220	N	Y	Water quality sample collected in July 2012. Unable to collect water level because wellhead was not accessible.
MCCONNELL 265	539265	McConnell	Well Inventory	216	Y	Y	Water quality sample collected in July 2012.
MCCONNELL 459	221459	McConnell	Plume	863	Y	Y	Water quality sample collected in July 2012.
METZLER	35-71891	Metzler	Well Inventory	351	Y	N	Water level measurement collected July 2012. Unable to collect water quality sample because well is not operational.
MOORE	538847	Moore	Well Inventory	220	N	Y	Water quality sample collected in July 2012. Unable to collect water level because wellhead is not accessible.
NESS	509127	Ness	Well Inventory	812	N	Y	Water quality sample collected in July 2012. Unable to collect water level due to obstruction in well.
NOTEMAN	212483	Bailey	Well Inventory	400	N	Y	Water quality sample collected in July 2012. Unable to collect water level due to obstruction in well.
NWC-02	562944	Naco Water Company	Plume	312	N	Y	Water quality sample collected in July 2012. Unable to collect water level because the well was pumping.
NWC-03	203321	Naco Water Company	Plume	312	N	Y	Water quality sample collected in July 2012. Unable to collect water level because the well was pumping.
NWC-03 CAP	627684	Naco Water Company	Plume	179	Y	N	Well identified for water level measurements only. Water level measurement taken in July 2012.
NWC-04	551849	Naco Water Company	Well Inventory Sulfate Trend	795	N	Y	Water quality sample collected in July 2012. Unable to collect water level because well was pumping.
NWC-06	575700	Naco Water Company	Well Inventory	410	N	Y	Water quality sample collected in July 2012. Unable to collect water level because the well was pumping.
OSBORN	643436	Osborn	Plume	258	Y	N	Well is not in use. Collected water level only.
PALMER	578819	Palmer	Well Inventory	220	N	Y	Water quality sample collected in July 2012. Unable to collect water level because wellhead is inaccessible.
PANAGAKOS	35-76413	Panagakos	Well Inventory	200	Y	Y	Water quality sample collected in July 2012.
PARRA	576415	Parra	Plume	355	N	Y	Water quality sample collected in July 2012. Unable to collect water level because wellhead was not accessible.
PIONKE 395	613395	Pionke	Well Inventory	300	Y	Y	Water quality sample collected in July 2012.
PIONKE 517	221517	Pionke	Plume	604	Y	Y	Water quality sample collected in September 2012.
POOL	509518	Pool	Well Inventory	313	N	N	Unable to access well. Unable to contact well owner .
RAMIREZ	216425	Ramirez	Well Inventory	300	Y	Y	Water quality sample collected in July 2012.
RAY	803772	Ray	Well Inventory	100	Y	Y	Water quality sample collected in July 2012.
ROGERS 596	573596	Rogers, David	Plume	290	Y	N	Well is turned off. Rogers residence uses ROGERS 803. Water level measurement collected in July 2012.
ROGERS 803	641803	Rogers, Ernest M	Plume	140	N	Y	Water quality sample collected in July 2012. Unable to collect water level measurement because of obstruction in well.

Table 2
Summary of Groundwater Monitoring Program for Third Quarter 2012

Well Name	ADWR 55 Registry No.	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
ROGERS E	216018	Rogers, Ernest M	Well Inventory	290	Y	Y	Water quality sample collected in July 2012.
RUIZ	531770	Ruiz	Well Inventory	312	N	Y	Water quality sample collected in July 2012. Unable to collect water level measurement because of obstruction in well.
SCHWARTZ	210865	Schwartz	Well Inventory	305	Y	Y	Water quality sample collected in July 2012.
STEPHENS	808560	Stephens	Well Inventory	NR	Y	N	Well identified for water level measurements only. Water level measurement taken in July 2012.
SUNBELT	201531	Sunbelt Marketing, Inc.	Well Inventory	380	N	N	Well is dry.
SWAN	NR	Swan	Well Inventory	NR	Y	Y	Water quality sample collected in July 2012.
TM-02A	522574	Copper Queen Branch	Plume	925	Y	Y	Water quality sample collected in August 2012.
TM-06 MILLER	522695	Miller	Plume	200	Y	Y	Water quality sample collected in July 2012.
TM-07	522576	Copper Queen Branch	Plume	350	N	Y	Water quality sample collected in August 2012. Water level measurement not taken.
TM-15 MILLER	522699	Miller	Well Inventory	325	N	Y	Water quality sample collected in July 2012. Water level measurement not taken.
TM-16	522578	Copper Queen Branch	Plume	115	Y	Y	Water quality sample collected in July 2012.
TM-19A	522580	Copper Queen Branch	Plume	700	Y	Y	Water quality sample collected in July 2012.
TM-42	562554	Copper Queen Branch	Plume	250	Y	Y	Water quality sample collected in July 2012.
TVI 236	802236	Turquoise Valley, Inc.	Well Inventory	222	Y	Y	Water quality sample collected in July 2012.
TVI 713	567713	Turquoise Valley, Inc.	Well Inventory	200	Y	N	Well identified for water level measurements only. Water level measurement taken in July 2012.
TVI 875	568875	Turquoise Valley, Inc.	Plume	330	N	Y	Water quality sample collected in July 2012. Unable to collect water level because wellhead was not accessible.
WEED	544535	Weed	Plume	320	N	Y	Water quality sample collected in July 2012. Unable to collect water level because wellhead was not accessible.
WEISKOPF	641802	Weiskopf	Plume	200	Y	Y	Water quality sample collected in July 2012.
ZANDER	205126	Zander	Well Inventory	280	Y	Y	Water quality sample collected in July 2012.

ADWR = Arizona Department of Water Resources

ft bls = feet below land surface

NR = No Record

35-71891 = ADWR 35 Database

Y = Yes

N = No

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
ANDERSON 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
ANDERSON 458	221458	9/9/12	8.34	25.9	406.3	31
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
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

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
AWC-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
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
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

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Well Name	ADWR 55 Registry No.	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
BLOMMER	633472	2/5/08	7.43	20.2	714	206
		4/21/2008 ¹	7.06	21.9	753	201
		5/15/2008 ¹	7.16	22.2	845	211
		6/23/2008 ¹	6.93	21.5	903	193
		7/29/2008 ¹	7.21	22.2	921	203
		8/27/2008 ¹	7.12	22.1	864	189
		9/23/2008 ¹	7.16	22.3	818	193
		10/22/08	7.17	21.3	873	200
BMO-2008-1G	909474	8/27/08	7.09	24.2	808	107
		11/11/08	7.00	20.8	721	143
		2/25/09	7.01	22.0	860	109
		4/28/09	7.04	22.2	762	198
		8/4/09	7.23	22.8	950	104
		10/27/09	7.11	21.9	922	103
		2/17/10	7.36	20.5	899.3	98.4
		4/15/10	7.04	22.2	711	95.2
		7/7/10	6.91	21.5	640	88.1
		7/7/10 DUP	6.91	21.5	640	87.1
		2/10/11	6.80	21.0	916	105
		7/12/11	7.2	26.6	1015	121
		2/8/12	7.02	20.2	869	116
		8/14/12	6.97	21.9	959	120

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Well Name	ADWR 55 Registry No.	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	6.95	173
		7/10/12	7.02	21.5	651	150
		12/11/08	7.34	22.8	374	9.4
BMO-2008-4B	910096	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	9.50
		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
BMO-2008-5B	909653	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
		10/2/08	7.13	23.6	551	107
		2/18/09	7.06	22.5	562	122
		4/27/09	7.50	22.9	501	111
BMO-2008-5M	909552	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

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Well Name	ADWR 55 Registry No.	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
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
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
		12/5/08	6.47	20.1	2480	1890
		2/19/09	6.19	21.0	2958	1570
BMO-2008-8B	910097	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

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
BMO-2008-8M	909711	12/9/08	7.16	23.4	852	197
		2/19/09	7.27	23.5	758	147
		2/19/09 DUP	7.27	23.5	758	149
		5/5/09	7.19	25.1	680	122
		8/10/09	7.49	24.8	673	107
		11/5/09	7.30	25.4	675	104
		3/3/10	7.70	24.1	641	99.5
		4/16/10	7.29	24.5	541	97.0
		7/1/10	6.99	25.0	502	94.7
		1/24/11	7.05	23.4	595	98.2
		7/15/11	6.89	22.1	590	79.9
		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
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
		8/20/08	6.22	29.5	2924	1320
BMO-2008-10GL	909435	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
		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
BMO-2008-10GU	909272	5/6/09	5.99	23.2	3359	1710
		8/11/09	6.28	22.5	3348	1690
		11/2/09	6.27	21.8	3157	1730
		3/10/10	6.67	19.1	3951	1700
		4/7/10	5.96	20.4	3210	1510
		7/6/10	5.90	21.8	1610	1670
		7/13/11	6.12	22.3	3890	1670
		2/1/12	6.09	19.2	3820	1870
		8/22/08	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
BMO-2008-11G	909434	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
		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
BMO-2008-13B	909551	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

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
BMO-2008-13M	909760	12/3/08	7.73	24.1	1463	494
		2/17/09	8.21	22.7	1340	441
		4/29/09	8.04	24.8	1126	217
		8/5/09	8.04	25.4	1392	387
		10/28/09	8.12	21.4	1347	403
		2/16/10	8.07	24.9	1297	375
		4/13/10	8.06	23.2	1130	398
		7/2/10	8.30	23.9	1027	386
		7/15/11	8.4	23.4	1331	388
		2/6/12	8.47	23.2	1300	ND
		8/13/12	8.75	24.2	1311	397
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
		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
BMO-2010-2M	219958	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	2.19	1030
		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
BMO-2010-3B	219970	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
		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
BMO-2010-3M	219969	4/24/12	7.49	23.9	370	10.1
		7/5/12	7.66	23.7	381.8	10.3
		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
BURKE	212268	7/21/10	7.56	25.6	423.7	33.1

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
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
		5/20/08	7.32	21.2	490	40.5
		7/30/08	7.34	20.8	511	37.6
		10/23/08	7.36	20.3	498	34.9
		2/12/09	7.35	20.2	379	35.6
COB MW-2	903984	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
		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
COB MW-3	906823	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

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
COB 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
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
		2/14/08	7.02	20.8	371	33
COOPER	623564	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
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

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
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
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
ECHAVE	219449	7/9/12	7.20	21.1	580	14.2
		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

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
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
		9/13/12	7.66	25.0	1005	318
FRANCO 383	221383	2/27/08	6.76	21.1	1827	152
FULTZ	212447	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

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
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
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

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
HOWARD 312	221312	8/14/12	8.35	26.3	629.3	69.2
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
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
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
MCCONNELL 459	221459	7/27/12	8.25	26.5	510.0	41

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
METZLER	35-71891	3/5/08	7.27	21.6	1055	317
		5/15/08	7.12	22.8	1051	329
		7/31/08	7.16	22.5	1078	317
		10/20/08	7.24	22.2	1080	305
		10/20/08 DUP	7.24	22.2	1080	326
		2/11/09	7.12	21.3	818	321
		4/20/09	7.22	23.2	845	313
		7/15/09	7.41	22.9	1031	293
		7/15/09 DUP	7.41	22.9	1031	309
		10/14/09	7.1	22.7	989	315
		2/1/10	7.22	21.7	1021	286
		5/18/10	7.56	21.0	1053	330
		7/16/10	7.20	24.1	1007	330
		10/19/10	7.15	22.6	1006	319
		1/19/11	7.55	21.1	930	298
		4/4/11	7.03	23.3	1018	323
		7/12/11	7.07	22.3	993.0	312
		10/12/11	7.27	22.1	910	301
		2/7/12	7.36	21.5	1019	326
		4/12/12	7.34	21.1	1009	320
MOORE	538847	2/20/08	7.69	22.2	362	7.1
		5/8/08	7.09	22.4	432	7.5
		7/16/08	7.34	23.0	482	9.8
		10/29/08	7.32	22.4	452	19.2
		1/29/09	7.11	21.7	328	6.6
		4/16/09	7.40	22.1	374	6.4
		7/15/09	7.44	23.3	439	5.8
		10/13/09	7.36	22.6	429	7.1
		1/26/10	7.54	19.6	423	6.3
		4/22/10	7.47	20.6	433	7.40
		7/15/10	7.44	24.1	431.3	7.54
		7/15/10 DUP	7.44	24.1	431.3	7.11
		10/19/10	6.79	22.1	430	7.14
		1/18/11	7.48	21.1	390	6.42
		4/6/11	7.39	21.4	426.3	6.70
		7/13/11	6.91	23.2	423.4	7.62
		10/11/11	7.31	22.5	419.0	7.31
		1/31/12	7.35	21.7	430	7.21
		4/23/12	7.34	22.8	470	6.99
		4/23/12 DUP	7.34	22.8	470	7.05
NESS	509127	7/17/12	7.36	22.9	430	7.01
		7/17/12 DUP	7.36	22.9	430	6.99
		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

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
NOTEMAN HOUSE	212483	2/3/12	7.06	13.5	1520	324
NSD-02	527587	2/5/08	ND	ND	ND	43
		7/7/08	8.02	21.0	609	44
NSD-03	527586	2/5/08	ND	ND	ND	70.7
		7/7/08	7.64	21.0	570	58.9
NWC-02	562944	10/27/08	7.47	22.2	438	5.1
		2/12/09	7.58	21.6	330	6.6
		4/23/09	7.39	23.8	373	6.4
		7/21/09	7.62	23.9	408	5
		10/21/09	7.32	22.6	436	6.8
		2/3/10	7.68	19.6	423	8.5
		4/21/10	7.57	22.1	413	7.26
		7/20/10	7.36	23.7	412.5	6.87
		10/19/10	7.42	22.5	416.2	7.39
		1/18/11	7.47	23.2	390	6.43
		4/6/11	7.27	22.9	413.5	6.4
		7/15/11	7.03	22.5	416.3	7.24
		10/13/11	7.45	21.9	370	7.31
		1/30/12	7.39	21.2	431.3	7.78
		4/25/12	7.42	22.4	370	8.42
		7/18/12	7.33	22.5	430	6.99
		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
NWC-03	203321	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
		4/25/2012 DUP	7.17	21.6	920	347
		7/18/12	7.05	22.1	1080	354

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
NWC-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
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

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
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
PANAGAKOS	35-76413	4/11/12	7.52	18.7	519.8	17.3
		7/10/12	7.30	27.9	390	16.6
		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

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
PARRA	576415	2/11/08	7.08	21.8	1067	360
		5/15/08	7.10	21.8	1200	405
		7/31/08	7.00	22.4	1248	423
		7/31/08 DUP	7.00	22.4	1248	404
		10/20/08	7.07	22.9	1246	387
		2/13/09	7.24	22.1	965	405
		4/20/09	7.10	22.6	971	372
		7/20/09	7.17	23.9	1174	375
		10/20/09	6.80	22.5	1188	388
		2/1/10	7.07	21.5	1197	353
		4/22/10	6.91	20.3	1219	417
		7/14/10	7.13	22.2	1201	403
		7/14/10 DUP	7.13	22.2	1201	391
		10/20/10	7.51	21.4	1270	411
		1/19/11	7.49	20.8	1130	391
		4/4/11	6.90	22.6	1207	382
		7/12/11	6.76	23.7	1156	404
		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
		2/6/08	7.53	19.9	910	394
PIONKE 395	613395	5/7/08	7.08	21.4	1100	391
		7/17/08	6.99	21.9	1209	420
		10/27/08	7.03	20.8	1175	460
		1/29/09	7.13	19.9	847	385
		4/14/09	7.58	20.7	1053	411
		7/13/09	7.35	21.5	1165	472
		10/7/09	7.43	21.1	1100	403
		3/8/10	7.72	18.6	1201	406
		4/26/10	7.22	21.9	1224	438
		7/15/10	7.32	22.3	1158	474
		10/18/10	7.33	21.3	1277	473
		10/18/10 DUP	7.33	21.3	1277	487
		1/19/11	7.32	19.9	1222	471
		4/8/11	7.13	19.2	1232	467
		7/12/11	7.30	23.8	1226	500
		10/11/11	6.98	20.8	1100	502
		2/1/12	7.25	17.5	1230	481
		2/1/2012 DUP	7.25	17.5	1230	495
		4/12/12	7.17	22.1	1218	508
		7/11/12	6.59	22.9	1280	439
PIONKE 517	221517	9/18/12	7.91	23.4	395.8	14
POOL	509518	2/20/08	7.95	20.9	497	134
		5/19/08	7.40	22.2	585	122
		7/31/08	7.47	22.3	599	117
		10/21/08	7.51	21.4	598	120
		2/13/09	7.62	20.8	473	141
		4/21/09	7.73	22.6	470	124
		7/20/09	7.76	22.9	579	122
		10/20/09	7.22	21.2	577	122
		2/24/10	7.56	22.4	577	110
		4/22/10	7.75	20.2	606.5	130
		7/14/10	7.38	21.7	580.9	117
		10/20/10	7.79	21.3	620	115
		1/20/11	7.71	20.5	530	112
		1/20/11 DUP	7.71	20.5	530	114
		4/6/11	7.37	21.6	567.4	114
POWER	624535	2/12/08	7.11	18.9	428	15.5
		7/22/08	7.10	21.7	795	20.2

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
RAMIREZ	216425	2/4/08	7.47	21.7	408	7.6
		5/6/08	7.19	22.7	405	8.3
		7/17/08	7.32	24.5	439	8.8
		10/27/08	7.41	22.2	412	7.3
		1/29/09	7.24	22.2	301	8.3
		4/16/09	7.49	22.4	344	7.6
		7/10/09	7.52	23.9	411	6.4
		10/6/09	7.30	23.8	388	8.4
		1/25/10	7.48	22.4	390	7.8
		4/21/10	7.45	22.6	397	9.04
		7/21/10	7.38	25.1	420	8.98
		10/19/10	7.91	23.7	450	10.8
		1/18/11	7.52	23.1	380	8.18
		4/11/11	7.24	23.2	408.5	8.65
		7/18/11	7.27	25.4	402.6	8.44
		10/12/11	7.40	23.3	412.7	8.55
		1/30/12	7.38	22.3	412.2	8.80
		4/10/12	7.40	23.2	404.5	8.70
		7/6/12	7.32	24.2	415.7	8.97
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
ROGERS 596	573596	10/19/09	6.89	23.3	1360	590
		11/5/09	6.79	21.9	1418	540
		2/25/10	6.99	19.6	1603	520
		4/22/10	7.21	18.2	1641	710
ROGERS 803	641803	2/7/08	7.45	18.6	601	138
		4/21/2008 ¹	7.32	21.4	552	128
		5/8/2008 ¹	7.14	21.2	622	141
		6/23/2008 ¹	7.06	22.9	660	129
		7/29/2008 ¹	6.78	23.1	339	134
		8/28/2008 ¹	7.18	21.6	635	128
		9/23/2008 ¹	7.24	21.9	599	133
		10/22/08	7.36	21.3	650	144
		2/10/09	7.42	17.9	475	141
		4/29/09	7.52	21.9	506	211
		8/3/09	7.39	24.2	674	150
		7/16/10	7.46	23.9	643.4	169
		10/19/10	7.32	21.1	643.8	154
		10/19/10 DUP	7.32	21.1	643.8	154
		1/20/11	7.44	18.1	610	143
		4/8/11	7.30	20.2	658.2	160
		7/14/11	7.12	23.5	653.5	166
		10/12/11	7.41	21.8	665.3	175
		1/30/12	7.40	20.0	580	171
		4/23/12	7.32	23.9	720	166
		7/13/12	7.26	24.0	820	171
		7/13/12 DUP	7.26	24.0	820	166

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		2/5/08	7.73	18.2	445	263
RUIZ	531770	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
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
SRC	211345	4/23/08	7.57	25.8	380	19
		8/5/08	7.40	27.2	452	15.4

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		2/3/2012 DUP	7.40	20.5	484.5	19.5
		7/10/12	7.00	22.7	370	19.4
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
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
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

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
TM-08 SWAN	522817	2/13/08	7.63	24.1	511	24.1
		5/14/08	7.44	24.4	480	12.6
		7/23/08	7.76	28.1	522	12.6
TM-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	407.0	13.3
		2/27/08	7.66	21.9	344	14
TM-15 MILLER	522699	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
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
		7/11/12	7.12	23.5	505	63.7
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

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
TM-43	564729	3/3/08	8.57	21.0	341	2.1
		8/4/08	8.14	25.7	436	<5
TM-43A	564726	3/3/08	6.17	19.9	2788	1420
		8/4/08	6.03	21.6	3149	1320
TM-43B	565004	3/3/08	6.79	20.6	514	0.7
		8/5/08	6.89	21.0	507	31.8
		8/5/08 DUP	6.89	21.0	507	32.5
		3/20/08	7.48	20.0	488	31.3
TVI 236	802236	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
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
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

Table 3
Compilation of Analytical Results For Sulfate and Field Parameters

Well Name	ADWR 55 Registry No.	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
WEISKOPF	641802	2/15/08	7.48	20.0	1072	500
		5/7/08	7.10	21.8	1251	483
		7/16/08	7.07	22.2	1399	560
		10/28/08	6.98	20.8	1401	602
		1/29/09	6.79	20.7	1014	503
		4/15/09	7.53	21.1	1164	503
		7/15/09	7.84	22.1	1317	486
		10/15/09	6.89	21.4	1216	484
		2/2/10	7.22	20.4	1319	451
		4/22/10	7.30	19.3	1329	572
		7/19/10	7.06	23.1	1330	573
		10/20/10	7.64	21.6	1360	515
		10/20/10 DUP	7.64	21.6	1360	529
		1/17/11	7.16	22.0	1270	481
		4/11/11	6.88	22.4	1365	557
		8/26/11	6.83	23.5	1200	549
		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
WMD-2011-03M	913037	2/2/12	6.66	22.0	1190	391
ZANDER	205126	2/4/08	7.24	19.7	392	5.7
		5/6/08	7.26	21.2	404	6.3
		7/16/08	6.92	22.9	441	6.9
		10/28/08	7.40	21.2	415	15
		2/10/09	7.50	20.4	317	6
		4/16/09	7.47	21.7	352	5.5
		7/14/09	7.36	22.9	418	4.5
		10/13/09	7.41	21.7	407	6.3
		1/26/10	7.49	20.3	411	5.7
		4/2/10	7.55	20.0	416	6.70
		7/21/10	7.38	22.7	388.2	6.78
		10/19/10	6.78	21.3	430	6.56
		1/18/11	7.59	18.9	380	6.14
		1/18/11 DUP	7.59	18.9	380	6.06
		4/6/11	7.20	19.7	425.8	6.12
		7/13/11	7.29	22.9	410.10	6.43
		10/12/11	7.35	22.2	426.2	6.38
		1/31/12	7.29	20.3	420	6.59
		4/10/12	7.49	21.9	420.1	6.90
		4/10/2012 DUP	7.49	21.9	420.1	6.65
		7/17/12	7.34	22.2	430	6.38

ADWR = Arizona Department of Water Resources

deg C = degrees Celsius

M = Multi-Meter Malfunction

NR = No Record

ND = No Data

SC = Specific Conductance

SU = Standard Units

µS/cm = microsiemens per centimeter

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

mg/L = milligrams per liter

DUP = Blind duplicate

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (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
ANDERSON 458	221458	601118.690	3468826.284	4585.37	2/1/12	150.19	4438.32
					4/25/12	150.69	4437.82
AWC-02	616586	598907.911	3468549.357	4547.64	7/12/12	151.34	4437.17
					9/7/12	173.76	4411.61
					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
AWC-03	616585	599090.322	3468681.898	4539.52	4/23/10 ²	119	4428.64
					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
AWC-04	616584	598949.929	3468717.084	4540.48	4/23/10 ²	116	4423.52
					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
AWC-05	590620	599269.904	3468541.692	4542.51	10/9/09 ²	110	4430.48
					4/23/10 ²	109	4431.48
					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 No.	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
BARTON 919	644919	606243.850	3469076.689	4692.36	5/12/08	113.71	4578.65
					7/23/08	113.56	4578.80
					10/16/08	113.20	4579.16
					3/11/09	112.92	4579.44
					4/10/09	112.89	4579.47
					7/7/09	112.86	4579.50
BF-01	539783	604169.077	3472151.593	4835.23	3/4/08	348.99	4486.24
					5/23/08	348.80	4486.43
					8/5/08	348.66	4486.57
					11/5/08	348.94	4486.29
					2/20/09	348.78	4486.45
					5/6/09	348.73	4486.50
					8/17/09	348.73	4486.50
					11/4/09	348.65	4486.58
					3/1/10	348.84	4486.39
					4/7/10	348.70	4486.53
					7/6/10	348.69	4486.54
					7/13/11	348.67	4486.56
BIMA	577927	606001.245	3471852.804	4802.05	2/1/12	347.84	4487.39
					8/13/12	343.95	4491.28
					5/13/08	367.31	4434.74
					8/18/08	370.24	4431.81
					10/23/08	353.96	4448.09
					1/20/09	353.07	4448.98
					4/7/09	357.76	4444.29
					7/8/09	365.44	4436.61
					10/5/09	370.11	4431.94
					4/19/10	382.25	4419.80
					7/21/10	386.89	4415.16
					10/18/10	387.39	4414.66
					1/19/11	391.47	4410.58
					4/4/11	395.22	4406.83

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2008-1G	909474	606467.681	3471723.644	4805.10	8/27/08	62.05	4743.05
					11/11/08	60.95	4744.15
					2/25/09	61.43	4743.67
					4/28/09	62.01	4743.09
					8/4/09	62.96	4742.14
					10/27/09	63.61	4741.49
					2/17/10	64.51	4740.59
					4/15/10	65.05	4740.05
					7/7/10	65.83	4739.27
					2/10/11	67.74	4737.36
					7/12/11	69.37	4735.73
BMO-2008-3B	909147	602012.923	3467919.582	4583.97	2/8/12	70.33	4734.77
					8/14/12	71.73	4733.37
					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
BMO-2008-4B	910096	601099.405	3468383.430	4573.17	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
					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

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
BMO-2008-5M	909552	600445.071	3468994.282	4585.02	7/10/12	149.65	4435.45
					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
BMO-2008-6B	909146	600366.523	3469820.644	4627.44	2/3/12	150.05	4434.97
					4/18/12	150.70	4434.32
					7/10/12	151.65	4433.37
					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

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2008-6M	909019	600367.943	3469813.885	4626.90	7/10/08	191.63	4435.27
					11/4/08	190.25	4436.65
					2/20/09	190.70	4436.20
					4/28/09	190.98	4435.92
					8/4/09	191.77	4435.13
					10/26/09	192.14	4434.76
					2/15/10	191.78	4435.12
					4/15/10	191.64	4435.26
					7/1/10	192.53	4434.37
					10/5/10	192.96	4433.94
					2/14/11	193.14	4433.76
					5/12/11	193.68	4433.22
					7/12/11	194.47	4432.43
					12/7/11	194.92	4431.98
					2/3/12	194.65	4432.25
BMO-2008-7M	908794	603099.165	3470029.283	4688.33	4/18/12	195.00	4431.90
					7/10/12	196.10	4430.80
					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
BMO-2008-8B	910097	604171.347	3471141.719	4753.25	7/15/11	241.81	4446.52
					1/30/12	242.44	4445.89
					7/11/12	243.0	4445.33
					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

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2008-8M	909711	604167.912	3471127.902	4752.45	12/9/08	299.79	4452.66
					2/19/09	298.32	4454.13
					5/5/09	298.27	4454.18
					8/10/09	298.57	4453.88
					11/5/09	298.81	4453.64
					3/3/10	299.18	4453.27
					4/16/10	299.42	4453.03
					7/1/10	299.70	4452.75
					1/24/11	300.46	4451.99
					5/13/11	301.00	4451.45
					7/15/11	300.96	4451.49
BMO-2008-9M	909255	604668.669	3471121.675	4762.61	1/30/12	301.60	4450.85
					7/12/12	302.45	4450.00
					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
BMO-2008-10GL	909435	605264.072	3471702.043	4792.21	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
					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
BMO-2008-10GU	909272	605267.551	3471731.866	4793.45	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
					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

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2008-11G	909434	603800.995	3472626.482	4844.67	8/22/08	577.76	4266.91
					11/12/08	576.80	4267.87
					2/26/09	575.91	4268.76
					4/8/09	575.46	4269.21
					8/12/09	574.84	4269.83
					11/9/09	573.41	4271.26
					3/1/10	573.68	4270.99
					4/9/10	573.56	4271.11
					7/1/10	572.97	4271.70
					2/10/11	571.61	4273.06
					7/22/11	571.20	4273.47
BMO-2008-13B	909551	601657.612	3470076.358	4649.21	1/31/12	569.83	4274.84
					8/14/12	569.70	4274.97
					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
BMO-2008-13M	909760	601650.495	3470040.455	4647.15	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
					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
BMO-2010-1M	219957	605581.263	3469935.750	4718.55	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
					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

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2010-2M	219958	605685.549	3470564.646	4746.16	9/7/10	264.13	4482.03
					11/11/10	263.94	4482.22
					2/10/11	264.13	4482.03
					5/13/11	266.97	4479.19
					7/14/11	268.05	4478.11
					12/13/11	270.98	4475.18
					1/30/12	271.50	4474.66
					4/18/12	272.31	4473.85
BMO-2010-3B	219970	599977.962	3468347.363	4550.59	7/9/12	273.20	4472.96
					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
BMO-2010-3M	219969	599970.801	3468353.543	4550.53	4/24/12	117.92	4432.67
					7/5/12	118.84	4431.75
					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
BURKE	212268	602230.087	3473029.816	4856.30	2/2/12	119.91	4430.62
					4/24/12	120.93	4429.60
					7/5/12	122.05	4428.48
					4/22/08	606.55	4249.75
					8/5/08	605.86	4250.44
					10/28/08	604.88	4251.42
COB MW-1	903992	603153.259	3469889.889	4683.26	2/19/09	603.91	4252.39
					4/28/09	603.70	4252.60
					8/19/09	602.66	4253.64
					2/22/08	232.47	4450.79
					5/20/08	233.12	4450.14
					7/30/08	233.37	4449.89
					10/23/08	233.62	4449.64
					2/12/09	234.05	4449.21
					4/21/09	234.99	4448.27
					7/22/09	234.34	4448.92
					10/22/09	234.69	4448.57
					2/4/10	235.15	4448.11
					4/20/10	235.47	4447.79
					7/13/10	235.68	4447.58
					7/14/11	236.98	4446.28
					7/12/12	238.24	4445.02

