

**THIRD QUARTER 2014  
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:

**FREEMPORT MINERALS CORPORATION  
COPPER QUEEN BRANCH**  
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Bisbee, Arizona 85603

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October 22, 2014

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GROUNDWATER MONITORING REPORT**

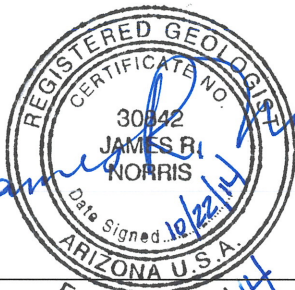
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36 West Highway 92  
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Approved by:



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October 22, 2014

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## 1. INTRODUCTION

This report provides the results of groundwater monitoring conducted by Freeport Minerals Corporation (formerly Freeport-McMoRan Corporation), Copper Queen Branch (CQB) in the third quarter 2014 in the vicinity of the Concentrator Tailing Storage Area (CTSA). Groundwater monitoring is conducted pursuant to Tasks 1 (well inventory of drinking water wells) and 2.2 (groundwater monitoring) of the Work Plan (Hydro Geo Chem, Inc. [HGC], 2008) (and subsequent modifications) to characterize sulfate in the vicinity of the CTSA. The Work Plan was initially submitted to Arizona Department of Environmental Quality (ADEQ) on December 17, 2007 pursuant to the Mitigation Order on Consent Docket No. P-121-07 (ADEQ, 2007). CQB initiated water sampling prior to work plan approval while ADEQ was commenting on the Work Plan and CQB was responding to their comments. Revision 1 of the Work Plan was submitted to ADEQ on July 3, 2008 and ADEQ approved the Work Plan on August 3, 2008. On January 25, 2010 CQB proposed a revised groundwater monitoring program (CQB, 2010). The revised monitoring program was approved by ADEQ in April 2010 (ADEQ, 2010). Clear Creek Associates (Clear Creek) prepared this groundwater monitoring report on behalf of CQB.

### 1.1 Scope of Groundwater Monitoring

The objectives of groundwater monitoring are:

- Determination of the sulfate concentration in drinking water supply wells within a one-mile radius of the sulfate plume's outer edge 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 methods described in the Work Plan have been retained throughout the groundwater monitoring program. Table 1 provides the schedule for the groundwater monitoring program. Dissolved sulfate is the only constituent monitored.

Figure 1 presents a geologic map (Hayes and Landis, 1964) of the study area and well locations where data reported herein have been collected. The well locations are identified by name on Figure 2. Table 2 lists the sampling status of wells scheduled under the groundwater monitoring program for sampling in the third quarter 2014 and any additional wells where data were collected. The collection of groundwater samples was conducted by CQB and Clear Creek personnel. Groundwater sampling and analysis methods used by CQB and Clear Creek are described in the Quality Assurance Project Plan (QAPP) contained in Appendix F of the Work Plan (HGC, 2008). Results of groundwater monitoring are in Section 2.

The monitoring purpose listed on Table 2 was updated in the first quarter 2014 to reflect the current well usage. Current well usage was based on an updated well inventory submitted to ADEQ in June 2014 (Clear Creek, 2014). Drinking water supply wells are monitored under the Well Inventory task (Task 1.1) of the Mitigation Order Work Plan. All other wells are monitored to determine hydrologic conditions and the plume extent pursuant to the groundwater monitoring task (Task 2.2) of the Work Plan.

## 2. GROUNDWATER MONITORING RESULTS

### 2.1 Results of Monitoring

Analytical results and groundwater elevation data for the third quarter 2014 are tabulated in Tables 3 and 4, respectively, along with the results of previous monitoring under the Mitigation Order. Figure 3 shows the concentrations of dissolved sulfate in the well water samples. The highest sulfate concentration measured at co-located wells was used for concentration contouring. Figure 4 shows groundwater elevations in the third quarter 2014. Groundwater elevations were calculated using depth to water measurements made under static (non-pumping) conditions whenever possible. The most recent measuring point elevation data for each well was used to calculate groundwater elevations in Table 4. At wells with multiple samples or water levels during the third quarter 2014, the most recent data are shown on the figures.

### 2.2 Quality Assurance/Quality Control Review

Pursuant to Section 6.4 of the QAPP, a data verification report was prepared for quality assurance and quality control purposes. The data verification report, analytical laboratory reports, and groundwater sampling forms for samples collected by Clear Creek and CQB during the third quarter 2014 are included in Appendices A, B, and C, respectively. As determined by the data verification review, the analytical results for samples collected in the third quarter 2014 are of acceptable quality for use in activities conducted pursuant to the Mitigation Order.

### 3. FINDINGS

In the third quarter of 2014, groundwater samples were collected from 80 wells and depth to water measurements were collected in 81 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 2014 and historical groundwater monitoring are described below.

- Sulfate concentration data indicate that the plume extends from the vicinity of the former evaporation pond (Figure 2) southwest to the vicinity of Naco and south to the vicinity of Bisbee Junction (Figure 3). The groundwater monitoring data indicate that the sulfate plume extends over an oblong area of approximately 2 miles by 3.9 miles and is contained primarily in the basin fill and undifferentiated Bisbee Group except near the former evaporation pond where wells in the Glance Conglomerate have sulfate concentrations greater than 250 mg/L. The extent of the sulfate plume and the sulfate contours as drawn on Figure 3 are based on both historical and current sulfate concentration data. Historical sulfate concentration data are available in this and previous groundwater monitoring reports and in the Aquifer Characterization Report (Clear Creek, 2010).
- Comparison of the third quarter 2014 sulfate concentrations with previous quarters indicates no large scale change in the plume geometry (represented by the position of the 250 mg/L sulfate concentration contour) since the Mitigation Order sampling began in 2008, although concentration contours within the plume have been modified to reflect current concentrations.
- Figure 5 shows sulfate concentrations through time at public drinking water supply wells. Sulfate concentrations have remained relatively stable over time at AWC-02, AWC-04, AWC-05, NWC-02, and NWC-06. The sulfate concentration at AWC-03 increased from 41 mg/L to 69.1 mg/L between 2008 and 2014. There is an increasing trend in the sulfate concentrations in NWC-04 from March 2008 to February 2013; however concentrations are highly variable from month to month. The concentration at NWC-04 has shown a decreasing trend since February 2013, and ranged between 163 and 198 mg/L in 2014.
- Groundwater elevations decrease from east to west across the study area, indicating westerly groundwater flow (Figure 4).
- Figures 6 and 7 show groundwater elevations over time for BMO monitor wells with screened intervals in basin fill and bedrock, respectively. Groundwater elevations in BMO monitor wells screened in basin fill have decreased over time. The maximum rate of decline measured in the basin fill through the most recent quarter sampled is 1.22 feet per year in BMO-2008-3B, which declined 7.31 feet between July 2008 and July 2014. Groundwater elevations in most BMO monitor wells screened in bedrock have also declined over time. The maximum rate of decline measured in the bedrock through the most recent quarter