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	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
COB MW-3	906823	599169.225	3468726.000	4538.63	1/31/12	128.04	4438.17
					7/12/12	129.58	4436.63
					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
COB WL	593116	606357.506	3472502.012	4832.06	7/14/11	132.41	4406.22
					7/12/12	133.89	4404.74
					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
COLLINS	565260	602551.286	3471341.335	4733.72	7/14/11	73.86	4758.20
					7/12/12	78.85	4753.21
					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

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
DODSON	644927	605594.560	3469063.772	4686.34	4/25/12	160.26	4438.88
					7/12/12	160.88	4438.26
					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
DOUGLASS 791	592791	607632.993	3470222.677	4703.27	1/31/12	93.68	4592.66
					4/12/12	94.19	4592.15
					7/11/12	Locked Out	-
					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

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
EAST	599796	607076.365	3468712.215	4626.01	4/11/12	89.18	4592.55
					7/5/12	95.64	4586.09
					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
ECHAVE	219449	599701	3470168	4648	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
					2/1/12	216.71	4431.29

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Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
FLEMING	218386	605565.701	3469342.523	4693.68	4/11/12	52.07	4590.79
					7/6/12	62.39	4580.47
					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
FRANCO 383	221383	602817.854	3468831.563	4636.88	7/12/11	364.72	4328.96
					2/3/12	370.84	4322.84
					7/9/12	373.86	4319.82
FULTZ	212447	607153.306	3469063.892	4642.92	9/13/12	195.19	4441.69
					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

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
GARNER 557	558557	602659.240	3468962.415	4638.45	2/21/08	191.05	4447.40
					5/5/08	191.28	4447.17
					7/15/08	191.44	4447.01
					10/16/08	191.83	4446.62
					1/28/09	191.92	4446.53
					4/15/09	192.09	4446.36
					7/16/09	192.52	4445.93
					10/14/09	192.82	4445.63
					2/2/10	193.33	4445.12
					4/22/10	193.49	4444.96
					7/20/10	193.93	4444.52
					10/19/10	194.29	4444.16
					1/19/11	194.61	4443.84
					4/6/11	194.86	4443.59
					7/15/11	195.25	4443.20
					10/11/11	195.72	4442.73
					2/2/12	196.09	4442.36
GARNER 635	587635	602665.352	3468967.902	4640.74	4/13/12	196.30	4442.15
					7/11/12	196.72	4441.73
					2/4/08	193.20	4447.54
					5/5/08	195.90	4444.84
					7/15/08	193.58	4447.16
					10/15/08	194.35	4446.39
					1/28/09	194.80	4445.94
					4/15/09	195.54	4445.20
					7/16/09	194.88	4445.86
					10/14/09	196.36	4444.38
					2/2/10	195.32	4445.42
					4/22/10	196.01	4444.73
					8/25/10	195.57	4445.17
					10/19/10	225.83	4414.91
					1/19/11	196.89	4443.85
					4/6/11	197.40	4443.34
					7/15/11	198.07	4442.67
GGOOSE 547	628547	606256.657	3469820.260	4717.11	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
					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

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
GOAR RANCH	610695	602454.751	3468892.471	4631.13	2/1/12	651.72	4272.59
					2/21/08	183.90	4447.23
					5/5/08	188.11	4443.02
					7/16/08	184.41	4446.72
					10/22/08	184.68	4446.45
					1/27/09	184.87	4446.26
					4/15/09	184.96	4446.17
					7/7/09	185.36	4445.77
					10/12/09	185.72	4445.41
					2/2/10	186.25	4444.88
					4/22/10	186.44	4444.69
					7/13/10	186.76	4444.37
					1/19/11	187.52	4443.61
					7/12/11	188.24	4442.89
HOBAN ³	805290	601705.848	3468880.329	4607.60	2/6/12	189.02	4442.11
					9/13/12	190.08	4441.05
					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

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	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
HOWARD 312	221312	601308.920	3468772.630	4594.9356	2/1/12	155.08	4438.83
					4/13/12	155.40	4438.51
KEEFER	209744	599879.175	3468119.015	4572.03	9/13/12	156.29	4437.62
					8/14/12	188.36	4406.58
					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

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	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
MCCONNELL 459	221459	601471.708	3468840.682	4601.55	2/7/12	170.50	4431.05
					3/5/08	288.30	4440.23
METZLER	35-71891	602091.308	3471381.176	4728.53	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
NESS	509127	607866.391	3471419.494	4761.23	4/12/12	291.15	4437.38
					7/18/12	291.37	4437.16
					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
					7/10/12	Obstruction	-

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
					7/9/12	Obstruction	-
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
NSD-03	527586	598070.538	3468694.259	4518.28	3/6/12	104.30	4427.08
					10/7/09	85.62	4432.66
					3/16/10	83.51	4434.77
					5/25/10	84.49	4433.79
					8/25/10	85.70	4432.58
					3/17/11	86.76	4431.52
					6/17/11	88.76	4429.52
NWC-02	562944	600177.435	3467474.673	4600.44	12/7/11	89.30	4428.98
					3/6/12	89.24	4429.04
					10/27/08	160.51	4439.93
					4/29/09 ⁵	160.5	4439.94
NWC-03	203321	601153.857	3468350.838	4574.99	9/10/09 ⁵	155	4445.44
					4/2010 ⁵	131	4469.44
					11/3/08	131.48	4443.51
					4/29/09 ⁵	130	4444.99
NWC-03 CAP ⁶	627684	601151.704	3468343.653	4572.82	9/10/09 ⁵	126	4448.99
					10/9/09 ⁵	125	4449.99
					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
NWC-04	551849	605829.808	3469071.959	4690.77	1/31/12	134.50	4438.32
					4/25/12	135.09	4437.73
					7/18/12	135.73	4437.09
					12/2/08	352.11	4338.66
NWC-06	575700	599822.821	3467749.954	4592.50	4/29/09 ⁵	328	4362.77
					9/10/09 ⁵	324	4366.77
					4/2010 ⁵	216	4474.77
					4/29/09 ⁵	156	4436.50
					9/10/09 ⁵	155	4437.50
					10/9/09 ⁵	148	4444.50
					4/2010 ⁵	140	4452.50

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Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
OSBORN	643436	607031.823	3470270.548	4711.95	5/13/08	68.65	4643.30
					8/5/08	69.53	4642.42
					10/16/08	69.83	4642.12
					1/20/09	69.23	4642.72
					4/7/09	69.60	4642.35
					7/8/09	96.61	4615.34
					10/5/09	75.09	4636.86
					1/21/10	75.37	4636.58
					4/19/10	81.59	4630.36
					7/12/10	83.00	4628.95
					7/12/11	74.60	4637.35
PANAGAKOS	35-76413	605304.234	3469323.140	4691.40	2/3/12	74.57	4637.38
					7/9/12	74.63	4637.32
					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
PARRA	576415	602170.716	3471263.549	4727.21	3/15/12	169.64	4521.76
					4/12/12	168.85	4522.55
					7/9/12	170.38	4521.02
					5/15/08	279.78	4447.43
					8/18/08	280.06	4447.15
					11/3/08	280.39	4446.82
PIONKE 395	613395	601045.471	3468960.981	4592.13	2/13/09	280.75	4446.46
					4/28/09	280.88	4446.33
					7/20/09	280.99	4446.22
					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

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
PIONKE 517	221517	600909.967	3468866.654	4587.20792	9/18/12	152.00	4435.21
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
RAMIREZ	216425	599730.649	3467584.363	4596.61	10/20/10	206.74	4432.35
					10/27/08	159.45	4437.16
					1/29/09	158.74	4437.87
					4/16/09	158.66	4437.95
					7/10/09	159.64	4436.97
					10/6/09	160.36	4436.25
					1/25/10	160.10	4436.51
					4/21/10	159.96	4436.65
					7/21/10	161.05	4435.56
					10/19/10	161.23	4435.38
					1/18/11	161.22	4435.39
					4/11/11	161.48	4435.13
					7/18/11	162.39	4434.22
					10/12/11	163.04	4433.57
RAY	803772	607083.422	3469195.147	4647.91	4/10/12	163.22	4433.39
					7/6/12	163.85	4432.76
					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

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	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
ROGERS 750 ⁷	641750	600977.690	3468417.386	4579.02	7/13/12	139.65	4437.70
					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
ROGERS E	216018	600449.648	3467636.029	4590.66	8/3/09	135.07	4443.95
					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
RUIZ	531770	602857.357	3471424.219	4735.18	7/17/12	155.10	4435.56
					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

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	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
STEPHENS	808560	606981.766	3469072.799	4651.22	5/13/08	44.94	4606.28
					8/5/08	46.61	4604.61
					10/16/08	46.60	4604.62
					1/21/09	47.19	4604.03
					4/8/09	48.45	4602.77
					7/7/09	49.41	4601.81
					10/7/09	50.33	4600.89
					1/26/10	51.13	4600.09
					4/20/10	51.24	4599.98
					7/14/10	51.91	4599.31
					1/18/11	52.98	4598.24
					7/11/11	54.44	4596.78
SUNBELT	201531	605998.250	3471735.149	4806.52	2/6/08	352.10	4454.42
					5/15/08	358.97	4447.55
					8/5/08	Dry	<4426
					10/16/08	347.00	4459.52
					1/21/09	344.78	4461.74
					4/10/09	349.64	4456.88
					7/8/09	356.99	4449.53
					10/5/09	Dry	<4426
					1/21/10	Dry	<4426
					4/19/10	Dry	<4426
					7/12/10	Dry	<4426
					1/19/11	Dry	<4426
					8/25/11	Dry	<4426
					2/3/12	Dry	<4426
					7/9/12	Dry	<4426
					9/13/12	Dry	<4426

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
SWAN	NR	607378.547	3470648.298	4716.59	2/13/08	26.50	4690.09
					5/14/08	30.69	4685.90
					7/24/08	32.06	4684.53
					10/16/08	27.53	4689.06
					1/20/09	29.77	4686.82
					4/7/09	31.47	4685.12
					7/8/09	33.61	4682.98
					10/5/09	35.12	4681.47
					1/21/10	36.64	4679.95
					4/21/10	38.06	4678.53
					7/19/10	39.67	4676.92
					1/18/11	35.06	4681.53
					7/12/11	39.32	4677.27
TM-02A	522574	604152.059	3472008.794	4808.43	2/3/12	37.86	4678.73
					7/10/12	40.39	4676.20
					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
TM-03	522575	606366.130	3473711.046	4897.85	7/13/11	348.14	4460.29
					2/2/12	346.94	4461.49
					8/13/12	344.53	4463.90
					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

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
TM-10 USBP	522696	601586.268	3471816.397	4741.18	7/21/11	159.88	4548.00
					7/9/12	161.40	4546.48
					3/15/12	279.30	4461.88
					4/24/12	279.03	4462.15
TM-16	522578	605588.075	3469842.199	4717.71	9/13/12	278.30	4462.88
					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
TM-19A	522581	602458.710	3469197.426	4645.87	7/2/10	83.51	4634.20
					7/14/11	80.41	4637.30
					7/9/12	72.55	4645.16
					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
TM-42	562554	603698.271	3469104.903	4666.67	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
					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

Table 4
Compilation of Groundwater Elevation Data

Well Name	ADWR 55 Registry No.	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
TVI 713	567713	600729.095	3468412.946	4567.22	7/16/12	127.81	4434.17
					5/7/08	127.10	4440.12
					7/14/08	126.30	4440.92
					10/15/08	130.00	4437.22
					2/11/09	149.87	4417.35
					4/17/09	126.73	4440.49
					7/21/09	127.36	4439.86
					10/19/09	127.79	4439.43
					2/2/10	126.71	4440.51
					4/23/10	127.53	4439.69
					7/15/10	129.14	4438.08
					10/20/10	130.84	4436.38
					1/20/11	134.36	4432.86
					4/11/11	135.72	4431.50
					7/15/11	131.61	4435.61
WEISKOPF	641802	601154.951	3468658.855	4586.89	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
					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
WMD-2011-03M	913037	605360.830	3470671.273	4746.28	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
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 No.	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

ADWR = Arizona Department of Water Resources

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

ft amsl = feet above mean sea level

NR = No Record

ND = No Data

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

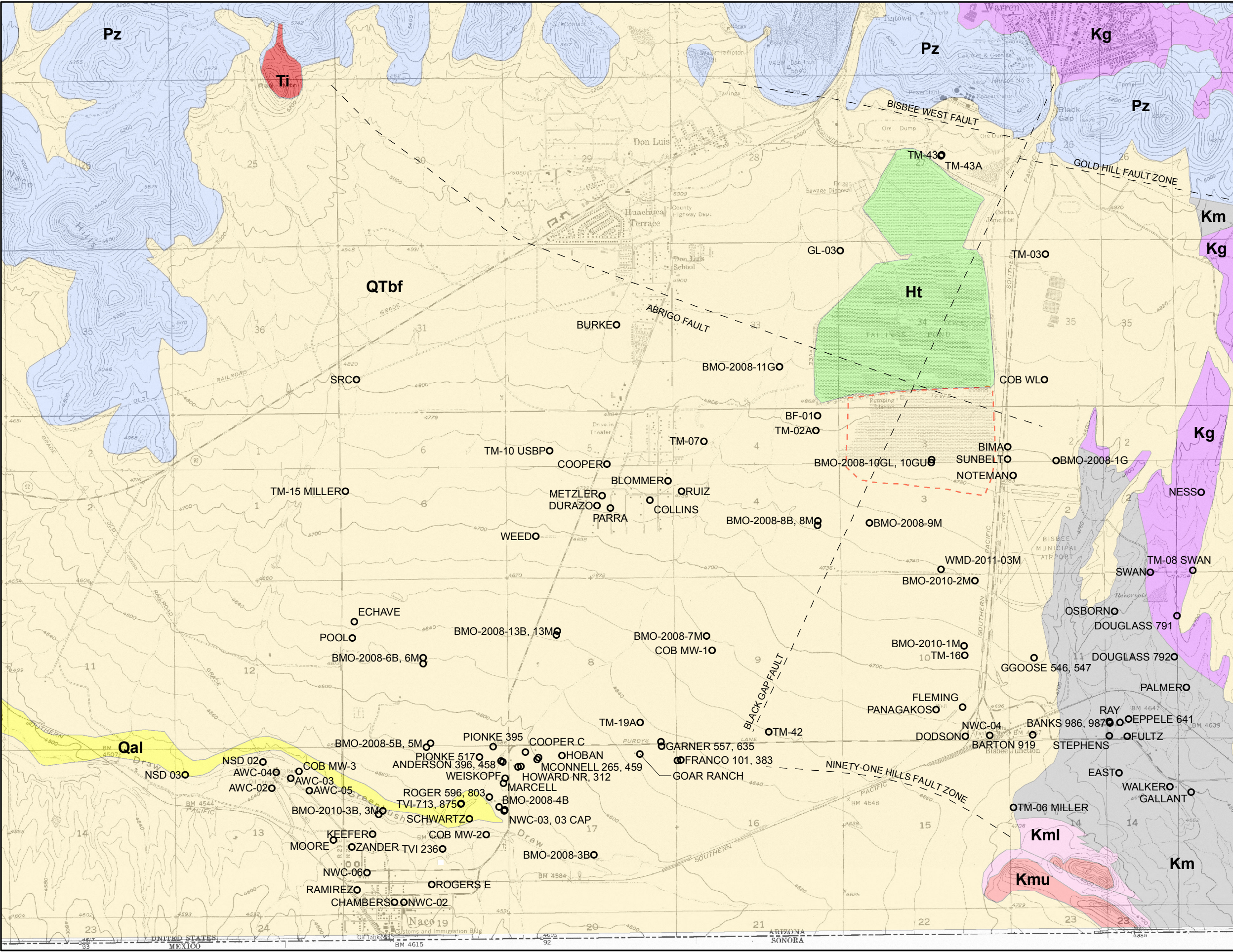
⁵ Depth to Water measurement provided by Naco Water Company

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



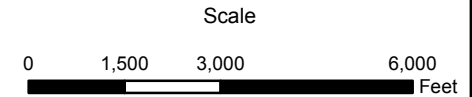
Legend

- 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

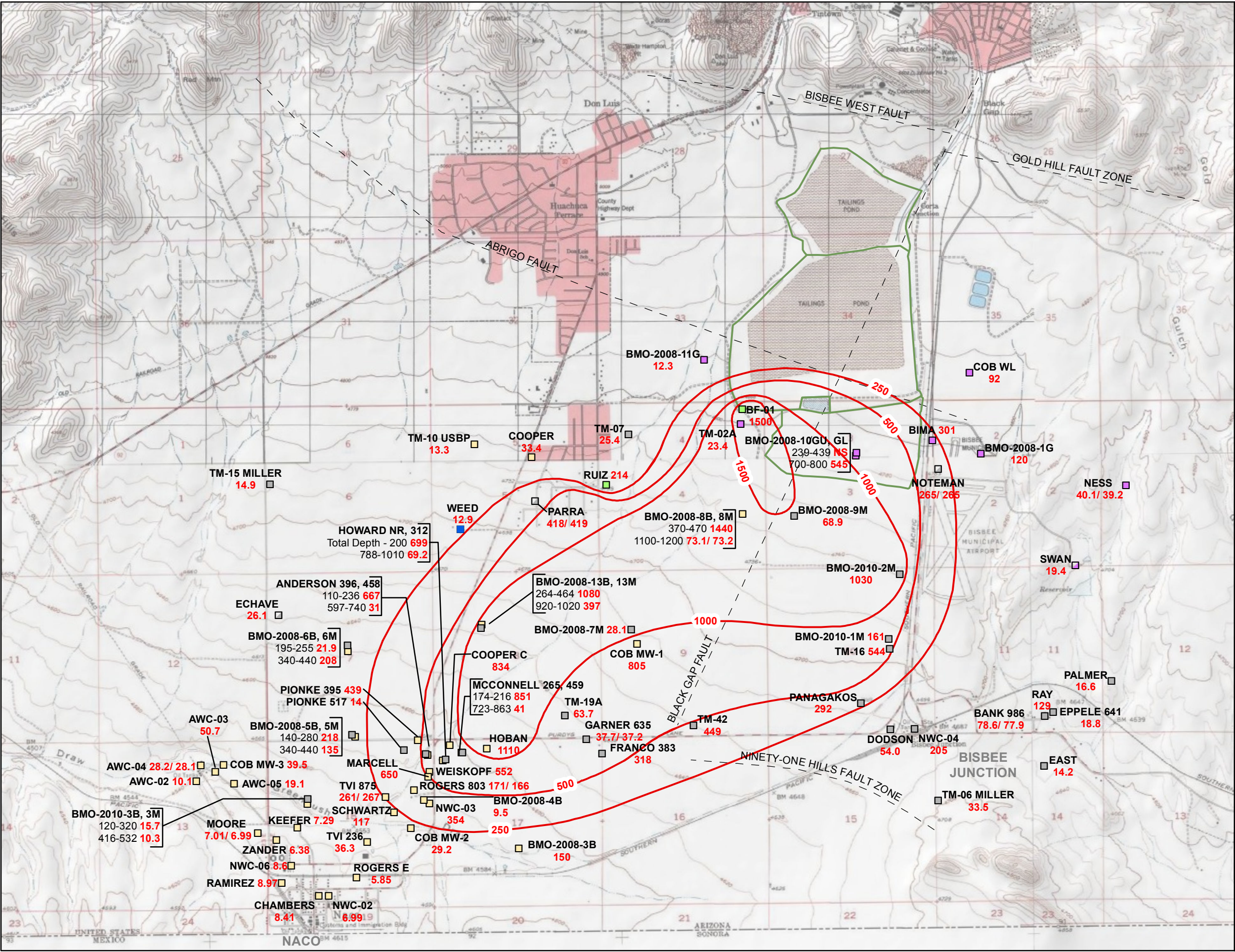
Undifferentiated Bisbee Group



Notes:
Projection: UTM Zone 12N NAD83

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

FIGURE 1
GENERALIZED GEOLOGY
AND WELL LOCATIONS



Legend

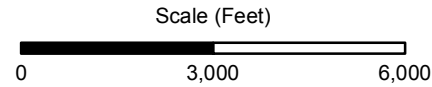
- RAY Well ID
- 129 SO4 Concentration (mg/L)
- SO4 Elevation Contours (dashed where inferred)
- Faults (inferred)
- CTSA Facility

Co-located Wells

- Well ID
- Screen (ft bgs): Sulfate Levels (mg/L)

Screened Formation

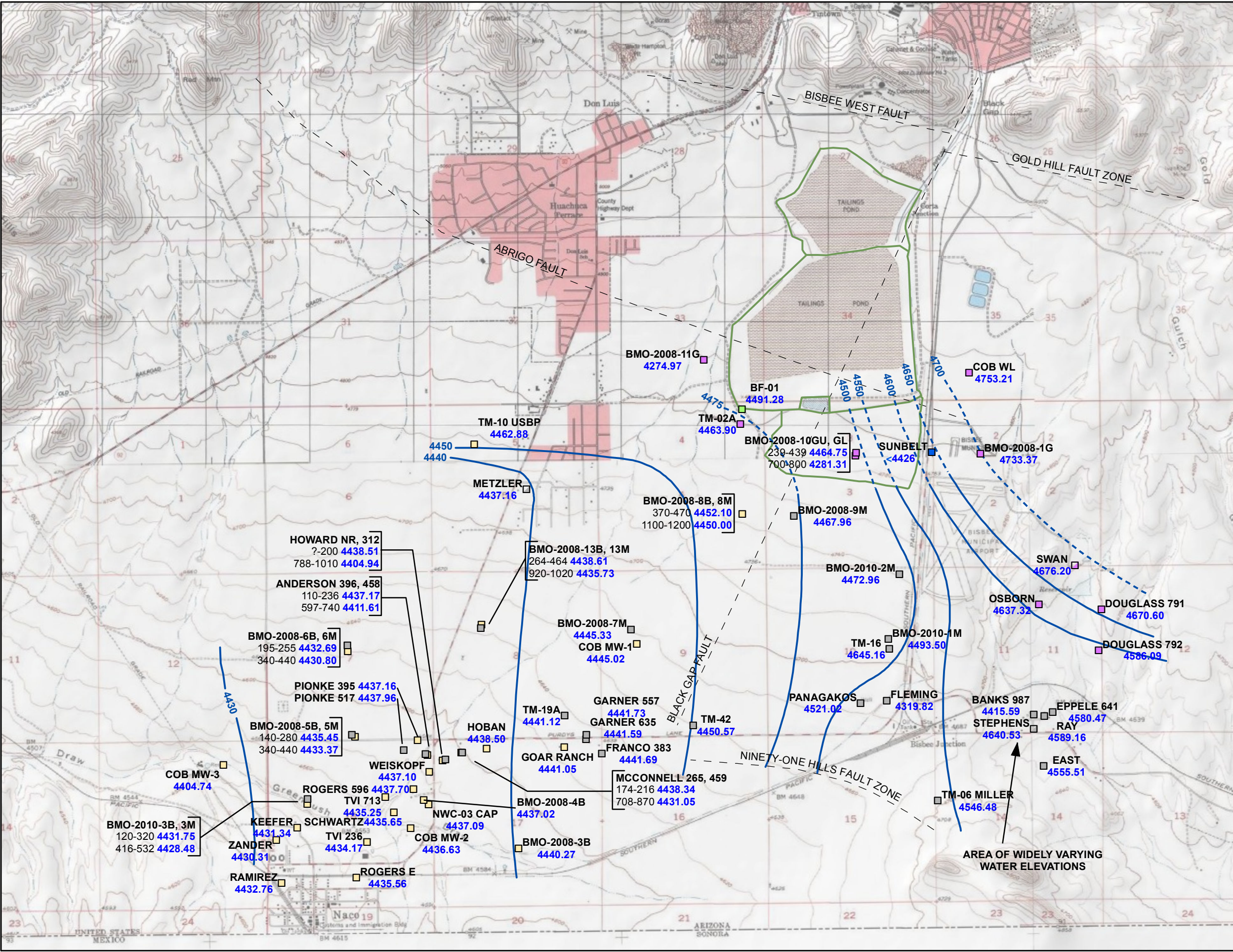
- Basin Fill
- Basin Fill and Undifferentiated Bisbee Group
- Undifferentiated Bisbee Group
- Undifferentiated Bisbee Group - Estimated
- Undifferentiated Bisbee Group and Glance Conglomerate
- Glance Conglomerate
- Glance Conglomerate-Estimated
- Undifferentiated Bisbee Group: Cintura, Mural Limestone,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



Notes:
Projection: UTM Zone 12N NAD83
NS = Not Sampled
mg/L = milligrams per liter

Date	10/1/12	File ID	055038-218

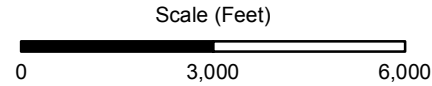
FIGURE 2
SULFATE CONCENTRATIONS IN
GROUNDWATER FOR
THIRD QUARTER 2012



- Legend**
- RAY Well ID
 - 4589.16 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)

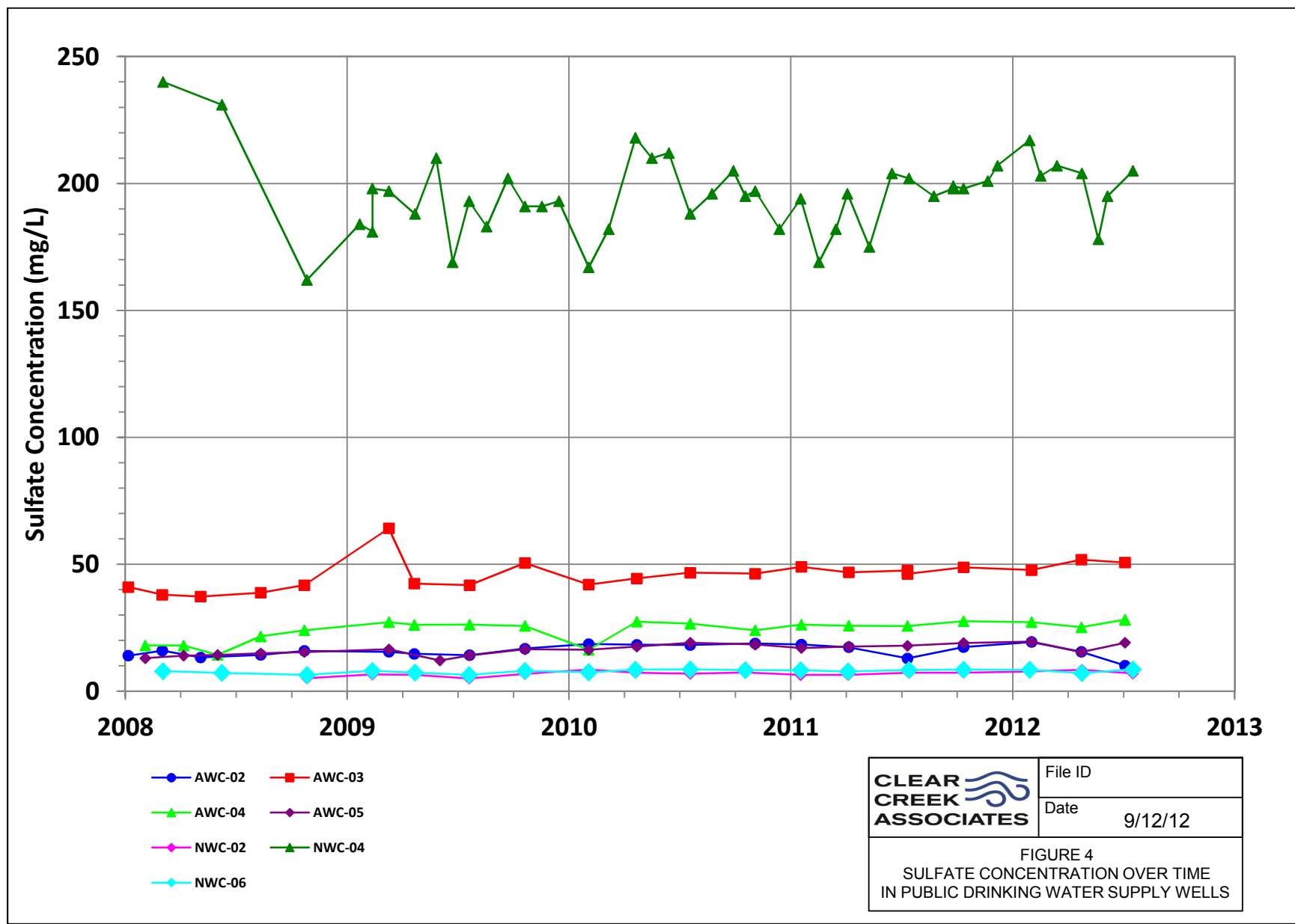
- Screened Formation**
- Basin Fill
 - Basin Fill and Undifferentiated Bisbee Group
 - Undifferentiated Bisbee Group
 - Undifferentiated Bisbee Group - Estimated
 - Undifferentiated Bisbee Group and Glance Conglomerate
 - Glance Conglomerate
 - Glance Conglomerate-Estimated
 - Undifferentiated Bisbee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