sampled is 2.05 feet per year in BMO-2008-1G which has declined 12.09 feet between August 2008 and July 2014. Water level declines range from 0.66 to 1.69 feet per year in BMO-2008-5M, BMO-2008-6M, BMO-2008-7M, BMO-2008-8M, BMO-2008-9M, BMO-2008-13M, BMO-2010-2M, and BMO-2010-3M. The groundwater elevations in bedrock wells BMO-2008-10GL, BMO-2008-10GU, BMO-2008-11G, and BMO-2012-1M display increasing trends. Water elevation data for BMO-2010-1M indicates relatively steady conditions 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. 2014. Well Inventory Update, Task 1 of Aquifer Characterization Plan for Mitigation Order on Consent No. P-121-07. June 30, 2014.
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- Hayes, P.T. and E.R. Landis. 1964. Geologic Map of the Southern Part of the Mule Mountains, Arizona. United States Geological Survey Miscellaneous Geologic Investigations Map-418.
- Hydro Geo Chem, Inc. (HGC). 2008. Revision 1, Work Plan to Characterize and Mitigate Sulfate with Respect to Drinking Water Supplies in the Vicinity of the Concentrator Tailing Storage Area, Cochise County, Arizona. July 3, 2008.

## **TABLES**

**TABLE 1**  
**Schedule for Water Quality Sampling and Water Level Monitoring**

Well Name	ADWR 55 Registry Number	Semiannual Sampling First Quarter	Quarterly Sampling Second Quarter	Annual Sampling Third Quarter	Quarterly Sampling Fourth Quarter
ANDERSON 396	613396	✓	✓	✓	✓
ANDERSON 458	221458	✓	✓	✓	✓
AWC-02	616586	✓	✓	✓	✓
AWC-03	616585	✓	✓	✓	✓
AWC-04	616584	✓	✓	✓	✓
AWC-05	590620	✓	✓	✓	✓
BANKS 986	647986	✓	✓	✓	✓
BANKS 987	647987	WLO		WLO	
BARTON 919	644919	WLO		WLO	
BF-01	539783			✓	
BIMA	577927	✓	✓	✓	✓
BMO-2008-1G	909474	✓		✓	
BMO-2008-3B	909147	✓		✓	
BMO-2008-4B	910096	✓		✓	
BMO-2008-5B	909653	✓	✓	✓	✓
BMO-2008-5M	909552	✓	✓	✓	✓
BMO-2008-6B	909146	✓	✓	✓	✓
BMO-2008-6M	909019	✓	✓	✓	✓
BMO-2008-7M	908794	✓		✓	
BMO-2008-8B	910097			✓	
BMO-2008-8M	909711	✓		✓	
BMO-2008-9M	909255	✓		✓	
BMO-2008-10GL	909435			✓	
BMO-2008-10GU	909272			✓	
BMO-2008-11G	909434	✓		✓	
BMO-2008-13B	909551			✓	
BMO-2008-13M	909760			✓	
BMO-2010-1M	219957	✓	✓	✓	✓
BMO-2010-2M	219958	✓	✓	✓	✓
BMO-2010-3B	219970	✓	✓	✓	✓
BMO-2010-3M	219969	✓	✓	✓	✓
BMO-2012-1M	221388	✓	✓	✓	✓
BOOTH	914931	✓	✓	✓	✓
BURKE	212268	✓	✓	✓	✓
CHAMBERS	629807	✓	✓	✓	✓
COB MW-1	903992			✓	
COB MW-2	903984	✓		✓	
COB MW-3	906823			✓	
COB WL	593116			✓	

**TABLE 1**  
**Schedule for Water Quality Sampling and Water Level Monitoring**

Well Name	ADWR 55 Registry Number	Semiannual Sampling First Quarter	Quarterly Sampling Second Quarter	Annual Sampling Third Quarter	Quarterly Sampling Fourth Quarter
COOPER	623564	✓	✓	✓	✓
COOPER C	637069	✓	✓	✓	✓
DODSON	644927	✓	✓	✓	✓
DOUGLASS 791	592791	WLO		WLO	
DOUGLASS 792	592792	WLO		WLO	
DURAZO	NR	✓	✓	✓	✓
EAST	599796	✓	✓	✓	✓
ECHAVE	219449	✓	✓	✓	✓
EPPELE 641	805641	✓	✓	✓	✓
FLEMING	218386	WLO		WLO	
FRANCO 101	500101	✓	✓	✓	✓
FRANCO 383	221383	✓	✓	✓	✓
FULTZ	212447	✓	✓	✓	✓
GARNER 557	558557	WLO		WLO	
GARNER 635	587635	✓	✓	✓	✓
GGOOSE 547	628547	✓		✓	
GOAR RANCH	610695	WLO		WLO	
HOBAN	805290	✓	✓	✓	✓
HOWARD NR	NR	✓	✓	✓	✓
HOWARD 312	221312	✓	✓	✓	✓
KEEFER	209744	✓	✓	✓	✓
MARCELL	NR	✓	✓	✓	✓
MCCONNELL 265	539265	✓	✓	✓	✓
MCCONNELL 459	221459	✓	✓	✓	✓
METZLER	35-71891	✓	✓	✓	✓
MOORE	538847	✓	✓	✓	✓
NESS	509127	✓		✓	
NOTEMAN	212483	✓	✓	✓	✓
NWC-02	562944	✓	✓	✓	✓
NWC-03	203321	✓	✓	✓	✓
NWC-03 CAP	627684	WLO		WLO	
NWC-04	551849	✓	✓	✓	✓
NWC-06	575700	✓	✓	✓	✓
OSBORN	643436	✓		✓	
PALMER	578819	✓	✓	✓	✓
PANAGAKOS	35-76413			✓	
PARRA	576415	✓	✓	✓	✓
PIONKE 395	613395	✓	✓	✓	✓
PIONKE 517	221517	✓	✓	✓	✓

**TABLE 1**  
**Schedule for Water Quality Sampling and Water Level Monitoring**

Well Name	ADWR 55 Registry Number	Semiannual Sampling First Quarter	Quarterly Sampling Second Quarter	Annual Sampling Third Quarter	Quarterly Sampling Fourth Quarter
POOL	509518	✓	✓	✓	✓
POWER 639	222639	✓	✓	✓	✓
RAMIREZ	216425	✓	✓	✓	✓
RAY	803772	✓	✓	✓	✓
ROGERS 596	573596	✓	✓	✓	✓
ROGERS 803	641803	✓	✓	✓	✓
ROGERS E	216018	✓	✓	✓	✓
RUIZ	531770	✓	✓	✓	✓
SCHWARTZ	210865	✓	✓	✓	✓
STEPHENS	808560	WLO		WLO	
SUNBELT	201531	WLO		WLO	
SWAN	NR	✓		✓	
THOMPSON 151	612151	WLO		WLO	
THOMPSON 341	218341	✓	✓	✓	✓
TM-02A	522574	✓		✓	
TM-06 MILLER	522695			✓	
TM-07	522576	✓		✓	
TM-15 MILLER	522699			✓	
TM-16	522578			✓	
TM-19A	522580	✓		✓	
TM-42	562554			✓	
TVI 236	802236			✓	
TVI 713	567713	WLO		WLO	
TVI 875	568875	✓	✓	✓	✓
WEED	544535	✓	✓	✓	✓
WEISKOPF 802	641802	✓	✓	✓	✓
WEISKOPF 897	221897	✓	✓	✓	✓
ZANDER	205126	✓	✓	✓	✓

Notes:

35-71891 = ADWR 35 Database

ADWR = Arizona Department of Water Resources

NR = No Record

WLO = Water Level Only

**TABLE 2**  
**Summary of Groundwater Monitoring Program for Third Quarter 2014**

Well Name	ADWR 55 Registry Number	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
ANDERSON 396	613396	Anderson	Plume	236	Y	Y	Water quality sample collected in July 2014.
ANDERSON 458	221458	Anderson	Well Inventory	734	Y	Y	Water quality sample collected in July 2014.
ASLD 435	616435	AZ State Land	Regional	340	Y	N	Well identified for water level measurements only. Water level measured in September 2014.
AWC-02	616586	Arizona Water Company	Well Inventory	330	Y	Y	Water quality sample collected in July 2014.
AWC-03	616585	Arizona Water Company	Well Inventory	269	Y	Y	Water quality sample collected in July 2014.
AWC-04	616584	Arizona Water Company	Well Inventory	250	Y	Y	Water quality sample collected in July 2014.
AWC-05	590620	Arizona Water Company	Well Inventory	1183	Y	Y	Water quality sample collected in July 2014.
BANKS 986	647986	Banks	Well Inventory	435	N	Y	Water quality sample collected in July 2014. Unable to measure water level because wellhead is inaccessible.
BANKS 987	647987	Banks	Plume	339	Y	N	Well identified for water level measurements only. Water level measured in July 2014.
BARTON 919	644919	Barton	Plume	130	Y	N	Well identified for water level measurements only. Water level measured in July 2014.
BF-01	539783	Copper Queen Branch	Plume	400	N	N	Well abandoned April 2013.
BIMA	577927	Bisbee Municipal Airport	Well Inventory	465	N	Y	Water quality sample collected in July 2014. Unable to measure water level due to obstruction in well.
BMO-2008-1G	909474	Copper Queen Branch	Plume	310	Y	Y	Water quality sample collected in July 2014.
BMO-2008-3B	909147	Copper Queen Branch	Plume	260	Y	Y	Water quality sample collected in July 2014.
BMO-2008-4B	910096	Copper Queen Branch	Plume	610	Y	Y	Water quality sample collected in July 2014.
BMO-2008-5B	909653	Copper Queen Branch	Well Inventory	285	Y	Y	Water quality sample collected in August 2014.
BMO-2008-5M	909552	Copper Queen Branch	Plume	450	Y	Y	Water quality sample collected in August 2014.
BMO-2008-6B	909146	Copper Queen Branch	Plume	265	Y	Y	Water quality sample collected in August 2014.
BMO-2008-6M	909019	Copper Queen Branch	Plume	450	Y	Y	Water quality sample collected in August 2014.
BMO-2008-7M	908794	Copper Queen Branch	Plume	670	Y	Y	Water quality sample collected in July 2014.
BMO-2008-8B	910097	Copper Queen Branch	Plume	480	Y	Y	Water quality sample collected in July 2014.
BMO-2008-8M	909711	Copper Queen Branch	Plume	1210	Y	Y	Water quality sample collected in July 2014.
BMO-2008-9M	909255	Copper Queen Branch	Plume	775	Y	Y	Water quality sample collected in July 2014.

**TABLE 2**  
**Summary of Groundwater Monitoring Program for Third Quarter 2014**

Well Name	ADWR 55 Registry Number	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
BMO-2008-10GL	909435	Copper Queen Branch	Plume	810	Y	Y	Water quality sample collected in August 2014.
BMO-2008-10GU	909272	Copper Queen Branch	Plume	449	N	N	Well is not operational.
BMO-2008-11G	909434	Copper Queen Branch	Plume	760	Y	Y	Water quality sample collected in August 2014.
BMO-2008-13B	909551	Copper Queen Branch	Plume	474	Y	Y	Water quality sample collected in August 2014.
BMO-2008-13M	909760	Copper Queen Branch	Plume	1030	Y	Y	Water quality sample collected in August 2014.
BMO-2010-1M	219957	Copper Queen Branch	Plume	540	Y	Y	Water quality sample collected in August 2014.
BMO-2010-2M	219958	Copper Queen Branch	Plume	370	Y	Y	Water quality sample collected in August 2014.
BMO-2010-3B	219970	Copper Queen Branch	Plume	330	Y	Y	Water quality sample collected in July 2014.
BMO-2010-3M	219969	Copper Queen Branch	Plume	532	Y	Y	Water quality sample collected in July 2014.
BMO-2012-1M	221388	Copper Queen Branch	Plume	396	Y	Y	Water quality sample collected in July 2014.
BOOTH	914931	Booth	Well Inventory	240	N	N	Well owner has declined participation in groundwater sampling program.
BURKE	212268	Burke	Well Inventory	781	Y	Y	Water quality sample collected in July 2014.
CHAMBERS	629807	Chambers	Well Inventory	245	N	Y	Water quality sample collected in July 2014. Unable to measure water level because wellhead is inaccessible.
COB MW-1	903992	City of Bisbee	Plume	420	Y	Y	Water quality sample collected in July 2014.
COB MW-2	903984	City of Bisbee	Plume	170	Y	Y	Water quality sample collected in July 2014.
COB MW-3	906823	City of Bisbee	Plume	269	Y	Y	Water quality sample collected in July 2014.
COB WL	593116	City of Bisbee	Plume	150	Y	Y	Water quality sample collected in July 2014.
COOPER	623564	Cooper	Well Inventory	325	N	Y	Water quality sample collected in July 2014. Unable to measure water level due to obstruction in well.
COOPER C	637069	Copper Queen Branch	Plume	220	Y	Y	Water quality sample collected in July 2014.
DODSON	644927	Dodson	Well Inventory	200	Y	Y	Water quality sample collected in July 2014.
DOUGLASS 791	592791	Douglass	Plume	200	Y	N	Well identified for water level measurements only. Water level measured in July 2014.
DOUGLASS 792	592792	Douglass	Plume	200	Y	N	Well identified for water level measurements only. Water level measured in July 2014.
DURAZO	NR	Durazo	Plume	ND	N	N	Well is not operational. Unable to measure water level because wellhead is inaccessible.
EAST	599796	East	Well Inventory	125	Y	Y	Water quality sample collected in July 2014.
ECHAVE	219449	Echave	Well Inventory	345	N	Y	Water quality sample collected in July 2014. Unable to measure water level due to obstruction in well.