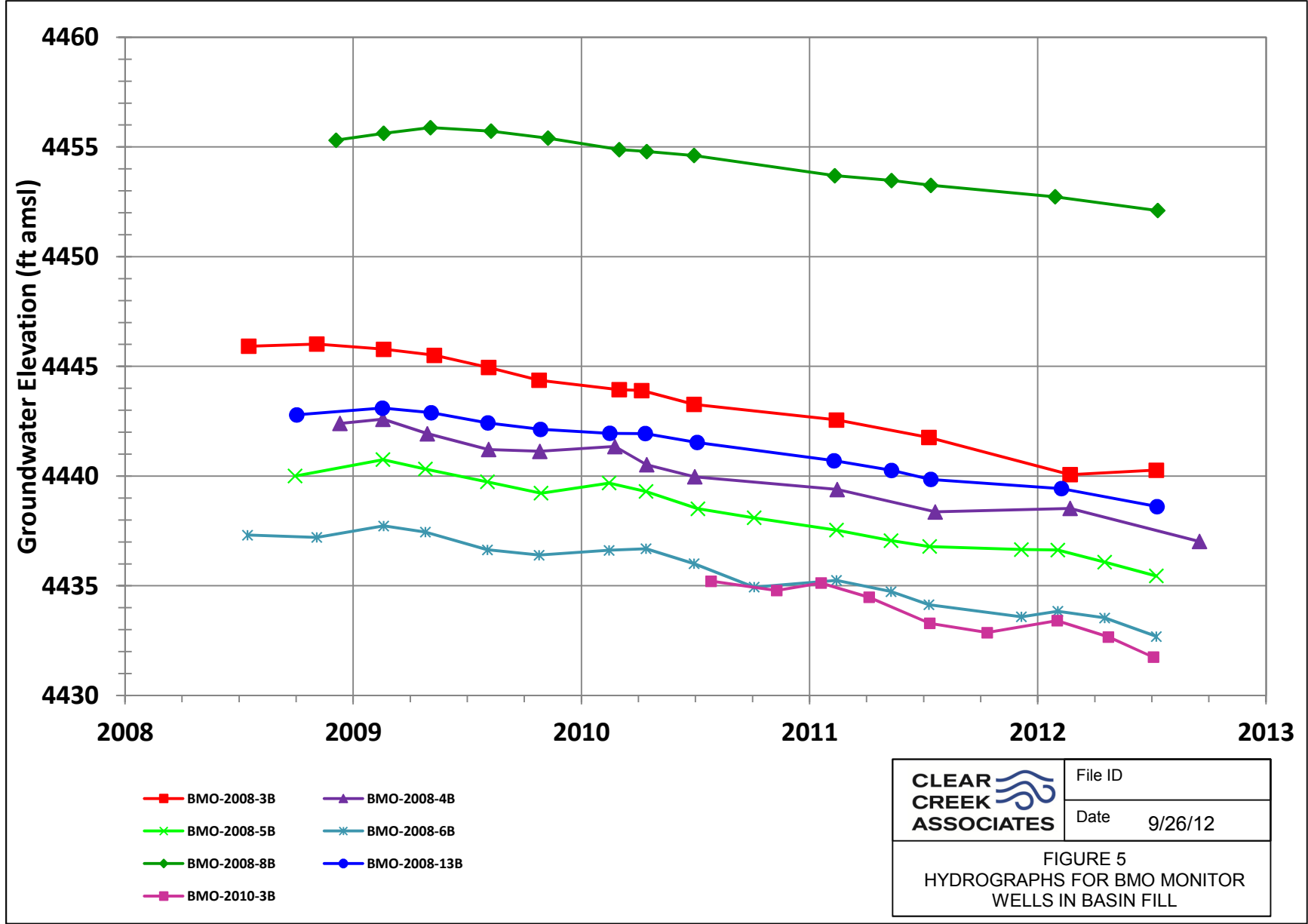


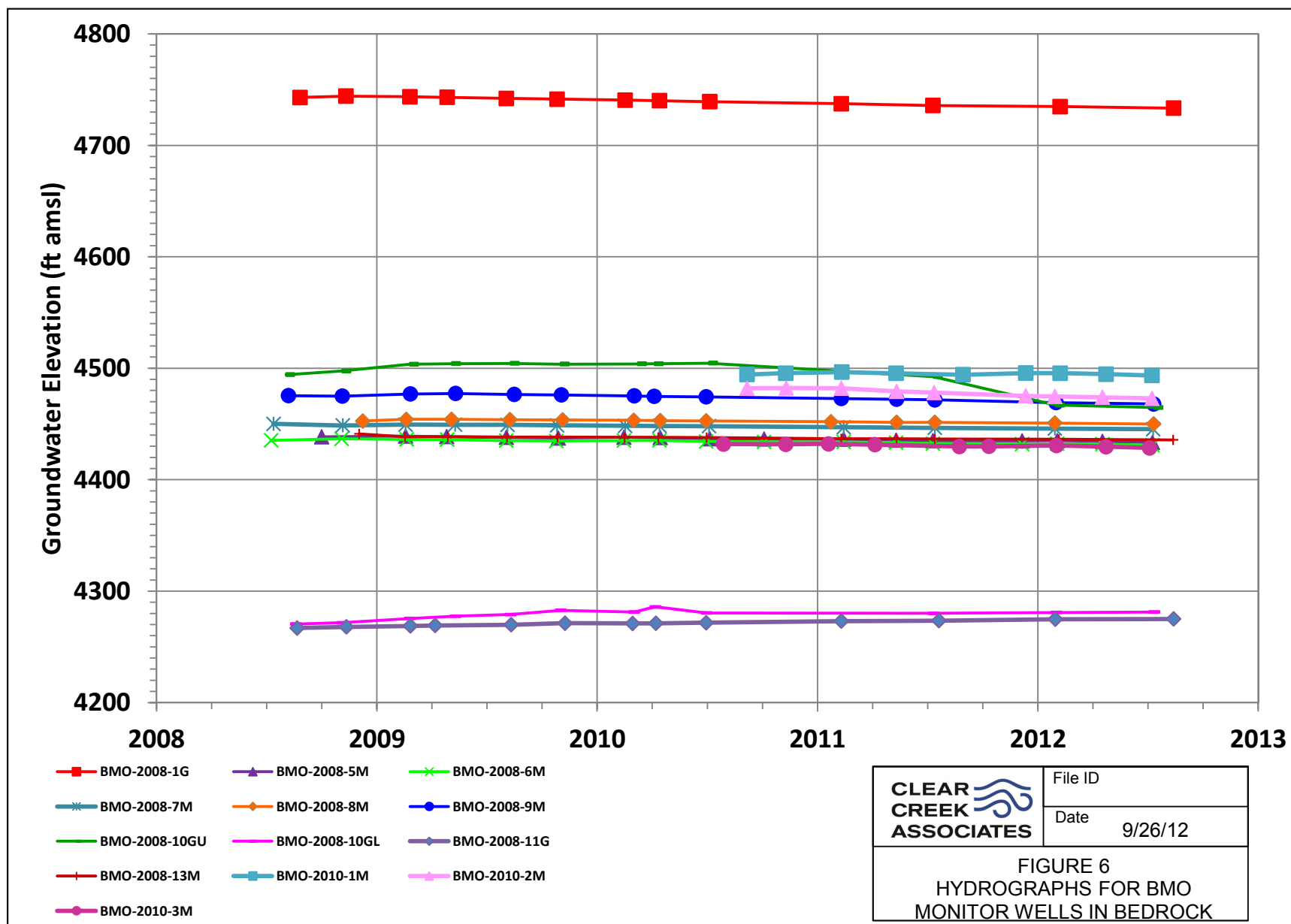
Notes:
Projection: UTM Zone
12N NAD83
amsl = above mean sea level
bls = below land surface
Groundwater Elevation contour intervals are irregular. The intervals were chosen to show hydraulic gradient across the study area while maintaining the legibility of the data

Date	9/26/12	File ID	055038-217

FIGURE 3
GROUNDWATER ELEVATIONS FOR
THIRD QUARTER 2012







APPENDIX A
SURVEY DATA

APPENDIX A
Survey Results for New Wells

Point ID	Survey Location	Northing (UTM meters)	Easting (UTM meters)	Elevation (meters)
ANDERSON 458	Top of Well Pad	3468826.284	601118.690	1397.447
ANDERSON 458	Top of Sounding Tube	3468826.023	601118.798	1397.980
FRANCO 383	Top of Well Pad	3468831.760	602817.741	1412.823
FRANCO 383	Top of Sounding Tube	3468831.563	602817.854	1413.683
HOWARD 312	Top of Well Pad	3468772.846	601308.670	1400.141
HOWARD 312	Top of Sounding Tube	3468772.630	601308.920	1400.895
MCCONNELL 459	Top of Well Pad	3468841.014	601471.606	1401.943
MCCONNELL 459	Top of Sounding Tube	3468840.682	601471.708	1402.556
PIONKE 517	Top of Well Pad	3468866.934	600909.936	1397.682
PIONKE 517	Top of Sounding Tube	3468866.654	600909.967	1398.539

All coordinates listed in UTM Zone 12n WGS84 Geoid 09 (Meters)

Data Provide by CQB

APPENDIX B

DATA VERIFICATION REPORT

APPENDIX B

DATA VERIFICATION REPORT

THIRD QUARTER 2012

GROUNDWATER MONITORING REPORT

Prepared for:

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

Prepared by:

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

October 19, 2012

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1. INTRODUCTION

This report summarizes the data verification review of groundwater samples collected and analyzed during the third quarter 2012 by Clear Creek Associates (Clear Creek) and Freeport-McMoRan Corporation Copper Queen Branch (CQB) pursuant to Mitigation Order on Consent Docket No. P-121-07 (ADEQ, 2007). Clear Creek and CQB collected groundwater samples pursuant to the groundwater monitoring program approved by ADEQ in April 2010 (CQB, 2010 and ADEQ, 2010). Analytical results for groundwater samples collected for this project during the third quarter 2012 were provided to Clear Creek by SVL Analytical, Inc. (SVL) of Kellogg, Idaho for preparation of the third quarter 2012 Groundwater Monitoring Report except for samples collected at four new wells. An analytical result for HOWARD 312 was provided to Clear Creek by Legend Technical Services, Inc. (Legend) of Tucson, Arizona. Analytical results for ANDERSON 458, MCCONNELL 459, and PIONKE 517 were provided to Clear Creek by Turner Laboratories Inc. (Turner) of Tucson, Arizona.

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

The laboratory reports for the third quarter 2012 samples including COC forms, laboratory correspondence, QC summaries, data qualifiers, internal QA/QC tests performed by two laboratories are presented with the laboratory reports included in Appendix C. Based on the results of laboratory control samples, matrix spike/recovery and blank spikes, SVL, Legend, and Turner did not advise any modifications be made regarding the usability and data validation status of the laboratory test results. The analytical results for all 106 samples collected by Clear Creek and CQB are contained in 14 reports having the Laboratory Project numbers identified in the following table.

SVL ID	WELLS REPORTED
	Number of wells sampled: 80 Number of groundwater samples collected (including duplicates): 92 Number of duplicate samples collected: 10 Number of field and equipment blanks collected: 14 Total number of samples collected: 106
W2G0109	AWC-03, AWC-04, AWC-02, AWC-05, BMO-2010-3M, BMO-2010-3B, WEED, DUP07052012, FB07052012, EQB07052012, MCCONNELL 265, RAMIREZ, EPPELE 641, RAY, FB07062012, EQB07062012, BANKS 986, DUP07062012
W2G0296	DODSON
W2G0301	BMO-2010-1M, TM-16, BMO-2010-2M, TM-6, BMO-2008-6M, BMO-2008-6B, BMO-2008-5M, BMO-2008-5B, BMO-2008-3B, TM-15, TM-42, BMO-2008-7M, HOBAN, TM-19A, BMO-2008-13B, BMO-2008-8M, BMO-2008-8B, BMO-2008-9M, DUP071212
W2G0362	BMO-2008-10GL
W2G0364	EAST, PANAGAKOS, NOTEMAN, DUP07092012, NESS, DUP07102012, SWAN, BIMA, GARNER 635, EQB07132012, FB07132012, ROGERS 803, DUP07132012, COOPER C, EQB07112012, DUP07112012, FB07102012, EQB07102012, PALMER
W2G0366	COB MW-1, COB MW-2, PIONKE 395, FB07112012, MARCELL, WEISKOPF, ANDERSON 396, COB WL, COB MW-3
W2G0454	MOORE, KEEFER, EQB07172012, FB07172012, DUP07172012, ZANDER, ROGERS E, CHAMBERS, ECHAVE, NWC-04, NWC-06, NWC-03, SCHWARTZ, TVI 236, TVI 875, DUP07162012, COOPER, RUIZ, FB07182012, EQB07182012, NWC-02, DUP07182012, PARRA
W2H0468	BF-01, BMO-2008-1G, BMO-2008-4B, BMO-2008-11G, BMO-2008-13M, TM-2A, TM-7
W2I0207	NWC-04
W2I0392	FRANCO 383, HOWARD NR, NWC-04, TM-10 USBP
Turner ID	WELLS REPORTED
12I0341	ANDERSON 458
12G0801	MCCONNELL 459
12I0547	PIONKE 517
Legend ID	WELLS REPORTED
2081219	HOWARD 312

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. However, it was not always possible to ascertain from the well owners how long the pump had been off. Before measuring the water level at each well, the battery on the water level indicator was checked and the sensitivity level was adjusted, if necessary. Each measurement was collected and verified by measuring the depth to water multiple times in order to obtain a consistent reading and accurate measurement. The water level measurement taken while water sampling at BMO-2008-4B on August 15, 2012 was inconsistent with historic results and determined to be affected by pumping prior to the measurement. A follow up measurement was made on September 17, 2012 after verifying the well had not been pumping. The August 15, 2012 measurement is not included in Table 4 because it is considered non-representative of the static water level condition.

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 0.3 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.

¹ Field pH meter was calibrated using a three point calibration and pH buffers 4, 7, and 10

² Field SC meter was calibrated using a standard stock solution of 7000 µS/cm or 12880 µS/cm

During this monitoring period 92 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 laboratories and maintained in a clean and secure work area until used in the field.

2.2.3 Post-Sampling Field Activities

Post-sampling field activities consisted of equipment decontamination, sample storage, and sample shipping. Field equipment that 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, Legend or Turner. 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, Legend or Turner 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 the laboratory. As noted on the analytical data reports from each laboratory, all of the sample bottles were received intact, properly preserved, and in good condition except for the 18 samples included in SVL Work Order W2G0109 which arrived outside of published EPA guidelines for preservation temperatures (0-6°C). All samples were shipped within one to four days of sample collection and the time between sample collection and receipt of samples by the laboratory was one to eight days. Samples in work order W2G109 were shipped on a Friday and not received by the laboratory until the following Monday. Insufficient ice was packed with the samples of work order W2G109 for the samples to stay within temperature guidelines over the weekend. The samples were collected, shipped, and received by the laboratory within the established holding time for dissolved sulfate analysis in accordance with United States Environmental Protection Agency (EPA) Method 300.0.

The results for the samples that were received outside of published temperature guidelines were compared to historical results. The samples were in line with historical results and it is believed the samples results are usable for all 18 samples. Sample shipping protocol was reviewed with all field staff and samples will no longer be shipped on Friday but will be held until Monday to ensure that all samples are received within the published EPA temperature guidelines.

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.

Legend is licensed with the Arizona Department of Health Services (license number AZ0004) and is accredited in accordance with the National Environmental Laboratory Accreditation Conference.

Turner is licensed with the Arizona Department of Health Services (license number AZ0066) 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

The Practical Quantitation Limit (PQL) of the analytical method used (EPA 300.0) by both Legend and Turner is 5.0 mg/L.

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. Analytical results for blanks prepared by Legend and Turner also showed percent recoveries within the acceptance criteria for 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. Equivalent analytical spikes were conducted on samples sent to Legend and Turner. No qualifiers were reported from Legend or Turner.

4.5.3 Laboratory Duplicate Samples

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

4.5.4 Sample Re-Analysis

No samples required re-analysis for the third quarter 2012.

4.5.5 Field Blank Samples

During the third quarter 2012, 14 field blank samples were collected, including seven field blanks (FB07052012, FB07062012, FB07102012, FB07112012, FB07132012, FB07172012 and FB07182012) and seven equipment blanks (EQB07052012, EQB07062012, EQB07102012, EQB07112012, EQB07132012, EQB07172012 and EQB07182012). Field blank samples were collected in accordance with procedures described in Section 4.2.1.5 of the QAPP. Field blank samples were collected and submitted along with other samples to evaluate the potential for contaminant introduction under field conditions. As required by Section 4.2.1.5 of the QAPP, a minimum of one field blank and one equipment blank sample was collected for every twenty samples.

5. DATA QUALITY INDICATORS

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

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

Each of these DQIs is discussed below in relation to the third quarter 2012 groundwater sampling and analysis conducted by Clear Creek and CQB.

5.1 Precision

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

- Laboratory duplicate samples
- Field duplicate samples

As discussed in Section 4.5.3 there were no exceedances of RPD QA criteria for any laboratory duplicates. During this monitoring period 10 field filtered duplicate samples (DUP07052012, DUP07062012, DUP07092012, DUP07102012, DUP07112012, DUP071212, DUP07132012, DUP07162012, DUP07172012 and DUP07182012) 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 and 2.97 percent, all within the 20 percent acceptance criteria for

field duplicates, as stated in Section 3.3.1 of the QAPP. Overall, the DQI for precision is deemed to be met.

SVL Project No.	Well ID	Duplicate ID	Sample (mg/l)	Duplicate (mg/l)	RPD
W2G0109	AWC-04	DUP07052012	28.2	28.1	0.36%
W2G0109	Banks 986	DUP07062012	78.6	77.9	0.89%
W2G0301	BMO-2008-8M	DUP071212	73.1	73.2	0.14%
W2G0364	Garner 635	DUP07112012	37.7	37.2	1.34%
W2G0454	Moore	DUP07172012	7.01	6.99	0.29%
W2G0364	Ness	DUP07102012	40.1	39.2	2.27%
W2G0364	Noteman	DUP07092012	265	265	0.00%
W2G0454	Parra	DUP07182012	418	419	0.24%
W2G0364	Rogers 803	DUP07132012	171	166	2.97%
W2G0454	TVI 875	DUP07162012	261	267	2.27%

mg/L = milligrams per liter

RPD = Relative Percent Difference

5.2 Bias

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

5.3 Accuracy

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

5.4 Representativeness

All samples were taken from locations specified in the revised groundwater monitoring program (CQB, 2010) following sampling procedures specified in the QAPP. Therefore, the samples are

judged to provide a good representation of groundwater quality at the sampled locations. The sampling procedures are judged to be representative of groundwater quality at the sampled locations because no sulfate was detected in the field or equipment blanks. The analytical data are judged to be representative of groundwater conditions because the analyses used standard procedures and methods that met QA/QC guidelines of the QAPP.

5.5 Comparability

All samples were collected using standardized procedures (HGC, 2008) and were analyzed by SVL, Legend or Turner 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, Legend, and Turner are judged to 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. 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 - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W210392**

Reported: 21-Sep-12 12:48

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
NWC-04	W210392-01	Ground Water	13-Sep-12 10:09	ML	17-Sep-2012
FRANCO 383	W210392-02	Ground Water	13-Sep-12 10:47	ML	17-Sep-2012
TM-10 USBP	W210392-03	Ground Water	13-Sep-12 12:39	ML	17-Sep-2012
HOWARD NR	W210392-04	Ground Water	13-Sep-12 13:35	ML	17-Sep-2012

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

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W210392**

Reported: 21-Sep-12 12:48

Client Sample ID: **NWC-04**

SVL Sample ID: **W210392-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 13-Sep-12 10:09

Received: 17-Sep-12

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 SO ₄	205	mg/L	3.00	0.47	10	W238116	AEW	09/18/12 15:02	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W210392**

Reported: 21-Sep-12 12:48

Client Sample ID: **FRANCO 383**

SVL Sample ID: **W210392-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 13-Sep-12 10:47

Received: 17-Sep-12

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	318	mg/L	7.50	1.18	25	W238116	AEW	09/18/12 15:12	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W210392**

Reported: 21-Sep-12 12:48

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

Sampled: 13-Sep-12 12:39

SVL Sample ID: **W210392-03 (Ground Water)**

Sample Report Page 1 of 1

Received: 17-Sep-12

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 SO ₄	13.3	mg/L	0.30	0.05		W238116	AEW	09/18/12 15:23	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W210392**

Reported: 21-Sep-12 12:48

Client Sample ID: **HOWARD NR**

SVL Sample ID: **W210392-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 13-Sep-12 13:35

Received: 17-Sep-12

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 SO ₄	699	mg/L	7.50	1.18	25	W238116	AEW	09/18/12 15:33	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



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

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W210392**

Reported: 21-Sep-12 12:48

Quality Control - BLANK Data

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

EPA 300.0	Sulfate as SO ₄	mg/L	<0.30	0.05	0.30	W238116	18-Sep-12	
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Quality Control - LABORATORY CONTROL SAMPLE Data

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

EPA 300.0	Sulfate as SO ₄	mg/L	10.4	10.0	104	90 - 110	W238116	18-Sep-12	
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Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	mg/L	7.99	8.10	1.3	20	W238116	18-Sep-12	
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Quality Control - MATRIX SPIKE Data

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

EPA 300.0	Sulfate as SO ₄	mg/L	19.8	8.10	10.0	117	90 - 110	W238116	18-Sep-12	M1
EPA 300.0	Sulfate as SO ₄	mg/L	50.2	38.6	10.0	115	90 - 110	W238116	18-Sep-12	M1

Notes and Definitions

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



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Kellogg ID 83837-0929

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W210207**

Reported: 18-Sep-12 13:15

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
NWC-04	W210207-01	Ground Water	28-Aug-12 10:32	BD	11-Sep-2012

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested. Non-Detects are reported at the MDL.

Sample preparation is defined by the client as per their Data Quality Objectives.

This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.

The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.



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Kellogg ID 83837-0929

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W210207**

Reported: 18-Sep-12 13:15

Client Sample ID: **NWC-04**

Sampled: 28-Aug-12 10:32

SVL Sample ID: **W210207-01 (Ground Water)**

Sample Report Page 1 of 1

Received: 11-Sep-12

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 SO ₄	208	mg/L	3.00	0.47	10	W237208	AEW	09/12/12 21:15	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



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

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W210207**

Reported: 18-Sep-12 13:15

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	0.05	0.30	W237208	12-Sep-12	
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Quality Control - LABORATORY CONTROL SAMPLE Data

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

EPA 300.0	Sulfate as SO4	mg/L	10.0	10.0	100	90 - 110	W237208	12-Sep-12	
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Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	9.56	9.64	0.8	20	W237208	12-Sep-12	
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Quality Control - MATRIX SPIKE Data

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

EPA 300.0	Sulfate as SO4	mg/L	20.7	9.64	10.0	110	90 - 110	W237208	12-Sep-12	
EPA 300.0	Sulfate as SO4	mg/L	45.0	33.7	10.0	113	90 - 110	W237208	12-Sep-12	M1

Notes and Definitions

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



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2H0468**

Reported: 23-Aug-12 18:19

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
TM-7	W2H0468-01	Ground Water	13-Aug-12 10:23	CLS	16-Aug-2012
BMO-2008-13M	W2H0468-02	Ground Water	13-Aug-12 15:30	CLS	16-Aug-2012
BMO-2008-11G	W2H0468-03	Ground Water	14-Aug-12 07:35	CLS	16-Aug-2012
TM-2A	W2H0468-04	Ground Water	14-Aug-12 09:00	CLS	16-Aug-2012
BF-1	W2H0468-05	Ground Water	14-Aug-12 09:31	CLS	16-Aug-2012
BMO-2008-1G	W2H0468-06	Ground Water	14-Aug-12 12:40	CLS	16-Aug-2012
BMO-2008-4B	W2H0468-07	Ground Water	15-Aug-12 10:00	CLS	16-Aug-2012

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested. Non-Detects are reported at the MDL.

Sample preparation is defined by the client as per their Data Quality Objectives.

This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.

The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.



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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2H0468**

Reported: 23-Aug-12 18:19

Client Sample ID: **TM-7**

SVL Sample ID: **W2H0468-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 13-Aug-12 10:23

Received: 16-Aug-12

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	25.4	mg/L	3.00	0.47	10	W234205	AEW	08/22/12 18:03	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



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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2H0468**

Reported: 23-Aug-12 18:19

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

SVL Sample ID: **W2H0468-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 13-Aug-12 15:30

Received: 16-Aug-12

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	397	mg/L	7.50	1.18	25	W234205	AEW	08/22/12 18:13	D2
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2H0468**

Reported: 23-Aug-12 18:19

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

Sampled: 14-Aug-12 07:35

SVL Sample ID: **W2H0468-03 (Ground Water)**

Sample Report Page 1 of 1

Received: 16-Aug-12

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	12.3	mg/L	0.30	0.05		W234205	AEW	08/22/12 18:23	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2H0468**

Reported: 23-Aug-12 18:19

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

SVL Sample ID: **W2H0468-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 14-Aug-12 09:00

Received: 16-Aug-12

Sampled By: CLS

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

EPA 300.0	Sulfate as SO4	23.4	mg/L	0.30	0.05		W234205	AEW	08/22/12 18:33	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2H0468**

Reported: 23-Aug-12 18:19

Client Sample ID: **BF-1**

Sampled: 14-Aug-12 09:31

SVL Sample ID: **W2H0468-05 (Ground Water)**

Sample Report Page 1 of 1

Received: 16-Aug-12

Sampled By: CLS

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

EPA 300.0	Sulfate as SO ₄	1500	mg/L	30.0	4.70	100	W234205	AEW	08/22/12 18:43	D2
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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2H0468**

Reported: 23-Aug-12 18:19

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

Sampled: 14-Aug-12 12:40

SVL Sample ID: **W2H0468-06 (Ground Water)**

Sample Report Page 1 of 1

Received: 16-Aug-12

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	120	mg/L	3.00	0.47	10	W234205	AEW	08/22/12 18:53	D2
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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2H0468**

Reported: 23-Aug-12 18:19

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

Sampled: 15-Aug-12 10:00

SVL Sample ID: **W2H0468-07 (Ground Water)**

Sample Report Page 1 of 1

Received: 16-Aug-12

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	9.50	mg/L	0.30	0.05		W234205	AEW	08/22/12 19:03	
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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W2H0468**

Reported: 23-Aug-12 18:19

Quality Control - BLANK Data

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

EPA 300.0	Sulfate as SO ₄	mg/L	<0.30	0.05	0.30	W234205	22-Aug-12	
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Quality Control - LABORATORY CONTROL SAMPLE Data

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

EPA 300.0	Sulfate as SO ₄	mg/L	9.99	10.0	99.9	90 - 110	W234205	22-Aug-12	
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Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO ₄	mg/L	0.37	0.37	0.5	20	W234205	22-Aug-12	
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Quality Control - MATRIX SPIKE Data

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

EPA 300.0	Sulfate as SO ₄	mg/L	11.4	0.37	10.0	110	90 - 110	W234205	22-Aug-12	
EPA 300.0	Sulfate as SO ₄	mg/L	37.0	25.6	10.0	114	90 - 110	W234205	22-Aug-12	M1

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



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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W2G0454**

Reported: 01-Aug-12 10:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
MOORE	W2G0454-01	Ground Water	17-Jul-12 11:14	VH	19-Jul-2012
KEEFER	W2G0454-02	Ground Water	17-Jul-12 10:06	VH	19-Jul-2012
EQB07172012	W2G0454-03	Water	17-Jul-12 09:42	VH	19-Jul-2012
FB07172012	W2G0454-04	Water	17-Jul-12 09:41	VH	19-Jul-2012
DUP07172012	W2G0454-05	Ground Water	17-Jul-12 11:15	VH	19-Jul-2012
ZANDER	W2G0454-06	Ground Water	17-Jul-12 12:52	VH	19-Jul-2012
ROGERS, E	W2G0454-07	Ground Water	17-Jul-12 15:41	VH	19-Jul-2012
CHAMBERS	W2G0454-08	Ground Water	17-Jul-12 15:50	VH	19-Jul-2012
ECHAVE	W2G0454-09	Ground Water	17-Jul-12 17:52	VH	19-Jul-2012
NWC-04	W2G0454-10	Ground Water	18-Jul-12 08:41	VH	19-Jul-2012
NWC-06	W2G0454-11	Ground Water	18-Jul-12 10:06	VH	19-Jul-2012
NWC-03	W2G0454-12	Ground Water	18-Jul-12 09:30	VH	19-Jul-2012
SCHWARTZ	W2G0454-13	Ground Water	16-Jul-12 14:40	VH	19-Jul-2012
TVI 236	W2G0454-14	Ground Water	16-Jul-12 15:55	VH	19-Jul-2012
TVI 875	W2G0454-15	Ground Water	16-Jul-12 16:40	VH	19-Jul-2012
DUP07162012	W2G0454-16	Ground Water	16-Jul-12 16:40	VH	19-Jul-2012
COOPER	W2G0454-17	Ground Water	18-Jul-12 14:08	VH	19-Jul-2012
RUIZ	W2G0454-18	Ground Water	18-Jul-12 13:09	VH	19-Jul-2012
FB07182012	W2G0454-19	Water	18-Jul-12 14:15	VH	19-Jul-2012
EQB07182012	W2G0454-20	Water	18-Jul-12 14:16	VH	19-Jul-2012
NWC-02	W2G0454-21	Ground Water	18-Jul-12 10:37	VH	19-Jul-2012
DUP07182012	W2G0454-22	Ground Water	18-Jul-12 12:08	VH	19-Jul-2012
PARRA	W2G0454-23	Ground Water	18-Jul-12 12:08	VH	19-Jul-2012

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested. Non-Detects are reported at the MDL.

Sample preparation is defined by the client as per their Data Quality Objectives.

This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.