**TABLE 2**  
**Summary of Groundwater Monitoring Program for Third Quarter 2014**

Well Name	ADWR 55 Registry Number	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
EPPELE 641	805641	Eppele	Well Inventory	265	Y	Y	Water quality sample collected in July 2014.
FLEMING	218386	Fleming	Plume	400	Y	N	Well identified for water level measurements only. Water level measured in July 2014.
FRANCO 101	500101	Franco	Plume	200	Y	N	Water level measured in July 2014. Unable to collect water quality sample because well is not operational.
FRANCO 383	221383	Franco	Well Inventory	711	Y	Y	Water quality sample collected in July 2014.
FULTZ	212447	Fultz	Well Inventory	300	N	N	Water quality sample not collected per owner request. Unable to measure water level due to obstruction in well.
GARNER 557	558557	Garner	Plume	300	N	N	Well owner was unable to participate in groundwater sampling program this quarter.
GARNER 635	587635	Garner	Well Inventory	680	N	N	Well owner was unable to participate in groundwater sampling program this quarter.
GGOOSE 547	628547	Copper Queen Branch	Plume	800	N	N	Well abandoned October 2012.
GOAR RANCH	610695	Goar	Plume	250	Y	N	Well identified for water level measurements only. Water level measured in July 2014.
HOBAN	805290	Copper Queen Branch	Plume	316	Y	Y	Water quality sample collected in July 2014.
HOWARD NR	NR	Howard	Plume	200	Y	Y	Water quality sample collected in July 2014.
HOWARD 312	221312	Howard	Well Inventory	980	Y	Y	Water quality sample collected in July 2014.
KEEFER	209744	Keefer	Well Inventory	245	Y	Y	Water quality sample collected in July 2014.
LADD 251	520251	Ladd	Regional	280	Y	N	Well identified for water level measurements only. Water level measured in September 2014.
LADD 538	503538	Ladd	Regional	282	Y	N	Well identified for water level measurements only. Water level measured in September 2014.
LADD 837	519837	AZ State Land	Regional	460	Y	N	Well identified for water level measurements only. Water level measured in September 2014.
LADD 977	642977	Ladd	Regional	165	Y	N	Well identified for water level measurements only. Water level measured in September 2014.
MARCELL	NR	Marcell	Well Inventory	220	N	N	Unable to collect water quality sample because well is not operational. Unable to measure water level because port in wellhead is corroded and cannot be opened.
MCCONNELL 265	539265	McConnell	Plume	216	Y	Y	Water quality sample collected in July 2014.
MCCONNELL 459	221459	McConnell	Well Inventory	863	Y	Y	Water quality sample collected in September 2014.
METZLER	35-71891	Metzler	Plume	351	Y	N	Water level measured in July 2014. Unable to collect water quality sample because well is not operational.
MOORE	538847	Moore	Well Inventory	220	N	N	After repeated attempts, unable to contact well owner for access.
NESS	509127	Ness	Well Inventory	812	Y	Y	Water quality sample collected in July 2014.
NOTEMAN	212483	Bailey	Well Inventory	400	N	Y	Water quality sample collected in July 2014. Unable to measure water level because wellhead is inaccessible.
NSD-02	527587	Naco Sanitary District	Regional	120	Y	N	Well identified for water level measurements only. Water level measured in September 2014.



**TABLE 2**  
**Summary of Groundwater Monitoring Program for Third Quarter 2014**

Well Name	ADWR 55 Registry Number	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
NSD-03	527586	Naco Sanitary District	Regional	100	Y	N	Well identified for water level measurements only. Water level measured in September 2014.
NWC-02	562944	Naco Water Company	Well Inventory	312	N	Y	Water quality sample collected in July 2014. Unable to measure water level because wellhead port is stuck shut.
NWC-03	203321	Naco Water Company	Well Inventory	312	N	N	Well abandoned in first quarter 2013.
NWC-03 CAP	627684	Naco Water Company	Plume	179	Y	N	Well identified for water level measurements only. Water level measured in July 2014.
NWC-04	551849	Naco Water Company	Well Inventory Sulfate Trend	795	N	Y	Water quality sample collected in July, August, and September 2014. Unable to measure water level because wellhead port is stuck shut.
NWC-06	575700	Naco Water Company	Well Inventory	410	N	Y	Water quality sample collected in July 2014. Unable to measure water level because wellhead port is stuck shut.
OSBORN	643436	Osborn	Well Inventory	258	N	Y	Water quality sample collected in July 2014. Unable to measure water level due to obstruction in well.
PALMER	578819	Palmer	Well Inventory	220	N	Y	Water quality sample collected in July 2014. Unable to measure water level because wellhead is inaccessible.
PANAGAKOS	35-76413	Panagakos	Well Inventory	200	Y	Y	Water quality sample collected in July 2014.
PARRA	576415	Parra	Plume	355	N	Y	Water quality sample collected in July 2014. Unable to measure water level because wellhead is inaccessible.
PIONKE 395	613395	Pionke	Plume	300	Y	N	Water level measured in July 2014. Unable to collect water quality sample because well is not operational.
PIONKE 517	221517	Pionke	Well Inventory	604	Y	Y	Water quality sample collected in July 2014.
POOL	509518	Pool	Well Inventory	313	N	N	After repeated attempts, unable to contact well owner for access.
POWER 639	222639	Power	Well Inventory	480	Y	Y	Water quality sample collected in July, August, and September 2014.
RAMIREZ	216425	Ramirez	Well Inventory	300	N	Y	Water quality sample collected in July 2014. Unable to measure water level due to obstruction in well.
RAY	803772	Ray	Well Inventory	100	Y	Y	Water quality sample collected in July 2014.
ROGERS 596	573596	Rogers, David	Plume	290	Y	N	Well is turned off. Rogers residence uses ROGERS 803. Water level measured in July 2014.
ROGERS 803	641803	Rogers, David	Well Inventory	140	N	Y	Water quality sample collected in July 2014. Unable to measure water level due to obstruction in well.
ROGERS E	216018	Rogers, Ernest	Well Inventory	290	N	Y	Water quality sample collected in July 2014. Unable to measure water level due to obstruction in well.
RUIZ	531770	Ruiz	Well Inventory	312	N	Y	Water quality sample collected in August 2014. Unable to measure water level due to obstruction in well.
SCHWARTZ	210865	Schwartz	Well Inventory	305	Y	Y	Water quality sample collected in July 2014.
STEPHENS	808560	Stephens	Plume	NR	Y	N	Well identified for water level measurements only. Water level measured in July 2014.
SUNBELT	201531	Sunbelt Marketing, Inc.	Plume	380	Y	N	Well identified for water level measurements only. Well confirmed dry in July 2014.
SWAN	NR	Swan	Well Inventory	NR	Y	Y	Water quality sample collected in July 2014.
THOMPSON 151	612151	Thompson	Plume	NR	Y	N	Well identified for water level measurements only. Water level measured in July 2014.

**TABLE 2**  
**Summary of Groundwater Monitoring Program for Third Quarter 2014**

Well Name	ADWR 55 Registry Number	Owner	Monitoring Purpose	Casing Depth (feet bls)	Water Level Measured?	Water Sample Collected?	Status
THOMPSON 341	218341	Thompson	Well Inventory	285	N	Y	Water quality sample collected in July 2014. Unable to measure water level because wellhead is inaccessible.
TM-02A	522574	Copper Queen Branch	Plume	925	Y	Y	Water quality sample collected in August 2014.
TM-06 MILLER	522695	Miller	Plume	200	Y	Y	Water quality sample collected in July 2014.
TM-07	522576	Copper Queen Branch	Plume	350	N	Y	Water quality sample collected in August 2014. Unable to measure water level due to obstruction in well.
TM-10 USBP	522696	USBP	Regional	290	Y	Y	Water quality sample collected in July 2014.
TM-15 MILLER	522699	Miller	Plume	325	N	Y	Water quality sample collected in July 2014. Unable to measure water level due to obstruction in well.
TM-16	522578	Copper Queen Branch	Plume	115	Y	Y	Water quality sample collected in August 2014.
TM-19A	522580	Copper Queen Branch	Plume	700	Y	Y	Water quality sample collected in July 2014.
TM-42	562554	Copper Queen Branch	Plume	250	Y	Y	Water quality sample collected in July 2014.
TVI 236	802236	Turquoise Valley, Inc.	Well Inventory	222	Y	Y	Water quality sample collected in July 2014.
TVI 713	567713	Turquoise Valley, Inc.	Well Inventory	200	Y	N	Well identified for water level measurements only. Water level measured in July 2014.
TVI 875	568875	Turquoise Valley, Inc.	Plume	330	N	Y	Water quality sample collected in July 2014. Unable to measure water level because wellhead is inaccessible.
WEED	544535	Weed	Well Inventory	320	N	Y	Water quality sample collected in July 2014. Unable to measure water level because wellhead is inaccessible.
WEISKOPF 802	641802	Weiskopf	Plume	200	Y	Y	Water quality sample collected in July 2014.
WEISKOPF 897	221897	Weiskopf	Well Inventory	947	Y	Y	Water quality sample collected in July 2014.
ZANDER	205126	Zander	Well Inventory	280	Y	Y	Water quality sample collected in July 2014.

Notes:

35-71891 = ADWR 35 Database

ADWR = Arizona Department of Water Resources

bls = below land surface

N = No

ND = No Data

NR = No Record

Y = Yes

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
ANDERSON 396	613396	3/20/08	7.25	21.1	1176	431
		5/5/08	7.03	21.8	1231	452
		7/14/08	7.11	21.6	1260	472
		10/15/08	7.10	21.3	1252	475
		1/27/09	7.27	21.0	965	488
		4/14/09	7.12	21.8	1229	534
		7/14/09	7.03	22.2	1372	550
		10/12/09	6.98	21.5	1375	510
		1/27/10	7.93	20.1	1449	523
		4/21/10	7.40	20.7	1439	627
		7/19/10	6.93	24.1	1420	648
		10/19/10	7.03	20.6	1229	416
		1/17/11	7.02	20.6	1334	562
		4/11/11	6.92	15.1	1485	609
		7/14/11	7.23	24.4	1451	678
		10/11/11	6.65	21.2	1230	543
		2/1/12	7.28	11.8	1360	551
		4/25/12	7.10	23.9	1380	657
		7/12/12	6.89	24.9	1520	667
		10/10/12	7.40	24.0	1414	574
4/7/14	7.06	17.4	1057	175		
7/11/14	7.35	21.4	1033	272		
9/9/12	8.34	25.9	406.3	31		
10/10/12	8.13	23.8	412.3	30.3		
1/17/13	8.06	23.7	416.0	30.9		
4/15/13	8.19	23.5	402.7	32.3		
7/18/13	8.18	24.3	401.9	23		
10/16/13	8.10	23.8	400.1	25.2		
1/9/14	8.15	22.9	399.3	26.2		
1/9/14 DUP	8.15	22.9	399.3	26.2		
4/7/14	8.16	24.0	401.6	27.5		
7/11/14	8.13	24.5	396.7	25.3		
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		
3/1/09	7.19	21.8	420	15.5		
4/22/09	7.17	22.6	430	14.7		
7/22/09	7.24	22.7	444	14.2		
10/21/09	7.19	21.3	468	16.8		
2/3/10	7.44	19.7	449	18.6		
4/23/10	7.56	19.7	526	18.3		
7/20/10	7.27	23.9	450	18.2		
11/4/10	7.72	21.3	465.9	18.8		
1/19/11	7.84	19.0	500	18.4		
4/7/11	7.27	20.3	488.5	17.3		
7/13/11	5.93	23.9	431.5	12.9		
10/13/11	6.72	25.1	464.6	17.4		
10/13/11 DUP	6.72	25.1	464.6	17.4		
2/2/12	7.20	20.8	479.5	19.4		
4/24/12	7.23	23.0	430	15.5		
7/5/12	7.25	22.1	437.1	10.1		
10/18/12	7.48	21.6	473.6	13.0		
2/5/13	7.54	19.3	448.9	18.0		
4/1/13	7.53	22.1	471.3	17.2		
7/25/13	7.35	22.1	460.5	14.7		
10/9/13	7.53	21.2	476.4	15.5		
1/7/14	7.45	20.3	503.7	18.8		
1/7/14 DUP	7.45	20.3	503.7	18.9		
5/14/14	7.34	21.0	508.4	19.2		
7/16/14	7.54	21.8	499.5	19.2		

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		4/7/11	7.28	19.9	469.8	46.8
		7/13/11	6.33	23.1	458.8	47.6
		7/13/11 DUP	6.33	23.1	458.8	46.2
		10/13/11	6.69	23.8	463.6	48.8
		2/2/12	7.39	20.7	504.8	47.7
		4/24/12	7.28	22.1	450	51.8
		7/5/12	7.32	21.7	474.3	50.7
		10/18/12	7.44	21.3	477.4	51.3
		2/5/13	7.73	19.2	481.2	55
		4/11/13	7.51	22.2	486.4	66.1
		7/16/13	7.61	21.5	489.6	63.6
		10/9/13	7.57	20.5	485.8	49.4
		10/9/13 DUP	7.57	20.5	485.8	51
		1/7/14	7.62	20.4	486.3	56.6
5/14/14	7.64	20.5	493.0	61.1		
7/16/14	7.68	21.4	506.9	69.1		
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
		1/19/11	8.15	20.5	690	26.2
		4/7/11	7.00	20.4	637.2	25.8
		7/13/11	6.88	20.4	610.1	25.7
		10/13/11	6.38	24.0	619.7	27.6
		2/2/12	6.97	20.1	637.6	27.2
		4/24/12	7.10	22.1	570	25.2
		7/5/12	7.03	21.6	568.0	28.2
		7/5/12 DUP	7.03	21.6	568.0	28.1
		10/18/12	7.20	20.8	606.7	26.6
		2/5/13	7.29	19.7	616.8	26.9
		4/11/13	7.38	21.7	595.4	26.2
		7/16/13	7.30	21.0	585.7	27.0
		10/9/13	7.36	20.4	588.6	24.6
		1/7/14	7.36	19.7	651.4	23.7
		5/14/14	7.38	19.8	674.2	22.7
7/16/14	7.32	20.7	632.2	24.1		
7/16/14 DUP	7.32	20.7	632.2	22.9		