The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **MOORE**

Sampled: 17-Jul-12 11:14

SVL Sample ID: **W2G0454-01 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO4	7.01	mg/L	0.30	0.05		W230131	AEW	07/24/12 14:36	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



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

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **KEEFER**

Sampled: 17-Jul-12 10:06

SVL Sample ID: **W2G0454-02 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO4	7.29	mg/L	0.30	0.05		W230131	AEW	07/24/12 14:46	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **EQB07172012**

SVL Sample ID: **W2G0454-03 (Water)**

Sample Report Page 1 of 1

Sampled: 17-Jul-12 09:42

Received: 19-Jul-12

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	0.05		W230289	AEW	07/26/12 16:55	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **FB07172012**

Sampled: 17-Jul-12 09:41

SVL Sample ID: **W2G0454-04 (Water)**

Received: 19-Jul-12

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	0.05		W230289	AEW	07/26/12 17:04	
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John Kern
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **DUP07172012**

Sampled: 17-Jul-12 11:15

SVL Sample ID: **W2G0454-05 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-12

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	6.99	mg/L	0.30	0.05		W230131	AEW	07/24/12 14:56	
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John Kern
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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **ZANDER**

SVL Sample ID: **W2G0454-06 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 17-Jul-12 12:52

Received: 19-Jul-12

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	6.38	mg/L	0.30	0.05		W230131	AEW	07/24/12 15:26	
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John Kern
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **ROGERS, E**

SVL Sample ID: **W2G0454-07 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 17-Jul-12 15:41

Received: 19-Jul-12

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	5.85	mg/L	0.30	0.05		W230131	AEW	07/24/12 15:35	
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John Kern
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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **CHAMBERS**

Sampled: 17-Jul-12 15:50

SVL Sample ID: **W2G0454-08 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-12

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	8.41	mg/L	0.30	0.05		W230131	AEW	07/24/12 15:45	
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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: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **ECHAVE**

Sampled: 17-Jul-12 17:52

SVL Sample ID: **W2G0454-09 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-12

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	26.1	mg/L	0.30	0.05		W230131	AEW	07/24/12 15:55	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **NWC-04**

SVL Sample ID: **W2G0454-10 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Jul-12 08:41

Received: 19-Jul-12

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	205	mg/L	3.00	0.47	10	W230131	AEW	07/24/12 16:05	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **NWC-06**

Sampled: 18-Jul-12 10:06

SVL Sample ID: **W2G0454-11 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	8.60	mg/L	0.30	0.05		W230131	AEW	07/24/12 16:15	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **NWC-03**

Sampled: 18-Jul-12 09:30

SVL Sample ID: **W2G0454-12 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-12

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	354	mg/L	7.50	1.18	25	W230131	AEW	07/24/12 16:35	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **SCHWARTZ**

Sampled: 16-Jul-12 14:40

SVL Sample ID: **W2G0454-13 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	117	mg/L	3.00	0.47	10	W230131	AEW	07/24/12 16:45	D2
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John Kern
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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **TVI 236**

SVL Sample ID: **W2G0454-14 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 16-Jul-12 15:55

Received: 19-Jul-12

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	36.3	mg/L	1.50	0.24	5	W230131	AEW	07/24/12 16:55	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
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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **TVI 875**

SVL Sample ID: **W2G0454-15 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 16-Jul-12 16:40

Received: 19-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	261	mg/L	3.00	0.47	10	W230131	AEW	07/24/12 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
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36 West Hwy 92
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **DUP07162012**

Sampled: 16-Jul-12 16:40

SVL Sample ID: **W2G0454-16 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	267	mg/L	3.00	0.47	10	W230131	AEW	07/24/12 17:34	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **COOPER**

Sampled: 18-Jul-12 14:08

SVL Sample ID: **W2G0454-17 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	33.4	mg/L	0.30	0.05		W230131	AEW	07/24/12 17:44	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **RUIZ**

SVL Sample ID: **W2G0454-18 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Jul-12 13:09

Received: 19-Jul-12

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	214	mg/L	3.00	0.47	10	W230131	AEW	07/24/12 17:54	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
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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **FB07182012**

SVL Sample ID: **W2G0454-19 (Water)**

Sample Report Page 1 of 1

Sampled: 18-Jul-12 14:15

Received: 19-Jul-12

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	0.05		W230289	AEW	07/26/12 17:14	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **EQB07182012**

Sampled: 18-Jul-12 14:16

SVL Sample ID: **W2G0454-20 (Water)**

Received: 19-Jul-12

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	0.05		W230289	AEW	07/26/12 17:24	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **NWC-02**

SVL Sample ID: **W2G0454-21 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Jul-12 10:37

Received: 19-Jul-12

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	6.99	mg/L	0.30	0.05		W230131	AEW	07/24/12 18:04	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **DUP07182012**

Sampled: 18-Jul-12 12:08

SVL Sample ID: **W2G0454-22 (Ground Water)**

Sample Report Page 1 of 1

Received: 19-Jul-12

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	419	mg/L	7.50	1.18	25	W230234	AEW	07/25/12 20:51	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Client Sample ID: **PARRA**

SVL Sample ID: **W2G0454-23 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Jul-12 12:08

Received: 19-Jul-12

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	418	mg/L	7.50	1.18	25	W230234	AEW	07/25/12 21:01	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



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Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603**Project Name: Copper Queen Branch Sulfate Mitigation Order**Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

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	0.05	0.30	W230289	26-Jul-12	
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.05	0.30	W230131	24-Jul-12	
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.05	0.30	W230234	25-Jul-12	

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	9.62	10.0	96.2	90 - 110	W230289	26-Jul-12	
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	9.73	10.0	97.3	90 - 110	W230131	24-Jul-12	
EPA 300.0	Sulfate as SO4	mg/L	10.1	10.0	101	90 - 110	W230234	25-Jul-12	

Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	15.2	15.2	0.1	20	W230289	26-Jul-12	
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	49.8	50.1	0.6	20	W230234	26-Jul-12	D2
EPA 300.0	Sulfate as SO4	mg/L	655	667	1.9	20	W230131	24-Jul-12	D2

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	26.4	15.2	10.0	111	90 - 110	W230289	26-Jul-12	M1
EPA 300.0	Sulfate as SO4	mg/L	192	180	10.0	R > 4S	90 - 110	W230289	26-Jul-12	D2,M3

Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	667	667	10.0	R > 4S	90 - 110	W230131	24-Jul-12	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	19.3	8.60	10.0	107	90 - 110	W230131	24-Jul-12	
EPA 300.0	Sulfate as SO4	mg/L	62.0	50.1	10.0	R > 4S	90 - 110	W230234	25-Jul-12	D2,M3

SVL holds the following certifications:

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

Work order Report Page 25 of 26



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0454**

Reported: 01-Aug-12 10:17

Notes and Definitions

D1	Sample required dilution due to matrix.
D2	Sample required dilution due to high concentration of target analyte.
M1	Matrix spike recovery was high, but the LCS recovery was acceptable.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The LCS was acceptable.
LCS	Laboratory Control Sample (Blank Spike)
RPD	Relative Percent Difference
UDL	A result is less than the detection limit
R > 4S	% recovery not applicable, sample concentration more than four times greater than spike level
<RL	A result is less than the reporting limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
N/A	Not Applicable



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0366**

Reported: 26-Jul-12 13:32

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
COB MW-1	W2G0366-01	Ground Water	12-Jul-12 13:19	VH	17-Jul-2012
COB MW-2	W2G0366-02	Ground Water	12-Jul-12 10:06	VH	17-Jul-2012
PIONKE	W2G0366-03	Ground Water	11-Jul-12 18:15	VH	17-Jul-2012
FB07112012	W2G0366-04	Ground Water	11-Jul-12 15:37	VH	17-Jul-2012
MARCELL	W2G0366-05	Ground Water	13-Jul-12 11:07	VH	17-Jul-2012
WEISKOPF	W2G0366-06	Ground Water	13-Jul-12 09:24	VH	17-Jul-2012
ANDERSON	W2G0366-07	Ground Water	12-Jul-12 16:36	VH	17-Jul-2012
COB WL	W2G0366-08	Ground Water	12-Jul-12 15:30	VH	17-Jul-2012
COB MW-3	W2G0366-09	Ground Water	12-Jul-12 09:09	VH	17-Jul-2012

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested. Non-Detects are reported at the MDL.

Sample preparation is defined by the client as per their Data Quality Objectives.

This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.

The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0366**

Reported: 26-Jul-12 13:32

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

Sampled: 12-Jul-12 13:19

SVL Sample ID: **W2G0366-01 (Ground Water)**

Sample Report Page 1 of 1

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	805	mg/L	30.0	4.70	100	W230028	AEW	07/23/12 20:10	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0366**

Reported: 26-Jul-12 13:32

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

Sampled: 12-Jul-12 10:06

SVL Sample ID: **W2G0366-02 (Ground Water)**

Sample Report Page 1 of 1

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	29.2	mg/L	0.30	0.05		W230028	AEW	07/23/12 20:20	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director



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(208) 784-1258

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0366**

Reported: 26-Jul-12 13:32

Client Sample ID: **PIONKE**

SVL Sample ID: **W2G0366-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 11-Jul-12 18:15

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	439	mg/L	15.0	2.35	50	W230028	AEW	07/23/12 20:30	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0366**

Reported: 26-Jul-12 13:32

Client Sample ID: **FB07112012**

Sampled: 11-Jul-12 15:37

SVL Sample ID: **W2G0366-04 (Ground Water)**

Sample Report Page 1 of 1

Received: 17-Jul-12

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	0.05		W230018	AEW	07/23/12 15:28	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0366**

Reported: 26-Jul-12 13:32

Client Sample ID: **MARCELL**

SVL Sample ID: **W2G0366-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 13-Jul-12 11:07

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	650	mg/L	15.0	2.35	50	W230028	AEW	07/23/12 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.

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0366**

Reported: 26-Jul-12 13:32

Client Sample ID: **WEISKOPF**

SVL Sample ID: **W2G0366-06 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 13-Jul-12 09:24

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	552	mg/L	7.50	1.18	25	W230028	AEW	07/23/12 20:51	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0366**

Reported: 26-Jul-12 13:32

Client Sample ID: **ANDERSON**

SVL Sample ID: **W2G0366-07 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 12-Jul-12 16:36

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	667	mg/L	7.50	1.18	25	W230131	AEW	07/24/12 13:46	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0366**

Reported: 26-Jul-12 13:32

Client Sample ID: **COB WL**

Sampled: 12-Jul-12 15:30

SVL Sample ID: **W2G0366-08 (Ground Water)**

Sample Report Page 1 of 1

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	92.0	mg/L	3.00	0.47	10	W230131	AEW	07/24/12 14:16	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0366**

Reported: 26-Jul-12 13:32

Client Sample ID: **COB MW-3**

SVL Sample ID: **W2G0366-09 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 12-Jul-12 09:09

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	39.5	mg/L	3.00	0.47	10	W230131	AEW	07/24/12 14:26	D1
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W2G0366**

Reported: 26-Jul-12 13:32

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	0.05	0.30	W230018	23-Jul-12	
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.05	0.30	W230028	23-Jul-12	
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.05	0.30	W230131	24-Jul-12	

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	10.3	10.0	103	90 - 110	W230018	23-Jul-12	
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	9.91	10.0	99.1	90 - 110	W230028	23-Jul-12	
EPA 300.0	Sulfate as SO4	mg/L	9.73	10.0	97.3	90 - 110	W230131	24-Jul-12	

Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	264	272	2.8	20	W230018	23-Jul-12	D2
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	533	545	2.3	20	W230028	23-Jul-12	D2
EPA 300.0	Sulfate as SO4	mg/L	655	667	1.9	20	W230131	24-Jul-12	D2

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	273	272	10.0	R > 4S	90 - 110	W230018	23-Jul-12	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	80.5	70.9	10.0	96.6	90 - 110	W230018	23-Jul-12	D2

Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	544	545	10.0	R > 4S	90 - 110	W230028	23-Jul-12	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	182	171	10.0	107	90 - 110	W230028	23-Jul-12	D2
EPA 300.0	Sulfate as SO4	mg/L	667	667	10.0	R > 4S	90 - 110	W230131	24-Jul-12	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	19.3	8.60	10.0	107	90 - 110	W230131	24-Jul-12	

SVL holds the following certifications:

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

Work order Report Page 11 of 12



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0366**

Reported: 26-Jul-12 13:32

Notes and Definitions

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



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

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W2G0364**

Reported: 25-Jul-12 12:18

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
EAST	W2G0364-01	Ground Water	09-Jul-12 10:04	VH	17-Jul-2012
PANAGAKAS	W2G0364-02	Ground Water	09-Jul-12 11:34	VH	17-Jul-2012
NOTEMAN	W2G0364-03	Ground Water	09-Jul-12 13:16	VH	17-Jul-2012
DUP07092012	W2G0364-04	Ground Water	09-Jul-12 13:16	VH	17-Jul-2012
NESS	W2G0364-05	Ground Water	10-Jul-12 11:22	VH	17-Jul-2012
DUP07102012	W2G0364-06	Ground Water	10-Jul-12 11:22	VH	17-Jul-2012
SWAN	W2G0364-07	Ground Water	10-Jul-12 13:26	VH	17-Jul-2012
BIMA	W2G0364-08	Ground Water	10-Jul-12 15:32	VH	17-Jul-2012
GARNER 635	W2G0364-09	Ground Water	11-Jul-12 13:43	VH	17-Jul-2012
EQB07132012	W2G0364-10	Other	13-Jul-12 13:22	VH	17-Jul-2012
FB07132012	W2G0364-11	Other	13-Jul-12 13:20	VH	17-Jul-2012
ROGERS 803	W2G0364-12	Ground Water	13-Jul-12 13:06	VH	17-Jul-2012
DUP07132012	W2G0364-13	Ground Water	13-Jul-12 13:17	VH	17-Jul-2012
COOPER C	W2G0364-14	Ground Water	11-Jul-12 15:43	VH	17-Jul-2012
EQB07112012	W2G0364-15	Other	11-Jul-12 15:39	VH	17-Jul-2012
DUP07112012	W2G0364-16	Ground Water	11-Jul-12 13:44	VH	17-Jul-2012
FB07102012	W2G0364-17	Other	10-Jul-12 10:45	VH	17-Jul-2012
EQB07102012	W2G0364-18	Other	10-Jul-12 10:46	VH	17-Jul-2012
PALMER	W2G0364-19	Ground Water	10-Jul-12 12:16	VH	17-Jul-2012

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested. Non-Detects are reported at the MDL.

Sample preparation is defined by the client as per their Data Quality Objectives.

This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.

The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **EAST**

Sampled: 09-Jul-12 10:04

SVL Sample ID: **W2G0364-01 (Ground Water)**

Sample Report Page 1 of 1

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	14.2	mg/L	0.30	0.05		W230028	AEW	07/23/12 16:52	
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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



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **PANAGAKAS**

SVL Sample ID: **W2G0364-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 09-Jul-12 11:34

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	292	mg/L	15.0	2.35	50	W230028	AEW	07/23/12 17:02	D2
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John Kern
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **NOTEMAN**

SVL Sample ID: **W2G0364-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 09-Jul-12 13:16

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	265	mg/L	15.0	2.35	50	W230028	AEW	07/23/12 17:12	D2
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John Kern
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **DUP07092012**

Sampled: 09-Jul-12 13:16

SVL Sample ID: **W2G0364-04 (Ground Water)**

Sample Report Page 1 of 1

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	265	mg/L	15.0	2.35	50	W230028	AEW	07/23/12 17:23	D2
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John Kern
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **NESS**

SVL Sample ID: **W2G0364-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jul-12 11:22

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	40.1	mg/L	3.00	0.47	10	W230028	AEW	07/23/12 17:33	D1
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **DUP07102012**

Sampled: 10-Jul-12 11:22

SVL Sample ID: **W2G0364-06 (Ground Water)**

Sample Report Page 1 of 1

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	39.2	mg/L	3.00	0.47	10	W230028	AEW	07/23/12 18:04	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
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **SWAN**

SVL Sample ID: **W2G0364-07 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jul-12 13:26

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	19.4	mg/L	0.30	0.05		W230028	AEW	07/23/12 18:15	
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John Kern
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **BIMA**

SVL Sample ID: **W2G0364-08 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jul-12 15:32

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	301	mg/L	3.00	0.47	10	W230028	AEW	07/23/12 18:25	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
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Freeport McMoRan - Copper Queen Branch
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **GARNER 635**

Sampled: 11-Jul-12 13:43

SVL Sample ID: **W2G0364-09 (Ground Water)**

Sample Report Page 1 of 1

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	37.7	mg/L	0.30	0.05		W230028	AEW	07/23/12 18:36	
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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

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **EQB07132012**

Sampled: 13-Jul-12 13:22

SVL Sample ID: **W2G0364-10 (Other)**

Received: 17-Jul-12

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	0.05		W230018	AEW	07/23/12 14:15	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **FB07132012**

SVL Sample ID: **W2G0364-11 (Other)**

Sample Report Page 1 of 1

Sampled: 13-Jul-12 13:20

Received: 17-Jul-12

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	0.05		W230018	AEW	07/23/12 14:26	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **ROGERS 803**

Sampled: 13-Jul-12 13:06

SVL Sample ID: **W2G0364-12 (Ground Water)**

Sample Report Page 1 of 1

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	171	mg/L	3.00	0.47	10	W230028	AEW	07/23/12 18:46	D2
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John Kern
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **DUP07132012**

Sampled: 13-Jul-12 13:17

SVL Sample ID: **W2G0364-13 (Ground Water)**

Sample Report Page 1 of 1

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	166	mg/L	3.00	0.47	10	W230028	AEW	07/23/12 19:07	D2
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John Kern
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **COOPER C**

Sampled: 11-Jul-12 15:43

SVL Sample ID: **W2G0364-14 (Ground Water)**

Sample Report Page 1 of 1

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	834	mg/L	30.0	4.70	100	W230028	AEW	07/23/12 19:17	D2
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John Kern
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **EQB07112012**

Sampled: 11-Jul-12 15:39

SVL Sample ID: **W2G0364-15 (Other)**

Received: 17-Jul-12

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	0.05		W230018	AEW	07/23/12 14:36	
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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
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **DUP07112012**

Sampled: 11-Jul-12 13:44

SVL Sample ID: **W2G0364-16 (Ground Water)**

Received: 17-Jul-12

Sample Report Page 1 of 1

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	37.2	mg/L	1.50	0.24	5	W230028	AEW	07/24/12 10:53	D1
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John Kern
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **FB07102012**

SVL Sample ID: **W2G0364-17 (Other)**

Sample Report Page 1 of 1

Sampled: 10-Jul-12 10:45

Received: 17-Jul-12

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	0.05		W230018	AEW	07/23/12 15:07	
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **EQB07102012**

Sampled: 10-Jul-12 10:46

SVL Sample ID: **W2G0364-18 (Other)**

Received: 17-Jul-12

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	0.05		W230018	AEW	07/23/12 15:18	
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Client Sample ID: **PALMER**

Sampled: 10-Jul-12 12:16

SVL Sample ID: **W2G0364-19 (Ground Water)**

Sample Report Page 1 of 1

Received: 17-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	16.6	mg/L	0.30	0.05		W230028	AEW	07/23/12 19:38	
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Freeport McMoRan - Copper Queen Branch
36 West Highway 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W2G0364**

Reported: 25-Jul-12 12:18

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO ₄	mg/L	<0.30	0.05	0.30	W230018	23-Jul-12	
Dissolved Anions by Ion Chromatography								
EPA 300.0	Sulfate as SO ₄	mg/L	<0.30	0.05	0.30	W230028	23-Jul-12	

Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO ₄	mg/L	10.3	10.0	103	90 - 110	W230018	23-Jul-12	
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO ₄	mg/L	9.91	10.0	99.1	90 - 110	W230028	23-Jul-12	

Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO ₄	mg/L	264	272	2.8	20	W230018	23-Jul-12	D2
Dissolved Anions by Ion Chromatography									
EPA 300.0	Sulfate as SO ₄	mg/L	533	545	2.3	20	W230028	23-Jul-12	D2

Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO ₄	mg/L	273	272	10.0	R > 4S	90 - 110	W230018	23-Jul-12	D2,M3
EPA 300.0	Sulfate as SO ₄	mg/L	80.5	70.9	10.0	96.6	90 - 110	W230018	23-Jul-12	D2
Dissolved Anions by Ion Chromatography										
EPA 300.0	Sulfate as SO ₄	mg/L	544	545	10.0	R > 4S	90 - 110	W230028	23-Jul-12	D2,M3
EPA 300.0	Sulfate as SO ₄	mg/L	182	171	10.0	107	90 - 110	W230028	23-Jul-12	D2



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0364**

Reported: 25-Jul-12 12:18

Notes and Definitions

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



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0362**

Reported: 25-Jul-12 12:16

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BMD-2008-106L	W2G0362-01	Ground Water	13-Jul-12 10:20	CLS	17-Jul-2012

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested. Non-Detects are reported at the MDL.

Sample preparation is defined by the client as per their Data Quality Objectives.

This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.

The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0362**

Reported: 25-Jul-12 12:16

Client Sample ID: **BMD-2008-106L**

Sampled: 13-Jul-12 10:20

SVL Sample ID: **W2G0362-01 (Ground Water)**

Received: 17-Jul-12

Sample Report Page 1 of 1

Sampled By: CLS

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

EPA 300.0	Sulfate as SO ₄	545	mg/L	15.0	2.35	50	W230028	AEW	07/23/12 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



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

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W2G0362**

Reported: 25-Jul-12 12:16

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	0.05	0.30	W230028	23-Jul-12	
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Quality Control - LABORATORY CONTROL SAMPLE Data

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

EPA 300.0	Sulfate as SO4	mg/L	9.91	10.0	99.1	90 - 110	W230028	23-Jul-12	
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Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	533	545	2.3	20	W230028	23-Jul-12	D2
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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	544	545	10.0	R > 4S	90 - 110	W230028	23-Jul-12	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	182	171	10.0	107	90 - 110	W230028	23-Jul-12	D2

Notes and Definitions

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



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

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W2G0301**

Reported: 24-Jul-12 14:11

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BMO-2010-1M	W2G0301-01	Ground Water	09-Jul-12 11:30	CLS	13-Jul-2012
TM-16	W2G0301-02	Ground Water	09-Jul-12 12:15	CLS	13-Jul-2012
BMO-2010-2M	W2G0301-03	Ground Water	09-Jul-12 13:05	CLS	13-Jul-2012
TM-6	W2G0301-04	Ground Water	09-Jul-12 14:35	CLS	13-Jul-2012
BMO-2008-6M	W2G0301-05	Ground Water	10-Jul-12 06:50	CLS	13-Jul-2012
BMO-2008-6B	W2G0301-06	Ground Water	10-Jul-12 07:45	CLS	13-Jul-2012
BMO-2008-5M	W2G0301-07	Ground Water	10-Jul-12 09:25	CLS	13-Jul-2012
BMO-2008-5B	W2G0301-08	Ground Water	10-Jul-12 10:10	CLS	13-Jul-2012
BMO-2008-3B	W2G0301-09	Ground Water	10-Jul-12 11:30	CLS	13-Jul-2012
TM-15	W2G0301-10	Ground Water	10-Jul-12 13:00	CLS	13-Jul-2012
TM-42	W2G0301-11	Ground Water	11-Jul-12 06:45	CLS	13-Jul-2012
BMO-2008-7M	W2G0301-12	Ground Water	11-Jul-12 08:20	CLS	13-Jul-2012
HOBAN	W2G0301-13	Ground Water	11-Jul-12 09:30	CLS	13-Jul-2012
TM-19A	W2G0301-14	Ground Water	11-Jul-12 12:40	CLS	13-Jul-2012
BMD-2008-13B	W2G0301-15	Ground Water	11-Jul-12 13:55	CLS	13-Jul-2012
BMD-2008-8M	W2G0301-16	Ground Water	12-Jul-12 09:10	CLS	13-Jul-2012
BMD-2008-8B	W2G0301-17	Ground Water	12-Jul-12 10:25	CLS	13-Jul-2012
BMD-2008-9M	W2G0301-18	Ground Water	12-Jul-12 12:20	CLS	13-Jul-2012
DUP 071212	W2G0301-19	Ground Water	12-Jul-12 09:10	CLS	13-Jul-2012

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested. Non-Detects are reported at the MDL.

Sample preparation is defined by the client as per their Data Quality Objectives.

This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.

The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

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

Sampled: 09-Jul-12 11:30

SVL Sample ID: **W2G0301-01 (Ground Water)**

Received: 13-Jul-12

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	161	mg/L	1.50	0.24	5	W229276	AEW	07/19/12 15:31	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

Client Sample ID: **TM-16**

Sampled: 09-Jul-12 12:15

SVL Sample ID: **W2G0301-02 (Ground Water)**

Sample Report Page 1 of 1

Received: 13-Jul-12

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	544	mg/L	7.50	1.18	25	W229276	AEW	07/20/12 14:25	D2
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Freeport McMoRan - Bisbee
36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

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

Sampled: 09-Jul-12 13:05

SVL Sample ID: **W2G0301-03 (Ground Water)**

Received: 13-Jul-12

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	1030	mg/L	7.50	1.18	25	W229276	AEW	07/20/12 11:35	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

Client Sample ID: **TM-6**

Sampled: 09-Jul-12 14:35

SVL Sample ID: **W2G0301-04 (Ground Water)**

Sample Report Page 1 of 1

Received: 13-Jul-12

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	33.5	mg/L	0.30	0.05		W229276	AEW	07/19/12 16:24	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

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

Sampled: 10-Jul-12 06:50

SVL Sample ID: **W2G0301-05 (Ground Water)**

Received: 13-Jul-12

Sample Report Page 1 of 1

Sampled By: CLS

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

EPA 300.0	Sulfate as SO ₄	208	mg/L	3.00	0.47	10	W229276	AEW	07/20/12 11:45	D2
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John Kern
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

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

Sampled: 10-Jul-12 07:45

SVL Sample ID: **W2G0301-06 (Ground Water)**

Received: 13-Jul-12

Sample Report Page 1 of 1

Sampled By: CLS

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

EPA 300.0	Sulfate as SO ₄	21.9	mg/L	0.30	0.05		W229276	AEW	07/19/12 16:45	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

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

Sampled: 10-Jul-12 09:25

SVL Sample ID: **W2G0301-07 (Ground Water)**

Received: 13-Jul-12

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	135	mg/L	3.00	0.47	10	W229276	AEW	07/20/12 11:56	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

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

Sampled: 10-Jul-12 10:10

SVL Sample ID: **W2G0301-08 (Ground Water)**

Received: 13-Jul-12

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	218	mg/L	3.00	0.47	10	W229276	AEW	07/20/12 12:06	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

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

Sampled: 10-Jul-12 11:30

SVL Sample ID: **W2G0301-09 (Ground Water)**

Received: 13-Jul-12

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	150	mg/L	3.00	0.47	10	W229276	AEW	07/20/12 12:17	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

Client Sample ID: **TM-15**

Sampled: 10-Jul-12 13:00

SVL Sample ID: **W2G0301-10 (Ground Water)**

Sample Report Page 1 of 1

Received: 13-Jul-12

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	14.9	mg/L	0.30	0.05		W229276	AEW	07/19/12 17:48	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

Client Sample ID: **TM-42**

Sampled: 11-Jul-12 06:45

SVL Sample ID: **W2G0301-11 (Ground Water)**

Sample Report Page 1 of 1

Received: 13-Jul-12

Sampled By: CLS

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

EPA 300.0	Sulfate as SO ₄	449	mg/L	3.00	0.47	10	W229276	AEW	07/20/12 12:27	D2
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

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

Sampled: 11-Jul-12 08:20

SVL Sample ID: **W2G0301-12 (Ground Water)**

Sample Report Page 1 of 1

Received: 13-Jul-12

Sampled By: CLS

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

EPA 300.0	Sulfate as SO ₄	28.1	mg/L	0.30	0.05		W229276	AEW	07/19/12 18:20	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

Client Sample ID: **HOBAN**

Sampled: 11-Jul-12 09:30

SVL Sample ID: **W2G0301-13 (Ground Water)**

Received: 13-Jul-12

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	1110	mg/L	7.50	1.18	25	W229276	AEW	07/20/12 12:48	D2
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

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

Sampled: 11-Jul-12 12:40

SVL Sample ID: **W2G0301-14 (Ground Water)**

Sample Report Page 1 of 1

Received: 13-Jul-12

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	63.7	mg/L	1.50	0.24	5	W229276	AEW	07/20/12 13:20	D2
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

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

Sampled: 11-Jul-12 13:55

SVL Sample ID: **W2G0301-15 (Ground Water)**

Sample Report Page 1 of 1

Received: 13-Jul-12

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	1080	mg/L	7.50	1.18	25	W229276	AEW	07/20/12 13:33	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

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

Sampled: 12-Jul-12 09:10

SVL Sample ID: **W2G0301-16 (Ground Water)**

Sample Report Page 1 of 1

Received: 13-Jul-12

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	73.1	mg/L	1.50	0.24	5	W229276	AEW	07/20/12 13:43	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

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

Sampled: 12-Jul-12 10:25

SVL Sample ID: **W2G0301-17 (Ground Water)**

Received: 13-Jul-12

Sample Report Page 1 of 1

Sampled By: CLS

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

EPA 300.0	Sulfate as SO ₄	1440	mg/L	15.0	2.35	50	W229276	AEW	07/20/12 13:54	D2
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

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

Sampled: 12-Jul-12 12:20

SVL Sample ID: **W2G0301-18 (Ground Water)**

Received: 13-Jul-12

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	68.9	mg/L	1.50	0.24	5	W229276	AEW	07/20/12 14:04	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0301**

Reported: 24-Jul-12 14:11

Client Sample ID: **DUP 071212**

Sampled: 12-Jul-12 09:10

SVL Sample ID: **W2G0301-19 (Ground Water)**

Received: 13-Jul-12

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	73.2	mg/L	1.50	0.24	5	W229276	AEW	07/20/12 14:15	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
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Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W2G0301**

Reported: 24-Jul-12 14:11

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	0.05	0.30	W229276	19-Jul-12	
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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	W229276	19-Jul-12	
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Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	158	161	2.4	20	W229276	19-Jul-12	D2
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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	168	161	10.0	R > 4S	90 - 110	W229276	19-Jul-12	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	444	449	10.0	R > 4S	90 - 110	W229276	20-Jul-12	D2,M3

Notes and Definitions

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



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Freeport McMoRan - Bisbee
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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0296**

Reported: 16-Jul-12 11:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DODSON	W2G0296-01	Ground Water	11-Jul-12 10:34	13-Jul-2012

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested. Non-Detects are reported at the MDL.

Sample preparation is defined by the client as per their Data Quality Objectives.

This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.

The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.