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
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
		4/7/11	7.22	20.8	438.3	17.6
		7/13/11	6.52	22.9	419.8	17.9
		10/13/11	6.82	26.0	427.5	19
		2/2/12	7.35	21.4	427.9	19.5
		4/24/12	7.18	21.4	430	15.4
		7/5/12	7.24	22.6	432.1	19.1
		10/18/12	7.66	22.6	436.1	20.1
		2/5/13	7.57	20.2	437.7	20.1
		4/11/13	7.54	21.2	444.5	20.3
		7/16/13	7.56	21.3	454.5	18.0
		7/16/13 DUP	7.56	21.3	454.5	17.7
		10/9/13	7.58	21.3	455.3	15.4
		5/14/14	7.54	21.2	442.3	19.8
7/16/14	7.60	22.6	470.9	20.3		
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
		1/31/12 DUP	7.69	20.2	1017	64.9
		4/11/12	7.77	22.0	1025	64.0
		7/6/12	7.66	23.7	940	78.6
		7/6/12 DUP	7.66	23.7	940	77.9
		10/4/12	7.73	22.0	845.4	62.6
		1/18/13	7.82	21.9	832.4	70.5
		4/8/13	7.87	20.7	861.7	62.9
		7/9/13	8.04	22.9	769.1	67.9
		10/15/13	7.59	21.7	1158	79.6
		1/14/14	7.77	20.9	967.4	75.2
4/8/14	7.47	21.4	1337	113		
7/8/14	7.58	22.3	1175	107		
7/8/14 DUP	7.58	22.3	1175	110		
BF-01	539783	5/23/08	6.41	18.3	2698	1450
		8/5/08	6.11	22.4	3095	1330
		11/5/08	6.33	19.9	3027	1490
		2/20/09	6.42	19.2	1477	1330
		5/6/09	5.98	23.9	2632	1280
		8/17/09	6.21	29.7	2948	1250
		11/4/09	6.24	23.0	2846	1280
		3/1/10	6.34	21.1	2945	1260
		4/7/10	5.83	20.4	1853	1450
		7/6/10	5.93	22.6	1403	1310
		7/13/11	6.26	21.3	2960	1350
		2/1/12	6.18	19.8	2910	1480
		8/14/12	6.00	21.5	3000	1500

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)		
BIMA	577927	2/6/08	6.69	22.2	1335	210		
		4/25/08 <sup>1</sup>	6.37	23.1	1521	190		
		5/13/08 <sup>1</sup>	6.58	22.7	1489	195		
		6/23/08 <sup>1</sup>	6.30	23.3	1572	225		
		6/23/08 DUP	6.30	23.3	1572	196		
		7/29/08 <sup>1</sup>	6.44	23.0	1647	204		
		8/28/08 <sup>1</sup>	M	23.0	1776	256		
		9/23/08 <sup>1</sup>	6.29	23.0	1741	296		
		10/22/08	6.41	22.3	1801	285		
		1/20/09	6.40	21.7	1233	190		
		1/20/09 DUP	6.40	21.7	1233	200		
		4/7/09	6.45	23.4	1436	212		
		7/8/09	6.31	23.4	1483	189		
		10/5/09	6.34	22.7	1525	233		
		1/20/10	6.88	17.0	M	222		
		4/19/10	6.70	21.9	1533	256		
		7/12/10	6.70	24.0	1577	273		
		10/18/10	6.47	24.3	1702	296		
		1/19/11	6.65	21.2	1672	283		
		4/4/11	6.61	24.0	1643	282		
		8/25/11	6.27	25.9	1460	300		
		10/10/11	6.5	24.1	1520	322		
		2/3/12	6.48	18.5	1540	312		
		4/23/12	6.57	23.9	1790	303		
		7/10/12	6.06	23.7	1200	301		
		11/29/12	6.51	20.6	1664	310		
		3/13/13	7.29	19.8	1175	317		
		4/10/13	6.64	13.9	1569	308		
		7/8/13	6.62	28.0	1580	301		
		10/11/13	6.57	21.8	1749	301		
1/10/14	6.63	10.7	1664	297				
4/10/14	6.62	15.8	1685	300				
7/8/14	6.56	21.6	1653	297				
BLOMMER	633472	2/5/08	7.43	20.2	714	206		
		4/21/08 <sup>1</sup>	7.06	21.9	753	201		
		5/15/08 <sup>1</sup>	7.16	22.2	845	211		
		6/23/08 <sup>1</sup>	6.93	21.5	903	193		
		7/29/08 <sup>1</sup>	7.21	22.2	921	203		
		8/27/08 <sup>1</sup>	7.12	22.1	864	189		
		9/23/08 <sup>1</sup>	7.16	22.3	818	193		
		10/22/08	7.17	21.3	873	200		
		BMO-2008-1G	909474	8/27/08	7.09	24.2	808	107
				11/11/08	7.00	20.8	721	143
2/25/09	7.01			22.0	860	109		
4/28/09	7.04			22.2	762	198		
8/4/09	7.23			22.8	950	104		
10/27/09	7.11			21.9	922	103		
2/17/10	7.36			20.5	899.3	98.4		
4/15/10	7.04			22.2	711	95.2		
7/7/10	6.91			21.5	640	88.1		
7/7/10 DUP	6.91			21.5	640	87.1		
2/10/11	6.80			21.0	916	105		
7/12/11	7.2			26.6	1015	121		
2/8/12	7.02			20.2	869	116		
8/14/12	6.97			21.9	959	120		
2/14/13	7.09			21.2	986	112		
8/14/13	6.96			21.6	1009	120		
2/13/14	6.76			21.1	1010	114		
7/22/14	6.87			22.0	1010	117		
BMO-2008-3B	909147			7/18/08	7.35	23.9	615	106
				11/4/08	7.36	21.4	599	179
		11/4/08 DUP	7.36	21.4	599	177		
		2/19/09	7.24	21.4	664	155		
		5/11/09	7.23	22.1	631	149		
		8/6/09	7.33	21.4	718	151		
		8/6/09 DUP	7.33	21.4	718	156		
		10/26/09	7.32	21.8	684	153		
		3/3/10	7.38	21.4	695	164		
		4/8/10	6.47	21.3	585	162		
		7/1/10	6.92	21.4	541	157		
		2/14/11	6.98	20.6	698	169		
		7/12/11	7.04	21.4	672	148		
		2/23/12	6.92	21.0	695	173		
		7/10/12	7.02	21.5	651	150		
		2/15/13	6.63	20.4	692	163		
		8/27/13	7.1	21.1	725	170		
		2/11/14	7.01	20.7	729	162		
		7/21/14	6.98	21.0	706	163		