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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0296**

Reported: 16-Jul-12 11:49

Client Sample ID: **DODSON**

Sampled: 11-Jul-12 10:34

SVL Sample ID: **W2G0296-01 (Ground Water)**

Sample Report Page 1 of 1

Received: 13-Jul-12

Sampled By:

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

EPA 300.0	Sulfate as SO ₄	54.0	mg/L	3.00	0.47	10	W228327	AEW	07/13/12 14:35	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



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

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W2G0296**

Reported: 16-Jul-12 11:49

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	0.05	0.30	W228327	13-Jul-12	
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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	W228327	13-Jul-12	
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Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	54.4	54.0	0.8	20	W228327	13-Jul-12	D2
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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	65.3	54.0	10.0	R > 4S	90 - 110	W228327	13-Jul-12	D2,M3
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Notes and Definitions

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



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

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W2G0109**

Reported: 16-Jul-12 12:14

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
AWC-03	W2G0109-01	Surface Water	05-Jul-12 08:47	ML	09-Jul-2012
AWC-04	W2G0109-02	Surface Water	05-Jul-12 09:04	ML	09-Jul-2012
AWC-02	W2G0109-03	Surface Water	05-Jul-12 09:46	VH	09-Jul-2012
AWC-05	W2G0109-04	Surface Water	05-Jul-12 14:23	VH	09-Jul-2012
BMO-2010-3M	W2G0109-05	Surface Water	05-Jul-12 15:19	ML	09-Jul-2012
BMO-2010-3B	W2G0109-06	Surface Water	05-Jul-12 12:11	ML	09-Jul-2012
WEED	W2G0109-07	Surface Water	05-Jul-12 16:18	ML	09-Jul-2012
DUP07052012	W2G0109-08	Surface Water	05-Jul-12 18:00	VH	09-Jul-2012
FB07052012	W2G0109-09	Surface Water	05-Jul-12 14:46	ML	09-Jul-2012
EQB07052012	W2G0109-10	Surface Water	05-Jul-12 14:49	ML	09-Jul-2012
MCCONNELL 265	W2G0109-11	Surface Water	06-Jul-12 11:18	ML	09-Jul-2012
RAMIREZ	W2G0109-12	Surface Water	06-Jul-12 13:56	ML	09-Jul-2012
EPPELE	W2G0109-13	Surface Water	06-Jul-12 10:22	VH	09-Jul-2012
RAY	W2G0109-14	Surface Water	06-Jul-12 11:29	VH	09-Jul-2012
FB07062012	W2G0109-15	Surface Water	06-Jul-12 13:28	VH	09-Jul-2012
EQB07062012	W2G0109-16	Surface Water	06-Jul-12 13:29	VH	09-Jul-2012
BANKS 986	W2G0109-17	Surface Water	06-Jul-12 14:00	VH	09-Jul-2012
DUP07062012	W2G0109-18	Surface Water	06-Jul-12 14:00	VH	09-Jul-2012

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.

(Q6) SVL received the following containers outside of published EPA guidelines for preservation temperatures (0-6°C).

The guidelines do not pertain to nitric-preserved metals.

Default Cooler (Received Temperature: 18.6°C)

Labnumber	Container	Client ID	Labnumber	Container	Client ID
W2G0109-01 A	Filtered Raw HDPE	AWC-03	W2G0109-02 A	Filtered Raw HDPE	AWC-04
W2G0109-03 A	Filtered Raw HDPE	AWC-02	W2G0109-04 A	Filtered Raw HDPE	AWC-05
W2G0109-05 A	Filtered Raw HDPE	BMO-2010-3M	W2G0109-06 A	Filtered Raw HDPE	BMO-2010-3B
W2G0109-07 A	Filtered Raw HDPE	WEED	W2G0109-08 A	Filtered Raw HDPE	DUP07052012
W2G0109-09 B	Raw HDPE	FB07052012	W2G0109-10 B	Raw HDPE	EQB07052012
W2G0109-11 A	Filtered Raw HDPE	MCCONNELL 265	W2G0109-12 A	Filtered Raw HDPE	RAMIREZ
W2G0109-13 A	Filtered Raw HDPE	EPPELE	W2G0109-14 A	Filtered Raw HDPE	RAY
W2G0109-15 B	Raw HDPE	FB07062012	W2G0109-16 B	Raw HDPE	EQB07062012
W2G0109-17 A	Filtered Raw HDPE	BANKS 986	W2G0109-18 A	Filtered Raw HDPE	DUP07062012



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

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

Client Sample ID: **AWC-03**

Sampled: 05-Jul-12 08:47

SVL Sample ID: **W2G0109-01 (Surface Water)**

Sample Report Page 1 of 1

Received: 09-Jul-12

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 SO ₄	50.7	mg/L	1.50	0.24	5	W228180	AEW	07/12/12 10:26	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

Client Sample ID: **AWC-04**

SVL Sample ID: **W2G0109-02 (Surface Water)**

Sample Report Page 1 of 1

Sampled: 05-Jul-12 09:04

Received: 09-Jul-12

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	28.2	mg/L	0.30	0.05		W228180	AEW	07/11/12 16:33	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

Client Sample ID: **AWC-02**

Sampled: 05-Jul-12 09:46

SVL Sample ID: **W2G0109-03 (Surface Water)**

Sample Report Page 1 of 1

Received: 09-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	10.1	mg/L	0.30	0.05		W228180	AEW	07/11/12 16:43	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

Client Sample ID: **AWC-05**

Sampled: 05-Jul-12 14:23

SVL Sample ID: **W2G0109-04 (Surface Water)**

Sample Report Page 1 of 1

Received: 09-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	19.1	mg/L	0.30	0.05		W228180	AEW	07/11/12 16:53	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

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

Sampled: 05-Jul-12 15:19

SVL Sample ID: **W2G0109-05 (Surface Water)**

Sample Report Page 1 of 1

Received: 09-Jul-12

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 SO ₄	10.3	mg/L	0.30	0.05		W228196	AEW	07/11/12 18:42	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

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

Sampled: 05-Jul-12 12:11

SVL Sample ID: **W2G0109-06 (Surface Water)**

Sample Report Page 1 of 1

Received: 09-Jul-12

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 SO ₄	15.7	mg/L	0.30	0.05		W228196	AEW	07/11/12 19:12	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

Client Sample ID: **WEED**

Sampled: 05-Jul-12 16:18

SVL Sample ID: **W2G0109-07 (Surface Water)**

Sample Report Page 1 of 1

Received: 09-Jul-12

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	12.9	mg/L	0.30	0.05		W228196	AEW	07/11/12 19:21	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

Client Sample ID: **DUP07052012**

Sampled: 05-Jul-12 18:00

SVL Sample ID: **W2G0109-08 (Surface Water)**

Sample Report Page 1 of 1

Received: 09-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	28.1	mg/L	0.30	0.05		W228196	AEW	07/11/12 19:31	
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

Client Sample ID: **FB07052012**

Sampled: 05-Jul-12 14:46

SVL Sample ID: **W2G0109-09 (Surface Water)**

Sample Report Page 1 of 1

Received: 09-Jul-12

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	0.05		W228238	AEW	07/12/12 12:00	
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36 West Hwy 92
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Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

Client Sample ID: **EQB07052012**

Sampled: 05-Jul-12 14:49

SVL Sample ID: **W2G0109-10 (Surface Water)**

Received: 09-Jul-12

Sample Report Page 1 of 1

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	0.05		W228238	AEW	07/12/12 12:10	
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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

Client Sample ID: **MCCONNELL 265**

Sampled: 06-Jul-12 11:18

SVL Sample ID: **W2G0109-11 (Surface Water)**

Sample Report Page 1 of 1

Received: 09-Jul-12

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 SO ₄	851	mg/L	15.0	2.35	50	W228196	AEW	07/12/12 10:36	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

Client Sample ID: **RAMIREZ**

Sampled: 06-Jul-12 13:56

SVL Sample ID: **W2G0109-12 (Surface Water)**

Sample Report Page 1 of 1

Received: 09-Jul-12

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 SO ₄	8.97	mg/L	0.30	0.05		W228196	AEW	07/11/12 19:51	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

Client Sample ID: **EPPELE**

Sampled: 06-Jul-12 10:22

SVL Sample ID: **W2G0109-13 (Surface Water)**

Sample Report Page 1 of 1

Received: 09-Jul-12

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	18.8	mg/L	0.30	0.05		W228196	AEW	07/11/12 20:21	
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John Kern
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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

Client Sample ID: **RAY**

SVL Sample ID: **W2G0109-14 (Surface Water)**

Sample Report Page 1 of 1

Sampled: 06-Jul-12 11:29

Received: 09-Jul-12

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	129	mg/L	3.00	0.47	10	W228196	AEW	07/12/12 10:46	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

Client Sample ID: **FB07062012**

Sampled: 06-Jul-12 13:28

SVL Sample ID: **W2G0109-15 (Surface Water)**

Sample Report Page 1 of 1

Received: 09-Jul-12

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	0.05		W228238	AEW	07/12/12 12:20	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

Client Sample ID: **EQB07062012**

Sampled: 06-Jul-12 13:29

SVL Sample ID: **W2G0109-16 (Surface Water)**

Sample Report Page 1 of 1

Received: 09-Jul-12

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	0.05		W228238	AEW	07/12/12 12:30	
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John Kern
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Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

Client Sample ID: **BANKS 986**

Sampled: 06-Jul-12 14:00

SVL Sample ID: **W2G0109-17 (Surface Water)**

Sample Report Page 1 of 1

Received: 09-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	78.6	mg/L	1.50	0.24	5	W228196	AEW	07/12/12 10:55	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



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36 West Hwy 92
Bisbee, AZ 85603

Project Name: Copper Queen Branch Sulfate Mitigation Order

Work Order: **W2G0109**

Reported: 16-Jul-12 12:14

Client Sample ID: **DUP07062012**

Sampled: 06-Jul-12 14:00

SVL Sample ID: **W2G0109-18 (Surface Water)**

Sample Report Page 1 of 1

Received: 09-Jul-12

Sampled By: VH

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

EPA 300.0	Sulfate as SO ₄	77.9	mg/L	1.50	0.24	5	W228196	AEW	07/12/12 11:05	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Project Name: Copper Queen Branch Sulfate Mitigation OrderWork Order: **W2G0109**

Reported: 16-Jul-12 12:14

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	0.05	0.30	W228238	12-Jul-12	
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.05	0.30	W228180	11-Jul-12	
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.05	0.30	W228196	11-Jul-12	

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	W228238	12-Jul-12	
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	9.74	10.0	97.4	90 - 110	W228180	11-Jul-12	
EPA 300.0	Sulfate as SO4	mg/L	9.86	10.0	98.6	90 - 110	W228196	11-Jul-12	

Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	4.46	4.45	0.1	20	W228238	12-Jul-12	
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Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	10.2	10.3	0.1	20	W228196	11-Jul-12	
EPA 300.0	Sulfate as SO4	mg/L	4.88	4.88	0.1	20	W228180	11-Jul-12	

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	15.0	4.45	10.0	106	90 - 110	W228238	12-Jul-12	
EPA 300.0	Sulfate as SO4	mg/L	11.2	1.25	10.0	99.2	90 - 110	W228238	12-Jul-12	

Dissolved Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	mg/L	15.5	4.88	10.0	106	90 - 110	W228180	11-Jul-12	
EPA 300.0	Sulfate as SO4	mg/L	10.5	<0.30	10.0	103	90 - 110	W228180	11-Jul-12	
EPA 300.0	Sulfate as SO4	mg/L	21.1	10.3	10.0	108	90 - 110	W228196	11-Jul-12	



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: **W2G0109**

Reported: 16-Jul-12 12:14

Notes and Definitions

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

18 September 2012

Jamie Johnson
Clear Creek Associates
221 N. Court Ave. Ste. 101
Tucson, AZ 85701

RE: Water Testing

Laboratory Work Order No.: 2081219

Legend Technical Services of Arizona, Inc. is pleased to provide the enclosed analytical results for the aforementioned project. These results relate only to the items tested. This cover letter and the accompanying pages represent the full report for these analyses and should only be reproduced in full. Samples for this project were received by the laboratory on 08/15/12 10:30.

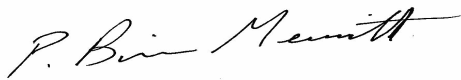
The samples were processed in accordance with the Chain of Custody document and the results presented relate only to the samples tested. The Chain of Custody is considered part of this report.

All samples will be retained by LEGEND for 30 days from the date of this report and then discarded unless other arrangements are made.

This entire report was reviewed and approved for release by the undersigned. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

LEGEND TECHNICAL SERVICES OF ARIZONA, INC.



P. Brian Merritt
Client Services Representative
(602) 324-6100

This laboratory report is confidential and is intended for the sole use of LEGEND and it's client.

Clear Creek Associates
221 N. Court Ave. Ste. 101
Tucson, AZ 85701

Project: Water Testing
Project Number: 287008 8/14/12
Project Manager: Jamie Johnson

Reported:
09/18/12 09:21

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
Howard Pre-Chlorination (Bisbee, AZ)	2081219-01	Drinking Water	Grab	08/14/12 14:00	08/15/12 10:30

Sample Condition Upon Receipt:

Temperature: 5.50 C

All samples were received in acceptable condition unless noted otherwise in the case narrative.

Case Narrative:

Holding Times: All holding times were met unless otherwise qualified.

QA/QC Criteria: All analyses met method requirements unless otherwise qualified.

Certifications: **AZ(PHX)0004, AZ(TUC)0004, AIHA#102982, CDC ELITE Member.**

Accreditation is applicable only to the test methods specified on each scope of accreditation held by LEGEND.

Comments: There were no problems encountered during the processing of the samples, unless otherwise noted.
All samples were analyzed on a "wet" basis unless designated as "dry weight".

Report requested for single analyte 9/18/12.

Clear Creek Associates
221 N. Court Ave. Ste. 101
Tucson, AZ 85701

Project: Water Testing
Project Number: 287008 8/14/12
Project Manager: Jamie Johnson

Reported:
09/18/12 09:21

**Howard Pre-Chlorination (Bisbee, AZ) (2081219-01) Drinking Water (Grab) Sampled: 08/14/12 14:00 Received:
08/15/12 10:30**

Analyte	Result	PQL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Legend Technical Services of Arizona, Inc.									

Inorganic Chemistry

Sulfate	69.2	5.0	mg/L	1	B2H0482	08/16/12 08:00	08/16/12 08:00	EPA 300.0	
---------	------	-----	------	---	---------	----------------	----------------	-----------	--

Clear Creek Associates
221 N. Court Ave. Ste. 101
Tucson, AZ 85701

Project: Water Testing
Project Number: 287008 8/14/12
Project Manager: Jamie Johnson

Reported:
09/18/12 09:21

Inorganic Chemistry - Quality Control
Legend Technical Services of Arizona, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B2H0482 - NO PREP										
Blank (B2H0482-BLK1)				<i>Prepared & Analyzed: 08/16/12</i>						
Sulfate	<5.0	5.0	mg/L							
LCS (B2H0482-BS1)				<i>Prepared & Analyzed: 08/16/12</i>						
Sulfate	19.9	5.0	mg/L	20.0		100	90-110			
LCS Dup (B2H0482-BSD1)				<i>Prepared & Analyzed: 08/16/12</i>						
Sulfate	19.7	5.0	mg/L	20.0		98	90-110	1	20	
Matrix Spike (B2H0482-MS1)				Source: 2080845-01		<i>Prepared & Analyzed: 08/16/12</i>				
Sulfate	20.7	5.0	mg/L	20.0	<5.0	104	90-110			
Matrix Spike Dup (B2H0482-MSD1)				Source: 2080845-01		<i>Prepared & Analyzed: 08/16/12</i>				
Sulfate	20.8	5.0	mg/L	20.0	<5.0	104	90-110	0.5	20	

Clear Creek Associates
221 N. Court Ave. Ste. 101
Tucson, AZ 85701

Project: Water Testing
Project Number: 287008 8/14/12
Project Manager: Jamie Johnson

Reported:
09/18/12 09:21

Notes and Definitions

BLK	Method Blank
LCS/Dup	Laboratory Control Sample/Laboratory Fortified Blank/Duplicate
MS/Dup	Matrix Spike/Duplicate
Dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Clear Creek Associates
221 N. Court Ave. Ste. 101
Tucson, AZ 85701

Project: Water Testing
Project Number: 287008 8/14/12
Project Manager: Jamie Johnson

Reported:
09/18/12 09:21

2081219

CHAIN OF CUSTODY RECORD

LEGEND
Technical Services, Inc.
www.legend-group.com

☐ 17831 N. 25th Avenue • Phoenix, AZ 85023 • (602) 324-8100 • Fax (602) 324-8101
☐ 4585 S. Palo Verde Rd, Ste 423 • Tucson, AZ 85706 • (520) 327-1234 • Fax (520) 327-0518

Page 1 of 1

Please Print Clearly

CLIENT INFORMATION		Address		City	State	Zip	Phone	Fax Number or Email Address									
Client Name Clear Creek Associates		221 N. Court Avenue Ste 101		Tucson	AZ	85701	(520) 622-3222	(520) 622-4040									
Project Name		Project Number 287008		Contact Ben Daigneau	P.O. No.		Fax Results <input type="checkbox"/>	QC Report <input type="checkbox"/> EDD <input type="checkbox"/>									
SAMPLE TYPE CODES		TURN AROUND TIME		REQUESTED ANALYSES													
DW=Drinking Water WW=Wastewater SW=Surface Water GW=Groundwater O=Other		Laboratory Authorization Required for Rush <input checked="" type="checkbox"/> Standard 10 - 15 Day <input type="checkbox"/> Other		Substrate Binding Resins Metals Dissolved Hydrogen Sulfide Tracholite Chloride Sulfate Total Organic Carbon Chlorine Residual Nitrite Nitrogen TS, DS Alkalinity													
Client's Sample Identification		Date	Time	Sample Location	Composite	Grab	Sample Type	Compliance	No. of Containers	pH-Y (Lab Use Only)						LAB NO.	
HOWARD PRE-CHLORINATION		8/14/12	1400	Bisbee, AZ	X		DW		10								01
TO ENSURE COMPLETION OF ANALYSIS, SAMPLES MUST BE RECEIVED AT LEAST 3 HOURS PRIOR TO THE HOLD TIME EXPIRATION																	
Comments / Special Instructions: See attached, run outside of hold time if necessary per Brian - Metals filtered in field - 8/15 17 V33 BX 01 5554 4/88 Ca, Fe, Mn, Mg, K, Na - 8/14/12 per attachment.																	
SAMPLE CONDITION UPON RECEIPT (Lab Use)				RELINQUISHED BY				SAMPLES RECEIVED BY									
No. of Containers	10	Temperature		5.5°C	Custody Seals		Y	N	Seals Intact		Y	N	Preserved		D	N	
WHITE-LAB YELLOW-LAB PINK-CLIENT				1				SAMPLER SIGNATURE		DATE		SIGNATURE		DATE			
				SAMPLER PRINTED NAME		JAMIE JOHNSON		8/14/12		1440		UPS					
				2		SAMPLER SIGNATURE		DATE		SIGNATURE		DATE					
				SAMPLER PRINTED NAME		UPS		8/15/12		Eau		8-15-12					
				3		SAMPLER SIGNATURE		DATE		SIGNATURE		DATE					
				SAMPLER PRINTED NAME				TIME		PRINTED NAME		TIME					

FORM GEN-170 (05/08)

2081219

Table 1 Summary of Analytes				
Parameter or Analyte	Analytical Method	Method Detection Limit	Reporting Limit	Holding Time from Collection
Microbiological				
✓ Heterotrophic Plate Count	SM 9215 B	1.0 CFU/mL	1.0 CFU/mL	8 hours
✓ Sulfate Reducing Bacteria	SM 9240 D	2.0 MPN/100 mL	2.0 MPN/100 mL	24 hours
Metals, Dissolved				
Calcium	EPA 200.7	0.136 mg/L	1.00 mg/L	6 months
Iron		0.0168 mg/L	0.0500 mg/L	
Magnesium		0.172 mg/L	1.00 mg/L	
Manganese		0.00106 mg/L	0.0200 mg/L	
Potassium		0.213 mg/L	1.00 mg/L	
Sodium		0.259 mg/L	1.00 mg/L	
Inorganic Chemicals				
✓ Alkalinity	SM 2320 B	1.7 mg/L	10.0 mg/L	14 days
✓ Chloride	EPA 300.0	0.303 mg/L	5.00 mg/L	28 days
✓ Chlorine, Free	HACH 8021	N/A	0.04 mg/L	Analyze Immediately
✓ Chlorine, Total/Residual	HACH 8167	0.012 mg/L	0.040 mg/L	Analyze Immediately
✓ Hydrogen Sulfide	SM 4500 S2 H	0.0130 mg/L	0.0400 mg/L	24 hours
✓ Solids, Total Dissolved	SM 2540 C	0.00 mg/L	1.00 mg/L	7 days
✓ Solids, Total Suspended	SM 2540 D	N/A	1.00 mg/L	7 days
✓ Sulfate, Total	EPA 300.0	0.884 mg/L	5.00 mg/L	28 days
✓ Sulfide, Dissolved	HACH 8131	0.0140 mg/L	0.0400 mg/L	7 days
✓ Total Organic Carbon	SM 5310 C	0.254 mg/L	0.500 mg/L	28 days
✓ Turbidity	EPA 180.1	N/A	1.00 NTU	48 hours

only if necessary to measure H₂S

S:\Projects\G K\055038_Copper Queen Branch Mitigation Order\DWS Mitigation\Private Wells\DATA by WELL\HOWARD\Hydrogen Sulfide Mitigation



September 20, 2012

Ben Daigneau
Clear Creek Associates
221 N. Court Ave., Suite 101
Tucson, AZ 85701

TEL (520) 622-3222
FAX (520) 622-4040

RE: Well

Work Order No.: 12I0547
Order Name: Private Well
Installation #287008

Dear Ben Daigneau,

Turner Laboratories, Inc. received 1 sample(s) on 09/19/2012 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Terri Garcia
Technical Director

Client: Clear Creek Associates
Project: Well
Work Order: 12I0547
Date Received: 09/19/2012

Order: Private Well Installation #287008

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
12I0547-01	Pionke 517	Ground Water	09/18/2012 1336

Client: Clear Creek Associates
Project: Well
Work Order: 12I0547
Date Received: 09/19/2012

Case Narrative

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND Not Detected at or above the PQL

PQL Practical Quantitation Limit

DF Dilution Factor

Client: Clear Creek Associates
Project: Well
Work Order: 1210547
Lab Sample ID: 1210547-01

Client Sample ID: Pionke 517
Collection Date/Time: 09/18/2012 1336
Matrix: Ground Water
Order Name: Private Well Installation #287008

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Anions by Ion Chromatography-E300								
Sulfate	14	5.0		mg/L	1	09/19/2012 1100	09/20/2012 0623	EW

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 1270547 DATE _____ PAGE _____ OF _____

PROJECT NAME <u>Private Well Installation #287008</u> CONTACT NAME <u>Ben Daigneau</u> COMPANY NAME <u>Clear Creek Associates</u> ADDRESS <u>221 N. Court Avenue, Ste 101</u> PHONE <u>(520) 882-9788</u> FAX _____ SAMPLER'S SIGNATURE <u>[Signature]</u>				NUMBER OF CONTAINERS <u>1</u> SAMPLE I.D. <u>PIONKES17</u> DATE <u>9/18/12</u> TIME <u>1336</u> LAB I.D. <u>GW</u> SAMPLE MATRIX* <u>GW</u>				CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td><input type="checkbox"/> Volatile Organics 625/8270</td> <td><input type="checkbox"/> Acids</td> <td><input type="checkbox"/> Base Neutrals 625/8270</td> <td><input type="checkbox"/> TTHMS</td> <td><input type="checkbox"/> HAAS</td> <td><input type="checkbox"/> PCBs 8082</td> <td><input type="checkbox"/> NO₃</td> <td><input type="checkbox"/> NO₂</td> <td><input type="checkbox"/> Oil and Grease Crav. 1664A</td> <td><input type="checkbox"/> TCLP Analysis Semi-VOA</td> <td><input type="checkbox"/> Metals Total</td> <td><input type="checkbox"/> Cyanide Amen.</td> <td><input type="checkbox"/> SDWA-NORGANICS</td> <td><input type="checkbox"/> PRIMARY</td> <td><input type="checkbox"/> SECONDARY</td> <td><input type="checkbox"/> Coliform</td> <td><input type="checkbox"/> pH</td> <td><input type="checkbox"/> COD</td> <td><input type="checkbox"/> TSS</td> <td><input type="checkbox"/> BOD</td> </tr> </table>												<input type="checkbox"/> Volatile Organics 625/8270	<input type="checkbox"/> Acids	<input type="checkbox"/> Base Neutrals 625/8270	<input type="checkbox"/> TTHMS	<input type="checkbox"/> HAAS	<input type="checkbox"/> PCBs 8082	<input type="checkbox"/> NO ₃	<input type="checkbox"/> NO ₂	<input type="checkbox"/> Oil and Grease Crav. 1664A	<input type="checkbox"/> TCLP Analysis Semi-VOA	<input type="checkbox"/> Metals Total	<input type="checkbox"/> Cyanide Amen.	<input type="checkbox"/> SDWA-NORGANICS	<input type="checkbox"/> PRIMARY	<input type="checkbox"/> SECONDARY	<input type="checkbox"/> Coliform	<input type="checkbox"/> pH	<input type="checkbox"/> COD	<input type="checkbox"/> TSS	<input type="checkbox"/> BOD
<input type="checkbox"/> Volatile Organics 625/8270	<input type="checkbox"/> Acids	<input type="checkbox"/> Base Neutrals 625/8270	<input type="checkbox"/> TTHMS	<input type="checkbox"/> HAAS	<input type="checkbox"/> PCBs 8082	<input type="checkbox"/> NO ₃	<input type="checkbox"/> NO ₂	<input type="checkbox"/> Oil and Grease Crav. 1664A	<input type="checkbox"/> TCLP Analysis Semi-VOA	<input type="checkbox"/> Metals Total	<input type="checkbox"/> Cyanide Amen.	<input type="checkbox"/> SDWA-NORGANICS	<input type="checkbox"/> PRIMARY	<input type="checkbox"/> SECONDARY	<input type="checkbox"/> Coliform	<input type="checkbox"/> pH	<input type="checkbox"/> COD	<input type="checkbox"/> TSS	<input type="checkbox"/> BOD																				
1. RELINQUISHED BY: <u>[Signature]</u> Printed Name <u>James Johnson</u> Firm <u>Clear Creek Assoc.</u> Date/Time <u>9/18/12 1425</u>				2. RECEIVED BY: Signature _____ Printed Name _____ Firm _____ Date/Time _____				TURNAROUND REQUIREMENTS: Standard (approx. 10 days)* Next Day _____ 2 Day _____ 5 Day* Email Preliminary Results To: _____ * Working Days				REPORT REQUIREMENTS: I. Routine Report II. Report (includes DUP, MS, MSD, as required, may be charged as samples) III. Date Validation Report (includes All Raw Data) Add 10% to invoice				INVOICE INFORMATION: Account _____ Y _____ N P.O. # _____ Bill to: _____ Total Containers <u>44</u> Temperature _____ <input type="checkbox"/> Wet Ice <input type="checkbox"/> Blue Ice				SAMPLE RECEIPT: Signature _____ Printed Name _____ Firm _____ Date/Time _____																			
3. RELINQUISHED BY: Signature _____ Printed Name _____ Firm _____ Date/Time _____				4. RECEIVED BY: <u>[Signature]</u> Printed Name <u>Ben Daigneau</u> Firm <u>Clear Creek Associates</u> Date/Time <u>9/18/12 1018</u>				SPECIAL INSTRUCTIONS/COMMENTS: Compliance Analysis: <input type="checkbox"/> Yes <input type="checkbox"/> No ADEQ Forms: <input type="checkbox"/> Yes <input type="checkbox"/> No Mail ADEQ Forms: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seals: <input type="checkbox"/> Container Intact: <input type="checkbox"/> COC / Labels Agree: <input type="checkbox"/> Preservation Confirmation: <input checked="" type="checkbox"/> Appropriate Head Space: <input type="checkbox"/> Received Within Hold Time: <input checked="" type="checkbox"/> <u>Per Ben 24 hr best 9/18/12 JD</u>																															



September 18, 2012

Ben Daigneau
Clear Creek Associates
221 N. Court Ave., Suite 101
Tucson, AZ 85701

TEL (520) 622-3222
FAX (520) 622-4040

Work Order No.: 12I0341
Order Name: Bisbee Well 287008

RE: Well

Dear Ben Daigneau,

Turner Laboratories, Inc. received 1 sample(s) on 09/11/2012 for the analyses presented in the following report.

The attached report has been revised. Please refer to the Case Narrative page for an explanation of the changes. We apologize for any inconvenience this may have caused you.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,
Turner Laboratories, Inc.
ADHS License AZ0066

Terri Garcia
Technical Director

Client: Clear Creek Associates
Project: Well
Work Order: 12I0341
Date Received: 09/11/2012

Order: Bisbee Well 287008

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
12I0341-01	Anderson	Ground Water	09/09/2012 1300

Client: Clear Creek Associates
Project: Well
Work Order: 12I0341
Date Received: 09/11/2012

Case Narrative

This report was originally generated on 09/18/2012. It is being revised on 09/18/2012 to include reporting of sulfate only and not arsenic, which was on the original report.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND Not Detected at or above the PQL
PQL Practical Quantitation Limit
DF Dilution Factor

Client: Clear Creek Associates
Project: Well
Work Order: 12I0341
Lab Sample ID: 12I0341-01

Client Sample ID: Anderson
Collection Date/Time: 09/09/2012 1300
Matrix: Ground Water
Order Name: Bisbee Well 287008

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Anions by Ion Chromatography-E300								
Sulfate	31	10		mg/L	2	09/11/2012 1000	09/11/2012 1505	EW

Client: Clear Creek Associates
Project: Well
Work Order: 12I0341
Date Received: 09/11/2012

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Qual
Batch 1209089 - IC PREP									
Blank (1209089-BLK1)				Prepared & Analyzed: 09/11/2012					
Sulfate	ND	5.0	mg/L						
LCS (1209089-BS1)				Prepared & Analyzed: 09/11/2012					
Sulfate	12	5.0	mg/L	12.50		98	90-110		
LCS Dup (1209089-BSD1)				Prepared & Analyzed: 09/11/2012					
Sulfate	12	5.0	mg/L	12.50		98	90-110	0.2	10
Matrix Spike (1209089-MS2)				Source: 12I0341-01		Prepared: 09/11/2012 Analyzed: 09/12/2012			
Sulfate	92	25	mg/L	62.50	31	98	80-120		
Matrix Spike Dup (1209089-MSD2)				Source: 12I0341-01		Prepared: 09/11/2012 Analyzed: 09/12/2012			
Sulfate	91	25	mg/L	62.50	31	96	80-120	0.8	10

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 1710341 DATE 9-10-12 PAGE 1 OF 1

PROJECT NAME <u>B. Shen Wells</u> # <u>287000</u> CONTACT NAME <u>Ben Daigleau</u> COMPANY NAME <u>Clear Creek</u> ADDRESS <u>221 N COURT AVE STE 101</u> <u>Tucson AZ</u> PHONE <u>520 622 3222</u> FAX <u>520-622 4040</u> SAMPLER'S SIGNATURE <u>[Signature]</u>				NUMBER OF CONTAINERS <div style="border: 1px solid black; padding: 5px; text-align: center;">3</div>		CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">Acids</td> <td style="width:15%;">Base Neutrals</td> <td style="width:15%;">Volatiles</td> <td style="width:15%;">Pesticides</td> <td style="width:15%;">Oil and Grease</td> <td style="width:15%;">VOA</td> <td style="width:15%;">TCAP Analysis</td> <td style="width:15%;">Metals</td> <td style="width:15%;">Total</td> <td style="width:15%;">RCRA8</td> <td style="width:15%;">Cyanide</td> <td style="width:15%;">SDWA/INORGANICS</td> <td style="width:15%;">MPN</td> <td style="width:15%;">pH</td> <td style="width:15%;">COD</td> <td style="width:15%;">TSS</td> <td style="width:15%;">BOD</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>												Acids	Base Neutrals	Volatiles	Pesticides	Oil and Grease	VOA	TCAP Analysis	Metals	Total	RCRA8	Cyanide	SDWA/INORGANICS	MPN	pH	COD	TSS	BOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																			
1. RELINQUISHED BY: <u>[Signature]</u> Signature <u>Ben Daigleau</u> Printed Name <u>Clear Creek</u> Firm <u>9/10/12 10:00</u> Date/Time				2. RECEIVED BY: <u>[Signature]</u> Signature <u>Ben Daigleau</u> Printed Name <u>Clear Creek</u> Firm <u>9/10/12 13:00</u> Date/Time				TURNAROUND REQUIREMENTS: Standard (approx. 10 days)* Next Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 5 Day* Email Preliminary Results To: <u>same day prelims</u> * Working Days				REPORT REQUIREMENTS: I. Routine Report II. Report (includes DUP, MS, MSD, as required, may be charged as samples) III. Date Validation Report (includes All Raw Data) Add 10% to invoice				INVOICE INFORMATION: Account <u>Y</u> <u>N</u> P.O. # Bill to: Total Containers <u>3</u> Temperature <u>1.6</u> <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Blue Ice				SAMPLE RECEIPT: Signature Printed Name Firm Date/Time																															
3. RELINQUISHED BY: <u>[Signature]</u> Signature <u>Ben Daigleau</u> Printed Name <u>Clear Creek</u> Firm <u>9-10-12 0852</u> Date/Time				4. RECEIVED BY: <u>[Signature]</u> Signature <u>Ben Daigleau</u> Printed Name <u>TURNER LABORATORIES, INC.</u> Firm <u>9-10-12 0852</u> Date/Time				SPECIAL INSTRUCTIONS/COMMENTS: Compliance Analysis: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ADEQ Forms: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Mail ADEQ Forms: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No * LEGEND DW = DRINKING WATER GW = GROUNDWATER SD = SOLID SG = SLUDGE SL = SOIL ST = STORMWATER WW = WASTEWATER																																											
Signature Printed Name Firm Date/Time				Signature Printed Name Firm Date/Time				SPECIAL INSTRUCTIONS/COMMENTS: Compliance Analysis: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ADEQ Forms: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Mail ADEQ Forms: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No * LEGEND DW = DRINKING WATER GW = GROUNDWATER SD = SOLID SG = SLUDGE SL = SOIL ST = STORMWATER WW = WASTEWATER																																											



September 18, 2012

Ben Daigneau
Clear Creek Associates
221 N. Court Ave., Suite 101
Tucson, AZ 85701

TEL (520) 622-3222
FAX (520) 622-4040

Work Order No.: 12G0801
Order Name: Private Well Install #28

RE: Well

Dear Ben Daigneau,

Turner Laboratories, Inc. received 1 sample(s) on 07/27/2012 for the analyses presented in the following report.

The attached report has been revised. Please refer to the Case Narrative page for an explanation of the changes. We apologize for any inconvenience this may have caused you.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,
Turner Laboratories, Inc.
ADHS License AZ0066

Terri Garcia
Technical Director

Client: Clear Creek Associates
Project: Well
Work Order: 12G0801
Date Received: 07/27/2012

Order: Private Well Install #28700

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
12G0801-01	McConnell	Ground Water	07/27/2012 1140

Client: Clear Creek Associates
Project: Well
Work Order: 12G0801
Date Received: 07/27/2012

Case Narrative

This report was originally generated on 8/03/2012. It is being revised on 09/18/2012 to include reporting of sulfate only and not arsenic, which was on the original report.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND Not Detected at or above the PQL
PQL Practical Quantitation Limit
DF Dilution Factor

Client: Clear Creek Associates
Project: Well
Work Order: 12G0801
Lab Sample ID: 12G0801-01

Client Sample ID: McConnell
Collection Date/Time: 07/27/2012 1140
Matrix: Ground Water
Order Name: Private Well Install #287008

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Anions by Ion Chromatography-E300								
Sulfate	41	25		mg/L	5	07/31/2012 1100	07/31/2012 2016	EW

Client: Clear Creek Associates
Project: Well
Work Order: 12G0801
Date Received: 07/27/2012

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1207325 - IC PREP										
Blank (1207325-BLK1)				Prepared & Analyzed: 07/31/2012						
Sulfate	ND	5.0	mg/L							
LCS (1207325-BS1)				Prepared & Analyzed: 07/31/2012						
Sulfate	12	5.0	mg/L	12.50		97	90-110			
LCS Dup (1207325-BS1)				Prepared & Analyzed: 07/31/2012						
Sulfate	12	5.0	mg/L	12.50		100	90-110	3	10	
Matrix Spike (1207325-MS1)				Source: 12G0810-01		Prepared & Analyzed: 07/31/2012				
Sulfate	19	5.0	mg/L	12.50	7.2	95	80-120			
Matrix Spike (1207325-MS2)				Source: 12G0826-04		Prepared & Analyzed: 07/31/2012				
Sulfate	12	5.0	mg/L	12.50	0.45	94	80-120			
Matrix Spike Dup (1207325-MSD1)				Source: 12G0810-01		Prepared & Analyzed: 07/31/2012				
Sulfate	19	5.0	mg/L	12.50	7.2	96	80-120	0.6	10	
Matrix Spike Dup (1207325-MSD2)				Source: 12G0826-04		Prepared & Analyzed: 07/31/2012				
Sulfate	12	5.0	mg/L	12.50	0.45	94	80-120	0.3	10	



2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

TURNER WORK ORDER #

DATE

PAGE OF

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

PROJECT NAME Private Well Install # 287008

CONTACT NAME Ben Deigueau

COMPANY NAME Clear Creek Associates

ADDRESS 221 N. Court Ave #101 Tucson AZ 85701

PHONE 622-3222 FAX 622-9040

SAMPLERS SIGNATURE [Signature]

SAMPLE ID. DATE TIME LAB ID. SAMPLE MATRIX*
McConnell 7/27/12 1140 GW

NUMBER OF CONTAINERS

Base Neutrals ☐ 625/8270 Acids ☐
Volatile Organics ☐ 624/524.2/8260
THMS ☐ HAA5 ☐
Pesticides ☐ 8081 PCB's ☐ 8082
NO₃ ☐ NO₂ ☐ TKN ☐
Oil and Grease ☐ Grav. 1664A
VOA ☐ TCLP Analysis ☐ Semi-VOA ☐ Pest. ☐
TCLP ☐ Metals ☐ Total ☐
Dissolved ☐ RCRA8 ☐
Total ☐ Cyanide ☐ WAD ☐
SDWA-INORGANICS ☐ PRIMARY ☐ SECONDARY ☐
MPN ☐ Coliform ☐ Coli ☐
pH ☐ Cr ☐ Cl ☐
COD ☐ TSS ☐ BOD ☐
See Attached List
Sulfate 300.0
Arsenic 200.8

CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX

1. RELINQUISHED BY:

2. RECEIVED BY:

TURNAROUND REQUIREMENTS:

REPORT REQUIREMENTS:

INVOICE INFORMATION:

SAMPLE RECEIPT:

Signature

Printed Name

Firm

Date/Time

Signature

Printed Name

Firm

Date/Time

Standard (approx. 10 days)*
Next Day 2 Day 5 Day*

I. Routine Report

P.O. #

Account Y N

Total Containers

Temperature

Wet Ice

Blue Ice

Email Preliminary Results To:

II. Report (Includes DUP, MS, MSD, as required, may be charged as samples)

Bill to:

III. Date Validation Report (Includes All Raw Data)

Add 10% to invoice

3. RELINQUISHED BY:

4. RECEIVED BY:

* LEGEND

SPECIAL INSTRUCTIONS/COMMENTS:

Signature

Printed Name

Firm

Date/Time

Signature

Printed Name

Firm

Date/Time

Drinking Water

Groundwater

Solid

Sludge

Stormwater

Wastewater

Compliance Analysis: ☐ Yes ☐ No

ADEQ Forms: ☐ Yes ☐ No

Mail ADEQ Forms: ☐ Yes ☐ No

Custody Seals: ☐ Yes ☐ No

Container Intact: ☐ Yes ☐ No

COC / Labels Agree: ☐ Yes ☐ No

Preservation Confirmation: ☐ Yes ☐ No

Appropriate Head Space: ☐ Yes ☐ No

Received Within Hold Time: ☐ Yes ☐ No

APPENDIX D
GROUNDWATER SAMPLING FORMS

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 12 JUL 12
 Well ID: Anderson Weather: Overcast
 ADWR No: Sampler: VNH

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): 151.34	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						
1629				6.89	24.9	1520	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Anderson	1636	Poly	250ml	1	300.0	NA	Y

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

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input type="checkbox"/> Purged 3 well volumes based on previous water level and field parameters stabilized. <input type="checkbox"/> Purged well until field parameters stabilized. <input checked="" type="checkbox"/> Other: No purge, sample from tank

Additional Comments:

WELL DEVELOPMENT RECORD

Well ID: ANDERSON
ADWR Reg. No: 221598
Page 1 of 1

Project Name: <u>CAB Private Wells</u>	Project No.: <u>287008</u>	Site Address: <u>Naco HWY</u>	ADWR Registry No.: <u>221598</u>
Drilling Co.: <u>Yellow Jacket</u>		Date Started: <u>9-8-12</u>	Date Finished: <u>9-8-12</u>
Geologist: <u>Ben Daigman</u>		Measuring Point (M.P.): <u>top of elevator</u>	Distance b/t land surface and M.P. (ft): <u>6.34</u>
Total Cased Depth (ft bls): <u>✓</u>		Screen Interval (ft bls): <u>✓</u>	
Pump Type/Setting (ft bls): <u>420</u>		Static Water Level (ft bls): <u>188.56 b/s</u>	
Method of Flow Rate (Q) Calculation: <u>Flow meter</u>		Sand Measurement Method: <u>Imhoff cone</u>	

Water Quality Parameters

Date	Time	Activity (Bail, Swab, Pump)	Q (gpm)	Q _T (gal)	Sand Content (ml/l)	pH	Conductivity (us/cm)	Temp (F/C)	TDS (ppm)	Comments
9/8/12										
09:15	09:15		25	225	0	8.35	430.4	23.3		
09:35	09:35		25	875	0	8.41	413.4	24.0		slightly turbid-white
09:50	09:50		25	1250	0	8.43	413.10	24.2		
10:	10:45		25	2625	0	8.41	407.8	25.0		9mg/L Field SO ₄
	11:30		23	3750	0	8.32	407.5	26.1		
	12:15		23	4785	0	8.28	405.3	25.7		H ₂ S < 0.005 (Field strip)
	12:45		23	5475	0	8.34	406.3	25.9		Field SO ₄ = 0mg/L

Groundwater Sampling Form

Project No: 055038

Client: Freeport Copper Queen Branch

Task No: 1.0

Date: 05 JUL 13

Well ID: AWC-02

Weather: Partly cloudy, hum. id, sunny

ADWR No:

Sampler: VNH Q MM

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

FIELD SAMPLING DATA

[illegible]

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

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
AWC-02	0946	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:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 5 JUL 12
 Well ID: AWC-03 Weather: Partly Cloudy, humid, sunny
 ADWR No: _____ Sampler: WH & 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						
0843				7.32	21.7	474.3	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
AWC-03	0817	Poly	250ml	1	300.0	✓	✓

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 checked="" type="checkbox"/> Other: <u>Well has been pumping</u>

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 5 JUL 12
 Well ID: AWC-04 Weather: partly cloudy, humid, sunny
 ADWR No: _____ Sampler: VNH & 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						
0901				7.03	21.6	568.0	
	Pump Off						

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
AWC-04	0904	POLY	250	1	300.0	N	Y
DUP0705 ^{well} 02012		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 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 checked="" type="checkbox"/> Other: <u>Well has been pumping</u>

Additional Comments: _____

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 5 JUL 12
 Well ID: AWC-05 Weather: Partly cloudy, humid, sunny
 ADWR No: _____ Sampler: VNH

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						
1417				7.24	22.6	432.1	Clear, odorless
	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	1423	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 checked="" type="checkbox"/> Other: <u>Well was pumping.</u>

Additional Comments: Well had been shut off for a few hours. Electrician called out to fix problem. At time of field parameters, pump had been on ≥ 2 hours.

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 6 JUL 12
 Well ID: Banks 986 Weather: Sunny, hot
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>435'</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): _____	2	0.16
Casing Volume (gal): <u>298</u> x3 = <u>894</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 (°F)	Specific Conductance (µS/cm)	Comments
<u>1213</u>	<u>Pump On</u>						
<u>1223</u>	<u>10</u>	<u>9</u>	<u>90</u>	<u>7.80</u>	<u>76.8</u>	<u>990</u>	<u>24.8 °C</u>
<u>1233</u>	<u>20</u>	<u>9</u>	<u>180</u>	<u>7.76</u>	<u>75.5</u>	<u>1000</u>	<u>24.2 °C</u>
<u>1253</u>	<u>40</u>	<u>9</u>	<u>360</u>	<u>7.75</u>	<u>76.4</u>	<u>960</u>	<u>24.6 °C</u>
<u>1313</u>	<u>60</u>	<u>8</u>	<u>520</u>	<u>7.68</u>	<u>75.9</u>	<u>950</u>	<u>24.4 °C</u>
<u>1333</u>	<u>80</u>	<u>8</u>	<u>680</u>	<u>7.67</u>	<u>75.8</u>	<u>950</u>	<u>24.3 °C</u>
<u>1353</u>	<u>100</u>	<u>8.5</u>	<u>850</u>	<u>7.64</u>	<u>75.5</u>	<u>950</u>	<u>24.2 °C</u>
<u>1358</u>	<u>105</u>	<u>8.5</u>	<u>892.5</u>	<u>7.66</u>	<u>74.7</u>	<u>940</u>	<u>23.7 °C</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>Banks 986</u>	<u>1400</u>	<u>Poly</u>	<u>250 mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>
<u>DUP 07062012</u>	<u>1400</u>	<u>Poly</u>	<u>250 mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION

- ☒ 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: Purged 3 well vols based on SWL @ BANKS 987

Additional Comments: SWL @ Banks 987 = 232.59'

Groundwater Sampling Form

Project No: 055038

Client: Freeport Copper Queen Branch

Task No:

Date:

Well ID:

Weather:

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

FIELD SAMPLING DATA

[illegible]

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

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	8-13-11
Well ID:	BF-1	Weather:	Sunny
ADWR No:		Sampler:	Christopher L. Shuman

WELL DATA

Well Depth (ft bls):	400	Casing Capacity	
Casing Diameter (in):	4.11	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	343.95	2	0.16
Casing Volume (gals):		4	0.65
3 Casing Volumes (gals):		5	1.02
		6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1630							
1633	3	7.5	22	5.99	22.6	2980	
1635	5	7.5	38				
0930				6.00	21.5	3000	344.20 SWL
0931							

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BF-1	0931	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

8-14-12

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 10 Jul 12
 Well ID: Bima Weather: Partly cloudy, humid, 90s
 ADWR No: _____ Sampler: VWH

WELL DATA		
Well Depth (ft bls): <u>465'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>4"</u>	2	0.16
	4	0.65
Static Water Level (ft bmp): _____	5	1.02
	6	1.47
Casing Volume (gal): <u>x3 = 150</u>	8	2.61
	10	4.08
Total Volume Purged (gal): _____	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1450</u>	Pump On						
<u>1456</u>	<u>6</u>	<u>11.5</u>	<u>69</u>	<u>6.18</u>	<u>24.1</u>	<u>1180</u>	
<u>1459</u>	<u>9</u>	<u>11.5</u>	<u>103.5</u>				
<u>1500</u>	<u>10</u>	<u>2.4</u>	<u>105.9</u>	<u>6.06</u>	<u>23.7</u>	<u>1200</u>	
<u>1501</u>	<u>11</u>	<u>2.4</u>	<u>108.3</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>Bima</u>	<u>1532</u>	<u>Poly</u>	<u>250 mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

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

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

Additional Comments: Obstruction in well, BTD said this is a sketchy well for SWL. Owners do not like the purge.

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	8-14-12
Well ID:	BMO-2008-1G	Weather:	Sunny
ADWR No:		Sampler:	Christopher L. Skramm

WELL DATA

Well Depth (ft bbs):	310	Casing Capacity	
Casing Diameter (in):	5'	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	71.73	2	0.16
Casing Volume (gals):	243	4	0.65
3 Casing Volumes (gals):	729	5	1.02
		6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1110							
1140	30	8.3	249	6.90	22.4	959	
1200	50	8.3	415	6.94	21.9	957	
1220	70	8.3	581	6.93	21.8	953	
1240	90	8.3	747	6.97	21.9	959	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMO-2008-1G	1240	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

238.2

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	7-10-12
Well ID:	BMO-2008-3B	Weather:	Sunny
ADWR No:		Sampler:	Christopher L Slaw

WELL DATA

Well Depth (ft bls):	2.60	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	5"	2	8.16
		4	0.85
		5	1.02
		6	1.47
		8	2.61
Static Water Level (ft bmp):	143.7	10	4.08
Casing Volume (gals):	119	Casing Volume = gallons/foot * water column (feet)	
3 Casing Volumes (gals):	357		

FIELD SAMPLING DATA

[illegible]

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
Bmo-2008-3B	1130	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

116.3

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	8-15-12
Well ID:	BMO-2008-4B	Weather:	Sunny
ADWR No:		Sampler:	Christopher K. Shuman

WELL DATA

Well Depth (ft bbs):	610	Casing Capacity	
Casing Diameter (in):	5"	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	140.90	2	0.16
Casing Volume (gals):	478	4	0.65
3 Casing Volumes (gals):	1434	6	1.02
		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
0930							
0940	10	23	230	6.95	23.5	382	Pump on
0950	20	23	460	6.99	23.6	381	
1000	30	23	690	6.96	23.6	380	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMO-2008-4B	1000	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

Pump on when arrived at property

4/2/11

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 9/17/12
 Well ID: BMC-2008-4B Weather: _____
 ADWR No: _____ Sampler: K. Sagar (see comments)

WELL DATA		
Well Depth (ft bls): <u>610</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>136.15</u>	2	0.16
Casing Volume (gal): <u>x3 =</u>	4	0.65
Total Volume Purged (gal): _____	5	1.02
	6	1.47
	8	2.61
	10	4.08
Casing Volume = gallons/foot * water column (feet)		

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

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

SAMPLE INFORMATION							
Sample 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: Water level measurement taken by Chris Snierman and communicated verbally to Ben Daigneau on 9/17/12.

Water Level Only

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	7-10-12
Well ID:	BMO 2008-5B	Weather:	Sunny
ADWR No:		Sampler:	Christopher L Skorman

WELL DATA

Well Depth (ft bls):	285	Casing Capacity	
Casing Diameter (in):	5"	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	149.65	2	0.16
Casing Volume (gals):	138	4	0.65
3 Casing Volumes (gals):	414	5	1.02
		6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0945							
0950	5	27	135	6.84	21.7	724	
1000	15	27	405	6.86	21.6	722	
1010	25	27	675	6.87	21.5	726	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMO-2008-5B	1010	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

135

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	02/2-10-12
Well ID:	BMD 2008-5M	Weather:	Sunny
ADWR No:		Sampler:	(Signature) Shuman

WELL DATA

Well Depth (ft bbs):	450	Casing Capacity	
Casing Diameter (in):	54	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	151.65	2	0.16
Casing Volume (gals):	304.3	4	0.55
3 Casing Volumes (gals):	913	5	1.02
		6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0830							
0835	05	18	90	6.83	22.4	594	
0855	25	18	450	6.89	22.5	583	
0915	45	18	810	6.81	22.4	593	
0925	55	18	990	6.82	22.4	592	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMD-2008-5M	0925	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

298.9

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	7-10-12
Well ID:	BMO 2008-LB	Weather:	Partly Cloudy
ADWR No:		Sampler:	Christopher L. Shuman

WELL DATA

Well Depth (ft bbs):	265	Casing Capacity	
Casing Diameter (in):	5"	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	194.75	2	0.16
Casing Volume (gals):	72	4	0.85
3 Casing Volumes (gals):	216	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
0700							
0705	5	5.1	25	6.82	21.3	324	
0715	15	5.1	75	6.84	21.2	322	
0730	30	5.1	150	6.83	21.2	326	
0745	45	5.1	225	6.86	21.2	328	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMO-2008-LB	0745	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

79.2

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	7-10-12 7-10-12
Well ID:	BMD-2008-6M	Weather:	Sunny
ADWR No:		Sampler:	Christopher L. Shuman

WELL DATA

Well Depth (ft bbs):	450	Casing Capacity	
Casing Diameter (in):	5	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	196.10	2	0.16
Casing Volume (gals):	259-	4	0.68
3 Casing Volumes (gals):	777	5	1.92
		6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0610							
0620	10	21	210	6.63	21.4	707	
0630	20	21	420	6.65	21.3	701	
0640	30	21	630	6.62	21.4	703	
0650	40	21	840	6.67	21.4	702	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMD-2008-6M	0650	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

253.7

Calibrated meter ✓

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	7-11-12
Well ID:	BMD-2008 7M	Weather:	Partly Cloudy
ADWR No:		Sampler:	Christopher L. Blum

WELL DATA

Well Depth (ft bbs):	670	Casing Capacity	
Casing Diameter (in):	5"	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	243.0	2	0.16
Casing Volume (gals):	435.5	4	0.65
3 Casing Volumes (gals):	1306	5	1.02
		6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0715							
0720	5	21	105	7.18	22.7	459	
0740	25	21	525	7.15	22.8	451	
0800	45	21	945	7.14	22.8	451	
0820	65	21	1365	7.18	22.7	455	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMD-2008-7M	0820	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

427

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	7-12-12
Well ID:	BMO-2008-8B	Weather:	Partly Cloudy
ADWR No:		Sampler:	Christopher L. Skurman

WELL DATA

Well Depth (ft bbs):	480	Casing Capacity	
Casing Diameter (in):	5"	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	301.15	2	0.16
Casing Volume (gals):	182.5	4	0.65
3 Casing Volumes (gals):	548	5	1.02
		6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0940							
0955	15	14.2	213	6.39	21.0	2870	
1005	25	14.2	355	6.41	21.1	2860	
1015	35	14.2	497	6.40	21.1	2870	
1025	45	14.2	639	6.41	21.1	2860	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMO-2008-8B	1025	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	7-12-12
Well ID:	BMO-2008-8M	Weather:	Partly Cloudy
ADWR No:		Sampler:	Christopher L. Shinn

WELL DATA

Well Depth (ft bbs):	121.0	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	5"	2	0.16
Static Water Level (ft bmp):	302.45	4	0.65
Casing Volume (gals):	926	5	1.02
3 Casing Volumes (gals):	2778	6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0630							
0730	60	17.6	1056	6.97	24.1	551	Duplicate
0830	120	17.6	2112	7.11	24.3	554	
0900	150	17.6	2688	7.14	24.2	551	
0910	160	17.6	2816	7.15	24.2	554	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMO-2008-8M	0910	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

907.5 Duplicate

Calibration meter

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	7-12-12
Well ID:	BMO-2008-9M	Weather:	Partly Cloudy
ADWR No:		Sampler:	Christopher L. Klemm

WELL DATA

Well Depth (ft bbs):	275	Casing Capacity	
Casing Diameter (in):	5"	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	294.65	2	0.16
Casing Volume (gals):	490	4	0.55
3 Casing Volumes (gals):	1470	5	1.02
		6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1100							
1120	20	18.8	376	7.63	24.3	511	
1140	40	18.8	757	7.65	24.3	512	
1200	60	18.8	1128	7.67	24.2	513	
1220	80	18.8	1504	7.68	24.2	513	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMO-2008-9M	1220	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

480.3

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	7-13-12
Well ID:	BMO-2008-10 BL	Weather:	Partly Cloudy
ADWR No:		Sampler:	Hastings & Shivers

WELL DATA

Well Depth (ft bls):	810	Casing Capacity	
Casing Diameter (in):	5"	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	510.90	2	0.16
Casing Volume (gals):	305	4	0.65
3 Casing Volumes (gals):	915	5	1.02
		6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0620							
0625	5	4.5	22.5	6.70	23.4	1572	
0720	60	4.6	270	6.75	24.2	1566	
0820	120	3.7	516	6.72	25.0	1574	
0920	180	3.4	738	6.75	25.6	1579	
1020	240	3.4	942	6.71	25.7	1571	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMO-2008-10 BL	1020	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

Groundwater Sampling Form

Project No:	Client: Freeport Copper Queen Branch
Task No:	Date: 7-13-12
Well ID: BMD-2008-1064	Weather: Partly Cloudy
ADWR No:	Sampler: Christopher L. Shuman

WELL DATA

		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Well Depth (ft bls):	449	2	0.16
Casing Diameter (in):	5 1/2	4	0.65
Static Water Level (ft bmp):	328.7	5	1.02
		6	1.47
		8	2.61
		10	4.08
Casing Volume (gals):	123	Casing Volume = gallons/foot * water column (feet)	
3 Casing Volumes (gals):	369		

FIELD SAMPLING DATA

[illegible]

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMD-2008-10 64		plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

BO Pump

Scheduled to fix

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	8-14-12
Well ID:	BMD-2008-116	Weather:	Sunny
ADWR No:		Sampler:	Christopher L. Shuman

WELL DATA

		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Well Depth (ft bls):	760	2	0.16
Casing Diameter (in):	5"	4	0.65
Static Water Level (ft bmp):	569.70	5	1.02
		6	1.47
		8	2.61
Casing Volume (gals):	194.1	10	4.08
3 Casing Volumes (gals):	582	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

[illegible]

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMO-2008-116	0735	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

170.3

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	7-11-12
Well ID:	BMD-2008-13B	Weather:	Partly Cloudy
ADWR No:		Sampler:	Christopher L. Shuman

WELL DATA

Well Depth (ft bbs):	475	Casing Capacity	
Casing Diameter (in):	54	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	210.60	2	0.16
Casing Volume (gals):	270	4	0.55
3 Casing Volumes (gals):	810	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
1310							
1320	10	20	200	6.53	21.3	2160	
1335	25	20	500	6.48	21.4	2180	
1345	35	20	700	6.54	21.2	2180	
1355	45	20	900	6.55	21.2	2190	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMD-2008-13B	1355	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

2/4/4

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	8-13-12
Well ID:	BMD-2008-13M	Weather:	Sunny
ADWR No:		Sampler:	Charlotte 1 Shumail

WELL DATA

Well Depth (ft bbs):	10.30	Casing Capacity	
Casing Diameter (in):	5"	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	211.42	2	0.16
Casing Volume (gals):	834.8	4	0.65
3 Casing Volumes (gals):	2504	5	1.02
		6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0515							
0735	140	5.7	798	8.89	24.0	1242	
0835	200	4.6	1140	8.93	23.8	1242	
0935	260	3.8	1416	8.95	23.8	1255	
1135	380	3.8	1872	8.81	24.5	1300	
1235	440	2.8	2100	8.79	24.6	1309	
1530	620	2.8	2604	8.75	24.2	1311	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMD-2008-13M	1530	plastic	250 ml	1	EPA 300.0	none	filtered
BMD-2008-13M							

Additional Comments:

818.5

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	7-9-12
Well ID:	BMO-2010-1M	Weather:	Sunny 96°
ADWR No:		Sampler:	Christopher L Shelton

WELL DATA

Well Depth (ft bbs):	550	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
		4	0.65
		5	1.02
		6	1.47
		8	2.91
Casing Diameter (in):	54	10	4.08
Static Water Level (ft bmp):	225.05	Casing Volume = gallons/foot * water column (feet)	
Casing Volume (gals):	331.5		
3 Casing Volumes (gals):	995		

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	6.37	20.1	699	
0715	15	10	150	6.35	20.2	701	
0800	60	5	375	6.32	21.6	710	
0900	120	3	555	6.35	22.4	709	
1000	180	3	735	6.34	23.6	712	
1100	240	3	915	6.36	24.3	713	
1130	270	3	1005	6.37	24.3	715	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMO-2010-1M	1130	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments: Calibrated meter 325

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	7-9-12
Well ID:	BMD 2010-2M	Weather:	Sunny Partly Cloudy
ADWR No:		Sampler:	Christopher L. Slomms

WELL DATA

Well Depth (ft bbs):	380	Casing Capacity	
Casing Diameter (in):	5"	Nominal Size (Inches)	Gallons per Linear Foot
Static Water Level (ft bmp):	273.20	2	0.16
Casing Volume (gals):	109	4	0.85
3 Casing Volumes (gals):	327	5	1.02
		6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1235							
1245	10	27	270	6.41	21.9	2.19	
1255	20	27	540	6.42	21.8	2.18	
1305	30	27	810	6.41	21.8	2.19	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
BMD 2010-2M	1305	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

106.2

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 7/5/12
 Well ID: BMO-2010-33 Weather: Partly Cloudy 76°
 ADWR No: _____ Sampler: MMU/VNH

WELL DATA		
Well Depth (ft bls): <u>330</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>118.84</u>	4	0.65
Casing Volume (gal): <u>210 x3 = 648</u>	5	1.02
	6	1.47
	8	2.61
	10	4.08
Total Volume Purged (gal): <u>712.5</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
1036	Pump On						discolored
1052	120	7.5		7.45	22.6	416.7	slight yellow, clear
1106	225	7.5		7.54	22.3	418.2	all clear
1121	337.5	7.5		7.52	22.4	418.6	
1136	450	7.5		7.51	22.4	418.9	
1152	570	7.5		7.55	22.4	419.7	
1206	675	7.5		7.51	22.4	419.1	
1214							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2010-33	1211	POLY	250	1	300.0	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 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: 7/5/12

Well ID: BMO-2010-3M

Weather: Partly Cloudy 80

ADWR No:

Sampler: MMC/VNH

WELL DATA		
Well Depth (ft bls): 531	Casing Capacity	
Casing Diameter (in): 5	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): 122.05	2	0.16
Casing Volume (gal): 418 x3 = 1254	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
1223	Pump On						
1243	150 20	7.5	150	7.94	23.1	352.3	Yellowy color, rotten egg odor
1303	40	7.5	300	7.74	23.5	381.7	" "
1323	60	7.5	450	7.72	23.6	380.9	Mostly clear, burnt sulphur odor
1343	80	7.5	600	7.73	23.6	381.0	" "
1403	100	7.5	750	7.72	23.9	380.5	Clear, slight sulphur odor
1443	140	7.5	1050	7.53	24.5	378.1	
1453	150	7.5	1125	7.60	24.3	380.3	
1503	200 160	7.5	1200	7.66	23.7	379.9	Clear, faint sulphur odor
1513	170	7.5	1275	7.66	23.7	381.8	Pump Off - 1520

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2010-3M	1519	POLY	250	1	300.0	N	Y

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

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

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 10 Date: 17 JUL 12
 Well ID: Chambers Weather: Partly Cloudy, high 80's
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>245</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): _____	2	0.16
Static Water Level (ft bmp): _____	4	0.65
	5	1.02
Casing Volume (gal): <u>x3 =</u>	6	1.47
	8	2.61
	10	4.08
Total Volume Purged (gal): _____	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1327</u>	<u>Pump On</u>						
<u>1335</u>	<u>8</u>	<u>1.3</u>	<u>10.4</u>	<u>7.27</u>	<u>22.7</u>	<u>430</u>	
<u>1340</u>	<u>13</u>	<u>1.3</u>	<u>16.9</u>	<u>7.29</u>	<u>22.5</u>	<u>410</u>	
<u>1345</u>	<u>18</u>	<u>1.3</u>	<u>23.4</u>	<u>7.30</u>	<u>22.5</u>	<u>420</u>	
<u>1347</u>	<u>20</u>	<u>1.3</u>	<u>26</u>	<u>7.31</u>	<u>22.4</u>	<u>410</u>	
					<u>22.4</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>Chambers</u>	<u>1350</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: From sink in garden.