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)		
BMO-2008-4B	910096	12/11/08	7.34	22.8	374	9.4		
		2/18/09	7.17	23.2	370	13.4		
		4/30/09	7.33	24.5	376	11.4		
		4/30/09 DUP	7.33	24.5	376	11.8		
		8/6/09	7.53	24.6	397	11.5		
		10/27/09	7.53	23.7	379	11.2		
		2/24/10	7.48	21.8	362	9.7		
		4/16/10	7.70	23.4	330	9.73		
		7/2/10	7.25	23.6	323	10.10		
		2/15/11	7.65	22.2	362	8.90		
		7/22/11	7.33	23.7	371	10.2		
		2/23/12	7.21	22.3	354	10.5		
		8/15/12	6.96	23.6	380	9.5		
		1/15/13	7.63	22.7	370.2	10.3		
		1/15/13 DUP	7.63	22.7	370.2	9.5		
		4/15/13	7.75	23.0	368.2	11.2		
		9/18/13	7.69	23.4	384.6	9.8		
		1/9/14	7.81	22.2	371.4	11.1		
		7/18/14	7.78	23.3	379.1	11.6		
		BMO-2008-5B	909653	9/30/08	7.08	22.0	688	193
2/18/09	7.03			21.5	691	192		
4/27/09	7.32			22.1	605	177		
8/4/09	7.35			22.3	724	174		
10/29/09	7.29			21.8	731	181		
10/29/09 DUP	7.29			21.8	731	185		
2/15/10	7.22			21.7	720	185		
4/15/10	7.21			23.0	571	194		
7/7/10	6.94			22.2	551	183		
10/5/10	6.85			22.3	722	201		
2/14/11	6.90			21.8	725	203		
5/12/11	7.06			21.5	722	195		
7/13/11	6.99			22.0	712	200		
12/7/11	6.95			19.9	730	213		
2/3/12	7.16			20.2	726	215		
4/18/12	6.96			21.7	712	192		
7/10/12	6.87			21.5	726	218		
10/16/12	6.69			21.4	712	207		
2/7/13	7.40			21.4	771.4	229		
2/12/13	6.49			20.7	752	227		
5/15/13	7.01			21.8	742	220		
8/20/13	7.00			21.7	792	226		
11/1/13	6.92			21.5	792	233		
2/1/14	6.88			21.5	804	230		
5/7/14	6.87			21.5	800	228		
8/19/14	6.99			21.6	795	221		
BMO-2008-5M	909552			10/2/08	7.13	23.6	551	107
				2/18/09	7.06	22.5	562	122
		4/27/09	7.50	22.9	501	111		
		8/4/09	7.53	23.1	605	122		
		10/29/09	7.35	22.4	610	123		
		2/15/10	7.31	22.5	581	123		
		4/16/10	7.28	22.6	509	125		
		4/16/10 DUP	7.28	22.6	509	124		
		7/7/10	7.02	23.5	482	123		
		10/5/10	6.81	22.5	602	127		
		2/14/11	6.95	22.2	591	124		
		5/12/11	7.16	23.0	558	119		
		7/12/11	7.22	22.7	590	126		
		12/7/11	7.1	21.2	601	129		
		2/3/12	6.99	21.5	589	130		
		4/18/12	6.71	22.4	587	120		
		7/10/12	6.82	22.4	592	135		
		10/16/12	6.86	21.9	591	134		
		2/12/13	6.65	21.6	610	139		
		5/15/13	6.73	22.4	603	135		
		8/20/13	7.18	22.5	640	138		
		11/1/13	7.07	22.0	641	142		
		2/1/14	6.84	22.1	646	138		
		5/7/14	6.85	22.1	648	140		
8/19/14	6.97	22.1	645	143				

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
BMO-2008-6B	909146	7/16/08	7.36	24.1	475	53.3
		11/4/08	7.41	21.5	398	60.3
		2/19/09	7.23	21.1	444	54.3
		4/27/09	7.55	21.7	389	52.7
		8/4/09	7.48	23.4	470	48.5
		10/26/09	7.29	22.5	448	48.7
		2/15/10	7.53	21.2	391	33.5
		4/15/10	7.47	21.0	362	37.0
		7/1/10	7.24	22.2	361	40.1
		10/5/10	7.05	21.0	407	37.2
		2/14/11	7.27	21.8	397	40.2
		5/12/11	7.32	21.5	380	35.0
		7/12/11	7.27	21.1	390	37.8
		12/7/11	7.28	20.8	330	21.8
		2/3/12	7.28	20.1	346	23.0
		4/18/12	7.25	21.4	336	19.7
		7/10/12	6.86	21.2	328	21.9
		10/16/12	6.79	21.5	342	19.9
		2/12/13	6.87	20.7	339	16.2
		5/15/13	6.87	21.2	297	12.7
		8/20/13	7.36	21.5	310	10.6
		11/1/13	7.04	21.0	340	13.9
		2/11/14	7.38	21.6	290	20.1
5/7/14	7.48	21.1	297	13.6		
8/19/14	7.08	21.6	298	13.4		
BMO-2008-6M	909019	7/10/08	M	22.1	702	182
		11/4/08	7.33	21.8	621	199
		2/20/09	7.11	22.0	702	193
		4/28/09	7.34	22.4	595	119
		8/4/09	7.40	23.3	750	189
		10/26/09	7.18	22.4	727	187
		2/15/10	7.29	20.8	733	193
		4/15/10	7.36	20.2	619	208
		7/1/10	7.15	22.0	571	198
		10/5/10	6.87	21.3	720	202
		2/14/11	6.80	21.3	731	202
		5/12/11	7.12	21.9	709	189
		7/12/11	7.06	21.8	709	194
		12/7/11	6.94	21.3	710	200
		2/3/12	7.03	21.2	720	206
		4/18/12	7.01	21.4	701	188
		7/10/12	6.67	21.4	702	208
		10/16/12	6.89	21.8	708	207
		2/12/13	6.71	20.5	740	204
		5/8/13	7.01	21.9	726	212
		8/20/13	6.99	21.7	772	213
		11/1/13	6.83	21.5	773	223
		2/11/14	6.81	21.8	786	217
5/7/14	6.77	21.3	788	220		
8/19/14	6.90	21.9	774	210		
7/14/08	7.63	25.2	500	31.4		
BMO-2008-7M	908794	11/6/08	7.53	22.6	380	34.5
		2/18/09	7.31	23.3	452	27.6
		5/11/09	7.43	24.4	426	26.0
		8/6/09	7.81	24.1	486	25.1
		10/27/09	7.53	23.0	470	26.1
		2/17/10	7.57	23.4	452	25.4
		2/17/10 DUP	7.57	23.4	452	25.0
		4/15/10	7.52	23.2	415	26.0
		7/6/10	7.28	23.5	391	22.8
		2/14/11	7.18	22.0	465	27.5
		2/14/11 DUP	7.18	22.0	465	26.4
		7/15/11	7.1	22.8	466	26.5
		1/30/12	7.16	22.0	454	26.4
		7/11/12	7.18	22.7	455	28.1
		2/15/13	7.23	21.8	471	25.8
		8/28/13	7.15	22.9	494	27.7
		8/28/13 DUP	7.15	22.9	494	27.8
		2/13/14	7.09	22.6	494	27.8
		7/22/14	7.13	23.2	488	27.3