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 12 JUL 12
 Well ID: COB MW-1 Weather: Hot, Sunny
 ADWR No: _____ Sampler: VNH

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>238.24</u>	2	0.16
Casing Volume (gal): <u>475 x3 = 1425</u>	4	0.65
Total Volume Purged (gal): <u>1425</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>1045</u>	<u>Pump On</u>						
<u>1100</u>	<u>15</u>	<u>9.5</u>	<u>142.5</u>	<u>6.82</u>	<u>24.6</u>	<u>2230</u>	
<u>1115</u>	<u>30</u>	<u>9.5</u>	<u>285</u>	<u>6.65</u>	<u>23.4</u>	<u>1810</u>	
<u>1145</u>	<u>60</u>	<u>9.5</u>	<u>570</u>	<u>6.64</u>	<u>23.5</u>	<u>1780</u>	
<u>1245</u>	<u>120</u>	<u>9.5</u>	<u>1140</u>	<u>6.54</u>	<u>24.2</u>	<u>1740</u>	
<u>1300</u>	<u>135</u>	<u>9.5</u>	<u>1282.5</u>	<u>6.60</u>	<u>23.2</u>	<u>1770</u>	
<u>1315</u>	<u>150</u>	<u>9.5</u>	<u>1425</u>	<u>6.74</u>	<u>23.4</u>	<u>1760</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>COB MW-1</u>	<u>1319</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: 10

Date: 12 JUL 12

Well ID: COB MW-2

Weather: Hot, sunny, windy

ADWR No:

Sampler: VNA

WELL DATA		
Well Depth (ft bls):	170'	<div>Casing Capacity</div> <div>Nominal Size (inches)</div> <div>Gallons per Linear Foot</div>
Casing Diameter (in):	4"	<div>2</div> <div>0.16</div>
Static Water Level (ft bmp):	129.58	<div>4</div> <div>0.65</div>
Casing Volume (gal):	26 x3 = 78	<div>5</div> <div>1.02</div>
Total Volume Purged (gal):	123.5	<div>6</div> <div>1.47</div>
		<div>8</div> <div>2.61</div>
		<div>10</div> <div>4.08</div>
		Casing Volume = gallons/foot * water column (feet)

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0942	Pump On						
0947	5	6.5	32.5	7.30	21.5	640	
0952	10	6.5	65	7.31	21.3	650	
0957	15	6.5	97.5	7.36	21.2	636	
1001	19	6.5	123.5	—	—	—	GF
							Pump Off

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

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
COB MW-2	1006	poly	250ml	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION

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

WELL PURGING INFORMATION

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

Additional Comments:

Groundwater Sampling Form

Project No: 055038

Client: Freeport Copper Queen Branch

Task No: 10

Date: 12 JUL 12

Well ID: COB-MW-3

Weather: Sunny, windy, 80's

ADWR No:

Sampler: VNH

WELL DATA																		
Well Depth (ft bis):	269'	<table border="1"> <thead> <tr> <th colspan="2">Casing Capacity</th> </tr> <tr> <th>Nominal Size (inches)</th> <th>Gallons per Linear Foot</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>0.16</td> </tr> <tr> <td>4</td> <td>0.65</td> </tr> <tr> <td>5</td> <td>1.02</td> </tr> <tr> <td>6</td> <td>1.47</td> </tr> <tr> <td>8</td> <td>2.61</td> </tr> <tr> <td>10</td> <td>4.08</td> </tr> </tbody> </table>	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																	
Casing Diameter (in):	4"																	
Static Water Level (ft bmp):	133.89'																	
Casing Volume (gal):	89 gal x3 = 267 gal																	
Total Volume Purged (gal):	360	Casing Volume = gallons/foot * water column (feet)																

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0841	Pump On						
0846	5	15	75	7.29	21.2	560 460	Cloudy brown, odorless
0851	10	15	150	7.38	21.3	630	Less brown, still cloudy
0856	15	15	225	7.37	21.5	570	Colorless, clear, odorless
0901	20	15	300	7.34	21.4	450	
0905	24	15	360	—	—	—	off
							Pump Off

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

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
COB-MW-3	0909	Poly	250mL	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION

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

WELL PURGING INFORMATION

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

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 12-JUL-12
 Well ID: COB WL Weather: Partly cloudy, windy
 ADWR No: _____ Sampler: W/H

WELL DATA		
Well Depth (ft bls): <u>150'</u>	Casing Capacity	
Casing Diameter (in): <u>4"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>78.85'</u>	2	0.16
Casing Volume (gal): <u>51</u> x3 = <u>154</u>	4	0.65
Total Volume Purged (gal): <u>156</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>1405</u>	Pump On						
<u>1410</u>	<u>5</u>	<u>7</u>	<u>35</u>	<u>6.79</u>	<u>22.3</u>	<u>1180</u>	
<u>1415</u>	<u>10</u>	<u>1.5</u>	<u>50</u>	<u>6.90</u>	<u>21.9</u>	<u>1060</u>	Significant discharge Δ
<u>1425</u>	<u>20</u>	<u>1.5</u>	<u>85</u>	<u>7.27</u>	<u>22.3</u>	<u>1150</u>	
<u>1435</u>	<u>30</u>	<u>1.5</u>	<u>80</u>	<u>7.31</u>	<u>23.0</u>	<u>1160</u>	
<u>1445</u>	<u>40</u>	<u>1.5</u>	<u>95</u>	<u>7.17</u>	<u>23.0</u>	<u>1120</u>	
<u>1505</u>	<u>60</u>	<u>1.5</u>	<u>125</u>	<u>6.92</u>	<u>23.2</u>	<u>1080</u>	
<u>1515</u>	<u>70</u>	<u>1.5</u>	<u>140</u>	<u>7.00</u>	<u>23.1</u>	<u>1090</u>	
<u>1525</u>	<u>80</u>	<u>1.5</u>	<u>155</u>	<u>7.07</u>	<u>23.2</u>	<u>1060</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>COB WL</u>	<u>1530</u>	<u>Poly</u>	<u>250 mL</u>	<u>1</u>	<u>3000.0</u>	<u>NA</u>	<u>Y</u>

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

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

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 18 JUL 12
 Well ID: Cooper Weather: Partly cloudy, 90s
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>325</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): _____	2	0.16
Casing Volume (gal): _____ 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>1350</u>	Pump On						
<u>1355</u>	<u>5</u>	<u>8</u>	<u>40</u>	<u>7.44</u>	<u>22.9</u>	<u>420</u>	
<u>1400</u>	<u>10</u>	<u>8</u>	<u>80</u>	<u>7.42</u>	<u>22.9</u>	<u>420</u>	
<u>1405</u>	<u>15</u>	<u>8</u>	<u>120</u>	<u>7.45</u>	<u>22.9</u>	<u>430</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>Cooper</u>	<u>1408</u>	<u>Poly</u>	<u>250 ML</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

WATER LEVEL MEASUREMENT COLLECTION
<input 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: 1.0 Date: 11 JUL 12
 Well ID: Cooper C Weather: Hot, sunny
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>220'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>	2	0.16
	4	0.65
Static Water Level (ft bmp): <u>160.88'</u>	5	1.02
	6	1.47
Casing Volume (gal): <u>87</u> x3 = <u>261</u>	8	2.61
	10	4.08
Total Volume Purged (gal): <u>297.5</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>1504</u>	<u>Pump On</u>						
<u>1509</u>	<u>5</u>	<u>8.5</u>	<u>42.5</u>	<u>6.55</u>	<u>24.7</u>	<u>2050</u>	
<u>1514</u>	<u>10</u>	<u>8.5</u>	<u>85</u>	<u>6.69</u>	<u>23.8</u>	<u>2200</u>	
<u>1519</u>	<u>15</u>	<u>8.5</u>	<u>127.5</u>	<u>6.63</u>	<u>23.0</u>	<u>2040</u>	
<u>1524</u>	<u>20</u>	<u>8.5</u>	<u>170</u>	<u>6.63</u>	<u>22.4</u>	<u>2070</u>	
<u>1529</u>	<u>25</u>	<u>8.5</u>	<u>212.5</u>	<u>6.54</u>	<u>22.7</u>	<u>2020</u>	
<u>1534</u>	<u>30</u>	<u>8.5</u>	<u>255</u>	<u>6.50</u>	<u>23.2</u>	<u>2040</u>	
<u>1539</u>	<u>35</u>	<u>8.5</u>	<u>297.5</u>	<u>6.48</u>	<u>22.8</u>	<u>2050</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>Cooper C</u>	<u>1543</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: 1.0 Date: 11 JUL 12
 Well ID: Dodson Weather: Partly cloudy, windy
 ADWR No: _____ Sampler: VW4

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>From 7-12-11, 92.07'</u>	2	0.16
Casing Volume (gal): <u>160 x3 = 480 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
0850	Pump On						
0900	10	5	50	6.76	22.0	1820	
0910	20	5	100	6.90	21.8	1840	
0920	30	5	150	7.06	21.7	1850	
0930	40	5	200	7.07	21.7	1830	
0940	50	5	250	7.06	21.6	1820	
0950	60	5	300	7.07	21.5	1840	
1000	70	5	350	7.10	21.5	1810	
1020	90	5	450	7.09	21.7	1800	
1030	100	5	500	7.10	21.5	1790	Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Dodson	1034	Poly	250 mL	1	300.0	NA	Y

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

WELL PURGING INFORMATION
<input type="checkbox"/> Purged 3 well volumes and field parameters stabilized. <input 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: Used SWL from 7-12-11, 92.07'?
Sampled/purged from spigot on West side of house. Owner was away so everything was locked up.

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 5 JUL 12
 Well ID: Douglas 791 Weather: Overcast, drizzly, ~70
 ADWR No: _____ Sampler: VNH & MMC

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
Casing Diameter (in): _____	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>32.67 bmp</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: 1.0 Date: 5 JUL 12
 Well ID: Douglass 792 Weather: Overcast, drizzly, ~70
 ADWR No: _____ Sampler: VNH & 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): <u>95.64</u>	5	1.02
	6	1.47
Casing Volume (gal): _____ $\times 8 =$	8	2.61
	10	4.08
Total Volume Purged (gal): _____	Casing Volume = gallons/foot * water column (feet)	

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

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

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

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

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

Additional Comments: WLO

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 9 Jul 12
 Well ID: East Weather: Sunny, ~90's
 ADWR No: 265 Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>125'</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>70.50</u>	2	0.16
Casing Volume (gal): <u>80</u> x3 = <u>240</u>	4	0.65
Total Volume Purged (gal): <u>265</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>0926</u>	<u>Pump On</u>						
<u>0936</u>	<u>10</u>	<u>8.5</u>	<u>85</u>	<u>7.19</u>	<u>21.7</u>	<u>570</u>	
<u>0941</u>	<u>15</u>	<u>7.5</u>	<u>122.5</u>	<u>7.19</u>	<u>21.4</u>	<u>570</u>	
<u>0946</u>	<u>20</u>	<u>7.5</u>	<u>160</u>	<u>7.21</u>	<u>21.2</u>	<u>570</u>	
<u>0951</u>	<u>25</u>	<u>7.5</u>	<u>197.5</u>	<u>7.20</u>	<u>21.1</u>	<u>570</u>	
<u>0956</u>	<u>30</u>	<u>7.5</u>	<u>235</u>	<u>7.22</u>	<u>21.1</u>	<u>570</u>	
<u>1000</u>	<u>34</u>	<u>7.5</u>	<u>265</u>	<u>7.20</u>	<u>21.1</u>	<u>580</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>East</u>	<u>1004</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: 055038

Client: Freeport Copper Queen Branch

Task No: 100

Date: 17 Feb 12

Well ID: 8chave

Weather: Sunny, high 80s

ADWR No:

Sampler: JNH

WELL DATA	
Well Depth (ft bls):	345'
Casing Diameter (in):	6"
Static Water Level (ft bmp):	From Feb 1 st 2012 216.71'
Casing Volume (gal):	188' x 3 = 564
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)	
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FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1627	Pump On						
1647	20	7	140	7.43	22.0	410	
1707	40	7	280	7.52	22.4	430	
1727	60	7	420	7.42	22.3	400	
1747	80	7	560	7.44	22.2	430	
							Pump Off

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

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Echave	1752	Poly	250mL	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION

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

WELL PURGING INFORMATION

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

Additional Comments: USP 02-01-12 SWL = 246.71' due to obstruction
in well.

Groundwater Sampling Form

Project No: 055038

Client: Freeport Copper Queen Branch

Task No: 1.0

Date: 6 JUL 12

Well ID: EPPELE 6041

Weather: Partly cloudy, slight breeze, 70s

ADWR No:

Sampler: WA

WELL DATA	
Well Depth (ft bls):	265 ft
Casing Diameter (in):	8"
Static Water Level (ft bmp):	62.39
Casing Volume (gal):	529 x3 = 1587
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)	
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FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C) (°F)	Specific Conductance (μS/cm)	Comments
0901	Pump On						
0911	10	9	90	7.59	70.8	560	21.5°C
0921	20	11	200	7.65	70.9	560	21.6°C
0931	30	11	310	7.62	71.1	560	21.7°C
0941	40	11	420	7.64	71.1	570	21.7°C
0951	50	11	530	7.60	71.2	560	21.7°C
0952	51	Ø	530	—	—	—	Well = dry
							Pump Off

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

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
EPPELE 641	1022	Poly	250mL	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION

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

WELL PURGING INFORMATION

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

Additional Comments: Well pumped dry, wait 30min for recharge, then take sample

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 9/13/12
 Well ID: Franco 383 Weather: Sunny, 70's
 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
	5	1.02
Static Water Level (ft bmp): 195.19	6	1.47
	8	2.61
Casing Volume (gal): x3 =	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
Pump On							
1044				7.66	25.0	1005	
							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)
Franco	1047	Poly	250	1	300.0	N	Y

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

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

Additional Comments: Sample from tank. Run^{tl} pressurized tanks empty & pump inside pump house kicks on.

Groundwater Sampling Form

Project No: 055038

Client: Freeport Copper Queen Branch

Task No: 1.0

Date: 11 Jul 12

Well ID: Garner 557

Weather: Partly cloudy, breezy, hot

ADWR No:

Sampler: VN 11

WELL DATA			
		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Well Depth (ft bls):		2	0.16
Casing Diameter (in):		4	0.65
Static Water Level (ft bmp):	196.72'	5	1.02
		6	1.47
		8	2.61
Casing Volume (gal):	x3 =	10	4.08
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)	

[illegible]

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 μ S/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	
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28
29	30
31	32
33	34
35	36
37	38
39	40
41	42
43	44
45	46
47	48
49	50
51	52
53	54
55	56
57	58
59	60
61	62
63	64
65	66
67	68
69	70
71	72
73	74
75	76
77	78
79	80
81	82
83	84
85	86
87	88
89	90
91	92
93	94
95	96
97	98
99	100

- ☐ 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: 1.0 Date: 11/27/12
 Well ID: Garner 635 Weather: 90s, Partly cloudy, humid
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>680'</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>199.15</u>	2	0.16
Casing Volume (gal): <u>490</u> x3 = <u>1471 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>1200</u>	<u>Pump On</u>						
<u>1230</u>	<u>30</u>	<u>15</u>	<u>450</u>	<u>7.33</u>	<u>25.6</u>	<u>550</u>	
<u>1300</u>	<u>60</u>	<u>215</u>	<u>860</u>	<u>7.54</u>	<u>25.1</u>	<u>530</u>	
<u>1320</u>	<u>80</u>	<u>15</u>	<u>1200</u>	<u>7.50</u>	<u>25.2</u>	<u>540</u>	
<u>1340</u>	<u>100</u>	<u>15</u>	<u>1500</u>	<u>7.52</u>	<u>24.9</u>	<u>520</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>Garner 635</u>	<u>1343</u>	<u>Poly</u>	<u>250 mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>
<u>Dup 07/12/2012</u>	<u>1344</u>	<u>Poly</u>	<u>250 mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

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

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

Additional Comments: Re-calibrated Hanna Meter for correct EC
prior to taking field parameters. Prior to re-calibrating,
meter was in 10% off (too high)

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: _____ Date: 9-13-12
 Well ID: GOAR RANCH Weather: Sunny
 ADWR No: _____ Sampler: BSD

WELL DATA		
Well Depth (ft bls): <u>/</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>/</u>	2	0.16
Static Water Level (ft bmp): <u>190.08</u>	4	0.65
	5	1.02
Casing Volume (gal): <u>/ x3 =</u>	6	1.47
	8	2.61
	10	4.08
Total Volume Purged (gal): _____	Casing Volume = gallons/foot * water column (feet)	

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

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 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

- ☒ 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: Water level only

Groundwater Sampling Form

Project No:	Client: <u>Freeport Copper Queen Branch</u>
Task No:	Date: <u>7-11-12</u>
Well ID: <u>Hoban</u>	Weather: <u>Partly Cloudy</u>
ADWR No:	Sampler: <u>Christopher L. Shuman</u>

WELL DATA

		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Well Depth (ft bbs):	300	2	0.16
Casing Diameter (in):	5"	4	0.85
Static Water Level (ft bmp):	169.1	5	1.02
Casing Volume (gals):	133.6	6	1.47
		8	2.61
		10	4.08
3 Casing Volumes (gals):	401	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

[illegible]

SAMPLE INFORMATION

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
Hoban	0930	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

131

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 9/13/12
 Well ID: HOWARD NR Weather: Partly Cloudy 80
 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>156.29</u>	2	0.16
Casing Volume (gal): <u>64.25 x 3 = 193</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>1259</u>	<u>Pump On</u>						
<u>1309</u>		<u>11</u>	<u>110</u>	<u>7.21</u>	<u>22.2</u>	<u>1482</u>	
<u>1319</u>			<u>220</u>	<u>7.13</u>	<u>21.8</u>	<u>1553</u>	
<u>1329</u>			<u>330</u>	<u>7.12</u>	<u>21.9</u>	<u>1576</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>HOWARD NR</u>	<u>1335</u>	<u>Poly</u>	<u>250</u>	<u>1</u>	<u>300.0</u>	<u>N</u>	<u>✓</u>

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

WELL PURGING INFORMATION
<input 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:



WATER SAMPLE DATA LOG

Zonal Sampling

Howard - H_2S sampler

Project No.: 287608	Project:
Well No.: HOWARD	Date: 8/14/12
Location: Noveo Hwy	Weather:

WELL DATA

Total Depth of Well (ft bls):	Static Water Level (ft bls):	188.36 bms
Sample Interval (ft bls):	Date/Time:	
Tubing Diameter (in):	Pt. of Measurement:	
Borehole Diameter (in):		

FIELD SAMPLING DATA

[illegible]

Time Pumping Started: N/A

Airline depth:

psi / cfm of air package:

Total Discharge (gallons): 105

Sample ID:

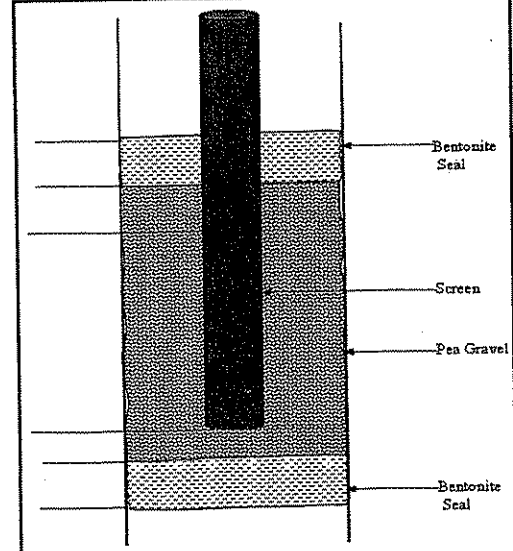
Sample Collected by:

How Sample Collected:

Date/Time of Sample Collection:

EC-T-pH Meter Type:

Additional Comments:



Groundwater Sampling Form

Project No: 055038

Client: Freeport Copper Queen Branch

Task No: 110

Date: 17-JUL

Well ID: Keefe

Weather: Sunny 80's

ADWR No:

Sampler: *VN4*

WELL DATA	
Well Depth (ft bls):	245'
Casing Diameter (in):	6"
Static Water Level (ft bmp):	140.69'
Casing Volume (gal):	153 x3 = 459
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
0913	Pump On						
0923	10	9.5	95	7.16	21.2	460	
0933	20	9.5	190	7.39	20.8	500	
0943	30	9.5	285	7.37	20.8	480	
0953	40	9.5	380	7.41	21.1	480	
1003	50	9.5	475	7.40	21.0	500	
							Pump Off

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 $\mu\text{S}/\text{cm}$)

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Keefe	1006	Poly	250mL	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION

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

WELL PURGING INFORMATION

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

Additional Comments:

Groundwater Sampling Form

Project No: 055038

Client: Freeport Copper Queen Branch

Task No: 1.0

Date: 13 JUL 12

Well ID: Marcell

Weather: Overcast, humid, hot

ADWR No:

Sampler: W A

WELL DATA			
Well Depth (ft bls):	Casing Capacity	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	6"	4	0.65
Static Water Level (ft bmp):	~180'	5	1.02
		6	1.47
		8	2.61
Casing Volume (gal):	100 x3 = 180 gal	10	4.08
Total Volume Purged (gal):	Casing Volume = gallons/foot * water column (feet)		

FIELD SAMPLING DATA

[illegible]

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

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Marcell	1107	Poly	250mL	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION

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

WELL PURGING INFORMATION

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

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 7/6/12
 Well ID: McCONNELL 2165 Weather: sunny, 80's
 ADWR No: _____ Sampler: MMU

WELL DATA		
Well Depth (ft bis): <u>216</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>162.36</u>	2	0.16
Casing Volume (gal): <u>79 x3 = 237</u>	4	0.65
	5	1.02
	6	1.47
	8	2.61
	10	4.08
Total Volume Purged (gal):	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1051	Pump On						
1101	10	10	100	6.87	22.3	1808	sulfur smell
1106	15	↓	150	6.83	22.1	1819	↓
1111	20	↓	200	6.80	22.5	1824	↓
1116	25	↓	250	6.88	22.4	1827	↓
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
McCONNELL 2165	1118	POLY	250	1	300.0	N	Y

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

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

Additional Comments:

WELL DEVELOPMENT RECORD

Well ID: McLone
ADWR Reg. No: _____
Page 1 of _____

Project Name: <u>Private Well Install CQB</u>	Project No.: <u>287008</u>	Site Address:	ADWR Registry No.:
Drilling Co.: <u>VTD, Duncan Pump</u>	Date Started: <u>7/27/12</u>	Date Finished:	
Geologist:	Measuring Point (M.P.): <u>Top of Sounding Tube</u>	Distance b/t land surface and M.P. (ft): <u>2.09</u>	
Total Cased Depth (ft bls):	Screen Interval (ft bls):		
Pump Type/Settling (ft bls): <u>420' bls</u>	Static Water Level (ft bls): <u>172.59 - 2.09 = 170.50</u>		
Method of Flow Rate (Q) Calculation: <u>In-line Flow Meter</u>	Sand Measurement Method:		

Water Quality Parameters

Date	Time	Activity (Bail, Swab, Pump)	Q (gpm)	Q _T (gal)	Sand Content (ml/l)	pH	Conductivity (us/cm)	Temp (F/C)	TDS (ppm)	Comments
7-27-12	0718	Pump	20			8.30	520.6	25.0		
	0730					8.22	552.4	25.5		
	0800					8.20	528.4	26.2		
	0820					8.18	522.8	26.9		
	0840					8.21	517.7	26.6		
	0900		20		None	8.18	517.1	26.8		
	0920					8.31	513.4	26.7		
	0940				None	8.24	511.8	26.7		
	1000					8.22	511.4	26.6		
	1020		19		None	8.25	510.0	26.5		

Groundwater Sampling Form

Project No:	055038	Client:	Freeport Copper Queen Branch
Task No:	1.0	Date:	7/6/12
Well ID:	METZLER	Weather:	sunny 80's
ADWR No:		Sampler:	MML

WELL DATA			
Well Depth (ft bls):	351	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	6	2	0.16
Static Water Level (ft bmp):	291.357	4	0.65
		5	1.02
		6	1.47
		8	2.61
Casing Volume (gal):	x3 =	10	4.08
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)	

[illegible]

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 μ S/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 checked="" type="checkbox"/>	Other: No Access

Additional Comments: Well has been disconnected from house.
No plumbing access to well, unable to collect Sulfate sample.

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 17 JUL 12
 Well ID: Moose Weather: Sunny, 70s
 ADWR No: _____ Sampler: WGH

WELL DATA		
Well Depth (ft bls): <u>220'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>	2	0.16
	4	0.65
Static Water Level (ft bmp): _____	5	1.02
	6	1.47
Casing Volume (gal): <u>x3 =</u>	8	2.61
	10	4.08
Total Volume Purged (gal): _____	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1051</u>	Pump On						
<u>1056</u>	<u>5</u>	<u>11.5</u>	<u>57.5</u>	<u>7.30</u>	<u>24.1</u>	<u>440</u>	
<u>1101</u>	<u>10</u>	<u>11.5</u>	<u>115</u>	<u>7.34</u>	<u>22.7</u>	<u>440</u>	
<u>1106</u>	<u>15</u>	<u>11.5</u>	<u>172.5</u>	<u>7.38</u>	<u>22.6</u>	<u>430</u>	
<u>1110</u>	<u>19</u>	<u>11.5</u>	<u>218.5</u>	<u>7.36</u>	<u>22.9</u>	<u>430</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>Moose</u>	<u>1114</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>
<u>DUP07172012</u>	<u>1115</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: 1.0 Date: 10 Jul 12
 Well ID: Ness Weather: Sunny, breezy, mid 80's
 ADWR No: _____ Sampler: WWT

WELL DATA		
Well Depth (ft bls): <u>812'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>5"</u>	2	0.16
	4	0.65
	5	1.02
Static Water Level (ft bmp): <u>From prev record 597.71</u>	6	1.47
	8	2.61
Casing Volume (gal): <u>218</u> x3 = <u>654</u>	10	4.08
Total Volume Purged (gal): _____	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>0957</u>	Pump On						
<u>1007</u>	<u>10</u>	<u>9.5</u>	<u>95</u>	<u>7.11</u>	<u>26.4</u>	<u>380</u>	
<u>1017</u>	<u>20</u>	<u>8.5</u>	<u>180</u>	<u>7.17</u>	<u>26.6</u>	<u>380</u>	
<u>1027</u>	<u>30</u>	<u>8.5</u>	<u>265</u>	<u>7.15</u>	<u>26.5</u>	<u>380</u>	
<u>1037</u>	<u>40</u>	<u>8.5</u>	<u>350</u>	<u>7.15</u>	<u>26.6</u>	<u>370</u>	
<u>1057</u>	<u>60</u>	<u>8.5</u>	<u>520</u>	<u>7.18</u>	<u>26.7</u>	<u>380</u>	
<u>1112</u>	<u>75</u>	<u>8.5</u>	<u>647.5</u>	<u>7.20</u>	<u>26.8</u>	<u>380</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>Ness</u>	<u>1122</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>
<u>Dup 07102012</u>	<u>1122</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

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

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

Additional Comments: Using SWL from 712-11, 597.71

Note: One of the booster pumps was leaking, which could explain the lower gpm.

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 9 Jul 12
 Well ID: Noteman Weather: Hot, humid, partly cloudy
 ADWR No: _____ Sampler: VN14

WELL DATA		
Well Depth (ft bls): <u>470'</u>	Casing Capacity	
Casing Diameter (in): <u>5"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>NA use last 327.54</u>	2	0.16
Casing Volume (gal): <u>145 gal x3 = 436</u>	4	0.65
Total Volume Purged (gal): <u>465 gal</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>1229</u>	<u>Pump On</u>						
<u>1239</u>	<u>10</u>	<u>11</u>	<u>110</u>	<u>6.51</u>	<u>25.1</u>	<u>1350</u>	
<u>1249</u>	<u>20</u>	<u>11</u>	<u>220</u>	<u>6.52</u>	<u>24.9</u>	<u>1360</u>	
<u>1259</u>	<u>30</u>	<u>11</u>	<u>330</u>	<u>6.54</u>	<u>24.7</u>	<u>1350</u>	
<u>1309</u>	<u>40</u>	<u>9</u>	<u>420</u>	<u>6.57</u>	<u>24.7</u>	<u>1360</u>	
<u>1314</u>	<u>45</u>	<u>9</u>	<u>465</u>	<u>-</u>	<u>-</u>	<u>-</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>Noteman</u>	<u>1316</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>
<u>DUP 07092012</u>	<u>1316</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 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: Based on previous record, SWL = 327.54'. Owner informed me of inability to measure.