**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)		
BMO-2008-8B	910097	12/5/08	6.47	20.1	2480	1890		
		2/19/09	6.19	21.0	2958	1570		
		5/5/09	6.18	21.3	2888	1370		
		8/10/09	6.42	21.5	2897	1250		
		11/9/09	6.33	21.8	2889	1510		
		11/9/09 DUP	6.33	21.8	2889	1520		
		3/3/10	6.51	20.4	3016	1320		
		4/16/10	6.06	21.4	1682	1470		
		7/1/10	6.10	21.4	1594	1440		
		7/15/11	6.21	21.2	2940	1380		
		1/30/12	6.22	21.2	2880	1480		
		1/30/12 DUP	6.22	21.2	2880	1480		
		7/12/12	6.41	21.1	2860	1440		
		2/13/13	6.25	20.7	2830	1330		
		8/12/13	6.38	21.3	2780	1420		
7/24/14	6.26	21.2	2520	1380				
BMO-2008-8M	909711	12/9/08	7.16	23.4	852	197		
		2/19/09	7.27	23.5	758	147		
		2/19/09 DUP	7.27	23.5	758	149		
		5/5/09	7.19	25.1	680	122		
		8/10/09	7.49	24.8	673	107		
		11/5/09	7.30	25.4	675	104		
		3/3/10	7.70	24.1	641	99.5		
		4/16/10	7.29	24.5	541	97.0		
		7/1/10	6.99	25.0	502	94.7		
		1/24/11	7.05	23.4	595	98.2		
		7/15/11	6.89	22.1	590	79.9		
		1/30/12	7.36	23.9	565	77.6		
		7/12/12	7.15	24.2	554	73.1		
		7/12/12 DUP	7.15	24.2	554	73.2		
		2/14/13	7.1	24.3	565	64.9		
		8/12/13	7.19	24.6	585	65.0		
		2/19/14	7.07	24.3	579	63.3		
		2/19/14 DUP	7.07	24.3	579	63.4		
		7/24/14	7.07	24.7	569	66.8		
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	67.0		
		2/1/12	7.54	22.4	516	67.4		
		7/12/12	7.68	24.2	513	68.9		
		2/13/13	7.37	23.8	531	68.2		
		8/12/13	7.47	24.2	553	71.1		
		2/18/14	7.26	23.8	569	74.1		
		7/24/14	7.36	24.4	571	74.2		
		BMO-2008-10GL	909435	8/20/08	6.22	29.5	2924	1320
				11/5/08	6.47	25.3	2573	1290
2/25/09	6.34			26.8	2646	1180		
5/12/09	6.35			26.2	2402	1120		
8/1/09	6.52			27.3	2661	1030		
11/2/09	6.52			26.7	2565	1100		
3/4/10	6.76			24.1	2937	1080		
4/8/10	6.03			25.6	1575	1260		
7/2/10	6.16			26.3	1338	1020		
7/13/11	6.32			24.8	1726	644		
2/2/12	6.45			24.8	1600	624		
7/13/12	6.71			25.7	1571	545		
2/18/13	6.45			25.4	1530	498		
2/18/13 DUP	6.45			25.4	1530	494		
8/13/13	6.57			25.5	1586	520		
8/7/14	6.56			25.8	1417	442		
BMO-2008-10GU	909272			8/4/08	6.41	23.6	3660	2210
				11/5/08	6.15	20.2	3343	1890
				2/25/09	5.96	22.7	3426	1740
		5/6/09	5.99	23.2	3359	1710		
		8/1/09	6.28	22.5	3348	1690		
		11/2/09	6.27	21.8	3157	1730		
		3/10/10	6.67	19.1	3951	1700		
		4/7/10	5.96	20.4	3210	1510		
		7/6/10	5.90	21.8	1610	1670		
		7/13/11	6.12	22.3	3890	1670		
		2/1/12	6.09	19.2	3820	1870		
		8/19/13	6.10	21.0	3630	1780		

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
BMO-2008-11G	909434	8/22/08	8.02	28.2	359	14.2
		11/12/08	7.96	24.2	257	13.9
		2/26/09	7.92	25.1	319	12.3
		4/28/09	8.14	25.5	273	11.8
		8/12/09	8.24	25.3	365	11.2
		11/9/09	8.03	25.5	339	13.9
		3/1/10	8.37	23.2	338	13.0
		4/9/10	6.88	24.5	301	13.0
		7/1/10	6.97	25.4	298	12.3
		2/10/11	6.99	24.0	327	11.7
		7/22/11	7.26	24.6	331	12.1
		7/22/11 DUP	7.26	24.6	331	12.0
		1/31/12	7.41	24.1	328	11.9
		8/14/12	7.35	24.6	337	12.3
		2/13/13	7.54	24.2	343	11.9
		8/27/13	7.48	24.9	363	12.2
		2/19/14	7.51	24.2	363	12.2
8/14/14	7.58	24.7	360	12.4		
BMO-2008-13B	909551	10/3/08	6.49	21.6	2180	980
		2/17/09	6.51	20.9	1941	1000
		5/6/09	6.55	22.0	1891	930
		8/5/09	6.63	21.5	2137	950
		10/28/09	6.81	19.7	2259	1010
		2/16/10	6.87	20.8	2093	997
		4/14/10	6.38	21.2	1346	974
		7/6/10	6.37	21.8	1208	972
		7/15/11	6.44	20.8	2160	1010
		2/9/12	6.68	20.3	2180	1060
		7/11/12	6.55	21.2	2190	1080
		2/27/13	6.54	20.3	2160	1090
		9/4/13	6.57	20.8	2070	1050
		8/19/14	6.63	21.2	1890	1070
		12/3/08	7.73	24.1	1463	494
		2/17/09	8.21	22.7	1340	441
		4/29/09	8.04	24.8	1126	217
8/5/09	8.04	25.4	1392	387		
10/28/09	8.12	21.4	1347	403		
2/16/10	8.07	24.9	1297	375		
4/13/10	8.06	23.2	1130	398		
7/2/10	8.30	23.9	1027	386		
7/15/11	8.4	23.4	1331	388		
2/6/12	8.47	23.2	1300	ND		
8/13/12	8.75	24.2	1311	397		
2/15/13	8.8	22.4	1280	383		
9/6/13	8.81	23.8	1300	402		
8/20/14	8.48	23.6	1362	410		
9/9/10	7.82	24.6	727.0	150		
11/11/10	8.68	19.9	570	98		
2/11/11	8.15	20.8	589	138		
5/12/11	7.74	23.0	710	129		
8/31/11	7.74	23.2	562	154		
12/13/11	7.63	21.3	713	149		
2/8/12	7.69	22.0	605	158		
4/24/12	7.08	23.4	701	150		
7/9/12	6.37	24.3	715	161		
10/17/12	7.40	23.9	699	154		
2/13/13	7.09	22.2	712	152		
5/8/13	7.12	22.5	725	160		
8/15/13	7.39	23.5	767	156		
11/4/13	7.38	22.6	774	163		