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 18 JUL 12
 Well ID: NWC-02 Weather: Sunny, hot
 ADWR No: _____ Sampler: VN1

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						
1017				7.11	23.6	420	
1022				7.30	22.6	420	
1027				7.36	22.4	420	
1032				7.33	22.5	430	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NWC-02	1037	Poly	250 mL	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 checked="" type="checkbox"/> Other: <u>well has been pumping all morning</u>

Additional Comments: _____

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 18 JUL 12
 Well ID: NWC-03 Weather: Sunny, 80s
 ADWR No: _____ Sampler: VNH

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							
0910				6.86	23.0	1090	
0915				7.05	22.6	1070	
0920				7.05	22.1	1080	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NWC-03	0930	Poly	250 mL	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 checked="" type="checkbox"/> Purged well until field parameters stabilized. <input checked="" type="checkbox"/> Other: <u>Well has been pumping</u>

Additional Comments: well has been pumping ~ 15min

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: L0 Date: 18-JUL-12
 Well ID: NWL-03 CAP Weather: Sunny, 80s
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): _____	2	0.16
	4	0.65
Static Water Level (ft bmp): <u>135.73</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 0.2 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: LC Date: 18 JUL 12
 Well ID: NWC-04 Weather: Sunny, hot
 ADWR No: _____ Sampler: VNH

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							
0816				6.59	22.6	820	
0821				7.04	23.7	860	
0826				7.22	23.6	890	
0831				7.21	23.7	840	
0836				7.25	23.7	880	
							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	0841	Poly	250mL	1	300.0	NA	Y

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

WELL PURGING INFORMATION
<input 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 checked="" type="checkbox"/> Other: <u>Pump is off @ on</u>

Additional Comments: pump is off @ on

Flowmeter is hit or miss

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 8-28-12
 Well ID: NWC-04 Weather: Sunny, 80's
 ADWR No: _____ Sampler: 3 JD

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): _____	2	0.16
	4	0.65
	5	1.02
Static Water Level (ft bmp): <u> </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
<u>10:10</u>	Pump On						
<u>10:15</u>	<u>5</u>	<u>20</u>	<u>100</u>	<u>7.21</u>	<u>26.2</u>	<u>890.4</u>	
<u>10:20</u>	<u>10</u>	<u>20</u>	<u>200</u>	<u>7.43</u>	<u>24.8</u>	<u>888.4</u>	
<u>10:25</u>	<u>15</u>	<u>20</u>	<u>300</u>	<u>7.47</u>	<u>23.0</u>	<u>886.5</u>	
<u>10:30</u>	<u>20</u>	<u>20</u>	<u>400</u>	<u>7.99</u>	<u>24.2</u>	<u>873.3</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>Poly</u>	<u>250ml</u>	<u>1</u>	<u>300.0</u>	<u>Ø</u>	<u>Y</u>

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

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

Additional Comments: Well has been off and on today. Obstruction in sounding tube and well is pumping so no water level

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 9/13/12
 Well ID: NWNC-04 Weather: Partly Cloudy
 ADWR No: _____ Sampler: MMV

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): _____	2	0.16
	4	0.65
Static Water Level (ft bmp): <u>N/A</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							
<u>0948</u>				<u>7.31</u>	<u>23.6</u>	<u>914.3</u>	
<u>0955</u>				<u>7.41</u>	<u>23.9</u>	<u>878.5</u>	
<u>1009</u>				<u>7.40</u>	<u>23.9</u>	<u>883.7</u>	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>NWNC-04</u>	<u>1009</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 checked="" type="checkbox"/> Purged well until field parameters stabilized. <input type="checkbox"/> Other: _____

Additional Comments: Myron Ultrameter II

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 10/06/12
 Well ID: NWC-06 Weather: Sunny hot
 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
	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							
0947				7.07	23.8	390	
0952				7.30	22.9	380	
0957				7.36	22.8	380	
1002				7.39	22.8	380	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NWC-06	1006	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 checked="" type="checkbox"/> Other: <u>Well is pumping</u>

Additional Comments: _____

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 160 Date: 10-Jul-2012
 Well ID: Palmer Weather: Sunny, breezy 90s
 ADWR No: _____ Sampler: UNIT

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							
				7.30	27.9	390	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Palmer</u>	<u>1216</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>

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

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

Additional Comments:

Groundwater Sampling Form

Project No: 055038

Client: Freeport Copper Queen Branch

Task No: 1.0

Date: 9 JUL 12

Well ID: Kanagako5

Weather: Sunny, hot ~94° F

ADWR No:

Sampler: VNH

WELL DATA		
		Casing Capacity
		Nominal Size (inches)
Well Depth (ft bls):	200'	
Casing Diameter (in):	6"	
Static Water Level (ft bmp):	170.38'	
Casing Volume (gal):	44 gal x 3 = 132 gal	
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
1109	Pump On						
1114	5	9	45	6.70	24.2	1210	
1119	10	9	90	6.79	22.6	1060	
1124	15	9	135	6.81	22.3	1110	
1129	20	9	180	6.82	22.2	1140	
1130	21	—	189	—	—	—	Pump off
							Pump Off

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

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Panagakos	1134	Poly	250mL	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION

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

WELL PURGING INFORMATION

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

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 18J0212
 Well ID: Parra Weather: Sunny, 90s
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>355'</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): _____	2	0.16
Casing Volume (gal): _____	4	0.65
Total Volume Purged (gal): <u>180 gal</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>1150</u>	Pump On						
<u>1155</u>	<u>5</u>	<u>12</u>	<u>60</u>	<u>6.90</u>	<u>22.6</u>	<u>1200</u>	
<u>1200</u>	<u>10</u>	<u>12</u>	<u>120</u>	<u>7.02</u>	<u>22.4</u>	<u>1210</u>	
<u>1205</u>	<u>15</u>	<u>12</u>	<u>180</u>	<u>7.03</u>	<u>22.6</u>	<u>1210</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>Parra</u>	<u>1208</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>
<u>DUP07182012</u>	<u>1208</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: 1.0 Date: 11 JUL 12
 Well ID: Pionke Weather: Partly Cloudy, Hot, Breezy
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>300'</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>154.97'</u>	2	0.16
Casing Volume (gal): <u>213</u> x3 = <u>639</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>1640</u>	<u>Pump On</u>						
<u>1650</u>	<u>10</u>	<u>6.5</u>	<u>65</u>	<u>6.81</u>	<u>26.7</u>	<u>1310</u>	<u>Semi-tan, cloudy, no odor</u>
<u>1700</u>	<u>20</u>	<u>7.5</u>	<u>140</u>	<u>6.98</u>	<u>23.7</u>	<u>1360</u>	<u>" "</u>
<u>1720</u>	<u>40</u>	<u>7.5</u>	<u>290</u>	<u>6.98</u>	<u>23.3</u>	<u>1310</u>	<u>" "</u>
<u>1740</u>	<u>60</u>	<u>7.5</u>	<u>440</u>	<u>6.83</u>	<u>23.7</u>	<u>1230</u>	<u>Clear, odorless</u>
<u>1800</u>	<u>80</u>	<u>7.5</u>	<u>590</u>	<u>6.99</u>	<u>23.0</u>	<u>1240</u>	
<u>1810</u>	<u>90</u>	<u>7.5</u>	<u>665</u>	<u>6.59</u>	<u>22.9</u>	<u>1280</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>Pionke</u>	<u>1815</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>MA</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: Used spigot on W. Side of house for purge
sample.

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 9/18/12
 Well ID: PIONKE 517 Weather: Sunny
 ADWR No: _____ Sampler: Jamie Johnson

WELL DATA		
Well Depth (ft bis): <u>609</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>5</u>	2	0.16
	4	0.65
Static Water Level (ft bmp): <u>152</u>	5	1.02
	6	1.47
Casing Volume (gal): <u>466 x3 = 1398</u>	8	2.61
	10	4.08
Total Volume Purged (gal): _____	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1205</u>	<u>Pump On</u>						
<u>1235</u>	<u>30</u>	<u>17</u>	<u>510</u>	<u>7.88</u>	<u>23.7</u>	<u>399.0</u>	<u>clear</u>
<u>1305</u>	<u>60</u>	<u>17</u>	<u>1020</u>	<u>7.94</u>	<u>23.2</u>	<u>397.1</u>	
<u>1315</u>	<u>70</u>	<u>17</u>	<u>1190</u>	<u>7.92</u>	<u>23.1</u>	<u>396.6</u>	
<u>1320</u>	<u>75</u>	<u>17</u>	<u>1275</u>	<u>7.92</u>	<u>22.8</u>	<u>399.6</u>	
<u>1325</u>	<u>80</u>	<u>17</u>	<u>1360</u>	<u>7.91</u>	<u>23.2</u>	<u>397.6</u>	
<u>1330</u>	<u>85</u>	<u>17</u>	<u>1445</u>	<u>7.91</u>	<u>23.4</u>	<u>395.8</u>	
<u>1338</u>	<u>93</u>	<u>17</u>	<u>1581</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>PIONKE 517</u>	<u>1336</u>	<u>plastic</u>	<u>250 ml</u>	<u>1</u>	<u>300.8</u>	<u>NP</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: mp = top of sounding tube (2.75' stick up)

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 7/6/12
 Well ID: Ramirez Weather: sunny 80's
 ADWR No: _____ Sampler: MML

WELL DATA		
Well Depth (ft bls): <u>300</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>163.85</u>	2	0.16
Casing Volume (gal): <u>201 x 3 = 603</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
1251	Pump On						
1301	10	10	100	7.31	23.7	422.7	
1311	20		200	7.31	24.0	423.5	
1321	30		300	7.37	23.8	419.9	
1331	40		400	7.32	24.0	417.8	
1341	50		500	7.33	23.9	416.9	
1351	60	↓	600	7.32	24.2	415.7	
							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)
RAMIREZ	1356	POLY	250	1	300.0	N	Y

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

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

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 6 JUL 12
 Well ID: RAY Weather: Sunny, 80s
 ADWR No: _____ Sampler: VNH

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>58.75'</u>	2	0.16
Casing Volume (gal): <u>61 x 3 = 183 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/°F)	Specific Conductance (µS/cm)	Comments
<u>1055</u>	<u>Pump On</u>						
<u>1100</u>	<u>5</u>	<u>7</u>	<u>35</u>	<u>7.13</u>	<u>73.0</u>	<u>1420</u>	<u>22.7°C</u>
<u>1105</u>	<u>10</u>	<u>7</u>	<u>70</u>	<u>7.11</u>	<u>72.6</u>	<u>1420</u>	<u>22.5°C</u>
<u>1110</u>	<u>15</u>	<u>7</u>	<u>105</u>	<u>7.11</u>	<u>72.1</u>	<u>1430</u>	<u>22.3°C</u>
<u>1115</u>	<u>20</u>	<u>7</u>	<u>140</u>	<u>7.11</u>	<u>72.1</u>	<u>1440</u>	<u>22.3°C</u>
<u>1120</u>	<u>25</u>	<u>7</u>	<u>175</u>	<u>7.11</u>	<u>71.7</u>	<u>1430</u>	<u>22.1</u>
<u>1122</u>	<u>27</u>	<u>2</u>	<u>189</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>Pump 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>Ray</u>	<u>1129</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: Discharged water to tree in yard per owner request.

Groundwater Sampling Form

Project No: 055038

Client: Freeport Copper Queen Branch

Task No: 1.0

Date: 10/20/12

Well ID: Rogers 596

Weather: Overcast, humid, hot

ADWR No:

Sampler: Wt

WELL DATA																		
Well Depth (ft bls):		<table border="1"> <thead> <tr> <th colspan="2">Casing Capacity</th> </tr> <tr> <th>Nominal Size (inches)</th> <th>Gallons per Linear Foot</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>0.16</td> </tr> <tr> <td>4</td> <td>0.65</td> </tr> <tr> <td>5</td> <td>1.02</td> </tr> <tr> <td>6</td> <td>1.47</td> </tr> <tr> <td>8</td> <td>2.61</td> </tr> <tr> <td>10</td> <td>4.08</td> </tr> </tbody> </table>	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																	
Casing Diameter (in):																		
Static Water Level (ft bmp):	139.65																	
Casing Volume (gal):	x3 =																	
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)																

FIELD SAMPLING DATA

[illegible]

~~FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 μ S/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: 1.0 Date: 13 JUL 12
 Well ID: Rogers 803 Weather: Overcast hot humid
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>140'</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): _____	2	0.16
	4	0.65
Static Water Level (ft bmp): <u>139.65 From Rogers 596</u>	5	1.02
	6	1.47
Casing Volume (gal): _____ x3 = _____	8	2.61
	10	4.08
Total Volume Purged (gal): <u>24</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>1240</u>	Pump On						
<u>1242</u>	<u>2</u>	<u>7.5</u>	<u>15</u>	<u>7.09</u>	<u>25.7</u>	<u>720</u>	
<u>1245</u>	<u>5</u>	<u>7.5</u>	<u>16.8</u>	<u>7.20</u>	<u>24.4</u>	<u>670</u>	
<u>1250</u>	<u>10</u>	<u>.6</u>	<u>19.8</u>	<u>7.26</u>	<u>24.1</u>	<u>740</u>	
<u>1255</u>	<u>15</u>	<u>.6</u>	<u>22.8</u>	<u>7.26</u>	<u>24.0</u>	<u>820</u>	
<u>1257</u>	<u>17</u>	<u>.6</u>	<u>24</u>	<u>—</u>	<u>—</u>	<u>—</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>Rogers 803</u>	<u>1306</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>Y</u>
<u>DUP07132012</u>	<u>1317</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: 055038 Client: Freeport Copper Queen Branch
 Task No: 10 Date: 17 JUL 12
 Well ID: Rogers E Weather: Partly Cloudy, 90's
 ADWR No: _____ Sampler: VNH

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>155.10</u>	2	0.16
Casing Volume (gal): <u>198 x3 = 594</u>	4	0.65
Total Volume Purged (gal): <u>600</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
1438	Pump On						
1448	10	10	100	7.36	23.3	430	
1458	20	10	200	7.33	22.8	440	
1508	30	10	300	7.36	22.7	430	
1518	40	10	400	7.36	22.7	440	
1528	50	10	500	7.35	22.5	420	
1538	60	10	600	7.32	22.7	420	
							Pump Off

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Rogers E	1541	Poly	250mL	1	300.0	NA	Y

WATER LEVEL MEASUREMENT COLLECTION

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

WELL PURGING INFORMATION

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

Additional Comments: _____

Groundwater Sampling Form

Project No: 055038

Client: Freeport Copper Queen Branch

Task No: 1.0

Date: 18 JUL 12

Well ID: *Rv17*

Weather: Hot, sunny, high 90s

ADWR No:

Sampler: VN41

WELL DATA			
Well Depth (ft bls):	312'	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):	From 4/11/11 297.20'	10	4.08
Casing Volume (gal):	22 x3 = 66	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
1251	Pump On						
1256	5	4.5	22.5	6.91	21.7	890	
1301	10	4.5	45	6.73	21.8	910	
1306	15	4.5	67.5	6.87	21.6	900	
							Pump Off

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

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Bwiz	1309	Poly	250mL	1	300.0	NA	y

WATER LEVEL MEASUREMENT COLLECTION

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

WELL PURGING INFORMATION

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

Additional Comments: Used SWC from 4/6/11 = 297.20

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 16 JUL 12
 Well ID: Schwartz Weather: Overcast, 80s
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>305'</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>128.84'</u>	2	0.16
Casing Volume (gal): <u>259 x3 = 777</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>1315</u>	<u>Pump On</u>						
<u>1325</u>	<u>10</u>	<u>10</u>	<u>100</u>	<u>7.26</u>	<u>21.9</u>	<u>740</u>	
<u>1345</u>	<u>30</u>	<u>10</u>	<u>300</u>	<u>7.29</u>	<u>21.9</u>	<u>720</u>	
<u>1405</u>	<u>50</u>	<u>10</u>	<u>500</u>	<u>7.28</u>	<u>22.0</u>	<u>710</u>	
<u>1425</u>	<u>70</u>	<u>10</u>	<u>700</u>	<u>7.27</u>	<u>22.0</u>	<u>710</u>	
<u>1435</u>	<u>80</u>	<u>10</u>	<u>800</u>	<u>7.31</u>	<u>21.9</u>	<u>710</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>Schwartz</u>	<u>1440</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:	1.0	Date:	9-7-06/12
Well ID:	Stephens	Weather:	Sunny, $\approx 90^{\circ}\text{F}$
ADWR No:		Sampler:	VNH

WELL DATA		
Well Depth (ft bls):	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	2	0.16
	4	0.65
	5	1.02
Static Water Level (ft bmp): 10.69'	6	1.47
	8	2.61
Casing Volume (gal): x3 =	10	4.08
Total Volume Purged (gal):	Casing Volume = gallons/foot * water column (feet)	

[illegible]

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 μ S/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: Stephens property @ corner of Cactus Ln & Border Rd in Bisbee Junction. On east side of Cactus Ln.
WLD taken @ well next to Blue tank, near driveway gate on Cactus Ln side of property

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 9 JUL 12
 Well ID: Sunbelt Weather: Overcast, hot, humid
 ADWR No: _____ Sampler: WHL

WELL DATA		
Well Depth (ft bls): _____	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): _____	2	0.16
	4	0.65
Static Water Level (ft bmp): <u>DRY</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 0.2 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 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: 1.0 Date: 10/10/12
 Well ID: Swan Weather: Sunny, breezy, 90s
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bis): <u>98'</u>	Casing Capacity	
Casing Diameter (in): <u>4"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>40.39'</u>	2	0.16
Casing Volume (gal): <u>26</u> x3 = <u>79</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>1302</u>	<u>Pump On</u>						
<u>1305</u>	<u>3</u>	<u>11</u>	<u>33</u>	<u>6.89</u>	<u>26.8</u>	<u>360</u>	
<u>1310</u>	<u>8</u>	<u>11</u>	<u>88</u>	<u>6.96</u>	<u>23.8</u>	<u>360</u>	
<u>1318</u>	<u>16</u>	<u>11</u>	<u>176</u>	<u>6.96</u>	<u>23.0</u>	<u>370</u>	
<u>1322</u>	<u>20</u>	<u>11</u>	<u>220</u>	<u>7.00</u>	<u>22.7</u>	<u>370</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>Swan</u>	<u>1326</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: Discharge less than last year and well needed twice the time to stabilize

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	8-13-12
Well ID:	TM-2A	Weather:	Sunny
ADWR No:		Sampler:	Christopher J. Spivak

WELL DATA

Well Depth (ft bbs):	925	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
		4	0.85
		5	1.02
		6	1.47
Casing Diameter (in):	4"	8	2.51
Static Water Level (ft bmp):	344.53	10	4.58
Casing Volume (gals):	372.7	Casing Volume = gallons/foot * water column (feet)	
3 Casing Volumes (gals):	1133.1		

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1300							
1305	5	25	32		24.6	349	
1400	1.0	6.5	450	7.55	24.7	349	
1430	100	3.7	670	7.65			
1530	160	6.86		7.69	24.6	348	
1610	200	1.75	912				Break Section
1615							
							479.75
0800							
0820	20	5.5	110	7.61	24.6	360	
0840	40	5.5	220	7.64	24.6	363	
0900							

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
TM-2A	0900	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

580.5

479.75

Groundwater Sampling Form

Project No:	Client: Freeport Copper Queen Branch
Task No:	Date: 7-9-12
Well ID: TM-6	Weather: Partly Cloudy
ADWR No:	Sampler: Christopher L. Stinson

WELL DATA

Well Depth (ft bbs): 200'	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): 4"	2	0.16
Static Water Level (ft bmp): 161.4	4	0.85
Casing Volume (gals): 25	5	1.02
3 Casing Volumes (gals): 75	6	1.47
	8	2.61
	10	4.08
Casing Volume = gallons/foot * water column (feet)		

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1420							
1425	5	11.5	57	6.80	21.0	517	
1430	10	11.5	115	6.81	20.8	509	
1435	15	11.5	172	6.82	20.8	505	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
TM-6	1435	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

38-L

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	8-13-12
Well ID:	TM-7	Weather:	Sunny
ADWR No:		Sampler:	Christopher L Sherman

WELL DATA

Well Depth (ft bbs):		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):		2	0.16
Static Water Level (ft bmp):	TM-7	4	0.65
Casing Volume (gals):		5	1.02
3 Casing Volumes (gals):		6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
0945							
0947	2	10	20	6.73	20.9	687	
0957							
0959	4	10	40	6.80	21.0	400	
1009							
1011	6	10	60	6.84	21.4	405	
1017							
1023	8	10	80	6.83	21.7	415	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
TM-7	1023	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1 Date: 9/13/12
 Well ID: TM-10 USBP Weather: Sunny 70's
 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>278.30</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
Pump On							
1209 1269				8.16	21.2	403.4	clear, light brown tint
1219				8.13	21.5	405.7	
1229				8.12	21.2	406.8	
1239				8.09	21.1	407.0	
							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)
TM-10 USBP	1239	Poly	250	1	300.0	N	Y

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

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

Additional Comments: _____

Groundwater Sampling Form

Project No:		Client:	Fresport Copper Queen Branch
Task No:		Date:	7-10-12
Well ID:	TM-15	Weather:	Sunny
ADWR No:		Sampler:	Christopher L. Storm

WELL DATA

Well Depth (ft bbs):	325	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
		4	0.63
		5	1.02
		6	1.47
Casing Diameter (in):	4"	8	2.61
Static Water Level (ft bmp):	NA	10	4.88
Casing Volume (gals):		Casing Volume = gallons/foot * water column (feet)	
3 Casing Volumes (gals):			

FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1200							
1220	20	2	140	6.93	24.3	376	
1240	40	2	280	7.01	23.8	378	
1300	60	7	420	7.04	23.7	379	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
TM-15	1300	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

Airline BO, Broken sounder line in place

Groundwater Sampling Form

Project No:	Client: <u>Freeport Copper Queen Branch</u>
Task No:	Date: <u>7-9-12</u>
Well ID: <u>TM-16</u>	Weather: <u>Sunny 97</u>
ADWR No:	Sampler: <u>Christopher L. Sherman</u>

WELL DATA

WELL DATA		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Well Depth (ft bls):	11.5	2	0.16
Casing Diameter (in):	4"	4	0.85
Static Water Level (ft bmp):	72.55	5	1.02
Casing Volume (gals):	27.5	6	1.47
		8	2.61
		10	4.08
3 Casing Volumes (gals):	82.5	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA

[illegible]

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
TM-16	1215	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

92.5

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	7/1/12
Well ID:	TM-19A	Weather:	Partly Cloudy
ADWR No:		Sampler:	Christopher L. Duran

WELL DATA

Well Depth (ft bis):	700	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	4"	2	0.16
Static Water Level (ft bmp):	204.75	4	0.63
Casing Volume (gals):	322	5	1.02
3 Casing Volumes (gals):	966	6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water 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							
1215	15	25	375	7.07	23.5	506	
1225	25	25	625	7.10	23.5	507	
1240	40	25	1000	7.12	23.5	505	

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
TM-19A	1240	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

4/26/12

Groundwater Sampling Form

Project No:		Client:	Freeport Copper Queen Branch
Task No:		Date:	7-11-12
Well ID:	TM-42	Weather:	Partly Cloudy
ADWR No:		Sampler:	Christopher L. Slattery

WELL DATA

Well Depth (ft bbs):	250'	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	5"	2	0.16
Static Water Level (ft bmp):	216.10	4	0.85
Casing Volume (gals):	34.6	5	1.02
3 Casing Volumes (gals):	103.8	6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water 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							
0625	10	5	50	6.75	26.1	1169	
0635	20	5	100	6.71	26.2	1152	
0645	30	5	150	6.72	26.1	1155	
0655	40	5	200				

SAMPLE INFORMATION

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Comments
TM-42	0645	plastic	250 ml	1	EPA 300.0	none	filtered

Additional Comments:

Calibrated Meter

TS 34

Groundwater Sampling Form

Project No: 055038 Client: Freeport Copper Queen Branch
 Task No: 1.0 Date: 16 JUL 12
 Well ID: TVI 236 Weather: Partly Cloudy, breezy
 ADWR No: _____ Sampler: VAA

WELL DATA		
Well Depth (ft bls): <u>222.</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>12"</u>	2	0.16
Static Water Level (ft bmp): <u>127.81</u>	4	0.65
	5	1.02
Casing Volume (gal): <u>600</u> x3 = <u>1800</u>	6	1.47
	8	2.61
	10	4.08
Total Volume Purged (gal):	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1530</u>	<u>Pump On</u>						
<u>1535</u>	<u>5</u>	<u>100</u>	<u>500</u>	<u>7.12</u>	<u>22.0</u>	<u>540</u>	
<u>1540</u>	<u>10</u>	<u>100</u>	<u>1000</u>	<u>7.29</u>	<u>21.3</u>	<u>530</u>	
<u>1545</u>	<u>15</u>	<u>100</u>	<u>1500</u>	<u>7.30</u>	<u>21.1</u>	<u>500</u>	
<u>1550</u>	<u>20</u>	<u>100</u>	<u>2000</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>Issues w/hose bib</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>TVI 236</u>	<u>1555</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: Measured SWL inside old windmill bldg

Groundwater Sampling Form

Project No: 055038

Client: Freeport Copper Queen Branch

Task No: 1.0

Date: 16 Feb 12

Well ID: TVI 713

Weather: Partly Cloudy, hot

ADWR No:

Sampler: VNH

WELL DATA			
		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Well Depth (ft bls):		2	0.16
Casing Diameter (in):		4	0.65
Static Water Level (ft bmp):	131.97	5	1.02
		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

[illegible]

FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.2 su pH, 2 degrees C, and 200 μ S/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: WL G

Groundwater Sampling Form

Project No: 055038

Client: Freeport Copper Queen Branch

Task No:

Date:

Well ID:

Weather:

ADWR No:

Sampler:

WELL DATA		
Well Depth (ft bls):	330'	
Casing Diameter (in):	8"	
Static Water Level (ft bmp):		
Casing Volume (gal):	x3 =	
Total Volume Purged (gal):		

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

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

[illegible]

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

SAMPLE INFORMATION							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TVI 875	1840	Poly	250 mL	1	300.0	NA	Y
DUP 071507012	1840	Poly	250 mL	1	300.0	NA	Y

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

WELL PURGING INFORMATION	
<input 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: h.o Date: 5 JUL 12
 Well ID: Weed Weather: Overcast, windy, ~70
 ADWR No: _____ Sampler: UNH & MML

WELL DATA		
Well Depth (ft bls): <u>320</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): _____	2	0.16
	4	0.65
Static Water Level (ft bmp): <u>NA</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
<u>1548</u>	<u>Pump On</u>						
<u>1553</u>	<u>7</u>	<u>3</u>	<u>21</u>	<u>7.53</u>	<u>22.1</u>	<u>385.2</u>	
<u>1600</u>	<u>12</u>	<u>3</u>	<u>36</u>	<u>7.51</u>	<u>22.0</u>	<u>385.1</u>	
<u>1605</u>	<u>17</u>	<u>3</u>	<u>51</u>	<u>7.71</u>	<u>21.9</u>	<u>385.6</u>	
<u>1610</u>	<u>22</u>	<u>3</u>	<u>66</u>	<u>7.64</u>	<u>21.7</u>	<u>385.8</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)

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: 1.0 Date: 13 Jul 12
 Well ID: Weiskopf Weather: Partly cloudy, 80°F
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>200'</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>149.79'</u>	2	0.16
Casing Volume (gal): <u>74</u> x3 = <u>222</u>	4	0.65
	5	1.02
	6	1.47
	8	2.61
	10	4.08
Total Volume Purged (gal):	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>0842</u>	<u>Pump On</u>						
<u>0852</u>	<u>10</u>	<u>6.5</u>	<u>65</u>	<u>6.92</u>	<u>22.6</u>	<u>1350</u>	<u>Water has fishy odor</u>
<u>0902</u>	<u>20</u>	<u>6.5</u>	<u>130</u>	<u>6.99</u>	<u>22.1</u>	<u>1440</u>	<u>" "</u>
<u>0912</u>	<u>30</u>	<u>6.5</u>	<u>195</u>	<u>6.79</u>	<u>22.1</u>	<u>1360</u>	<u>" "</u>
<u>0917</u>	<u>35</u>	<u>6.5</u>	<u>227.5</u>	<u>6.83</u>	<u>22.2</u>	<u>1530</u>	<u>" "</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>Weiskopf</u>	<u>0924</u>	<u>Poly</u>	<u>250mL</u>	<u>1</u>	<u>30CLU</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: 1.0 Date: 17 Jul 12
 Well ID: Zander Weather: Partly cloudy, hot 80s
 ADWR No: _____ Sampler: VNH

WELL DATA		
Well Depth (ft bls): <u>280</u>	Casing Capacity	
Casing Diameter (in): <u>6"</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>150.63'</u>	2	0.16
Casing Volume (gal): <u>190</u> x3 = <u>570</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>1155</u>	Pump On						
<u>1205</u>	<u>10 min</u>	<u>11.0</u>	<u>110</u>	<u>7.24</u>	<u>22.2</u>	<u>440</u>	
<u>1215</u>	<u>20</u>	<u>11</u>	<u>220</u>	<u>7.39</u>	<u>22.0</u>	<u>430</u>	
<u>1225</u>	<u>30</u>	<u>11</u>	<u>330</u>	<u>7.33</u>	<u>22.0</u>	<u>420</u>	
<u>1235</u>	<u>40</u>	<u>11</u>	<u>440</u>	<u>7.34</u>	<u>22.2</u>	<u>430</u>	
<u>1245</u>	<u>50</u>	<u>11</u>	<u>550</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>Zander</u>	<u>1252</u>	<u>Poly</u>	<u>250 mL</u>	<u>1</u>	<u>300.0</u>	<u>NA</u>	<u>✓</u>

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

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

Additional Comments:
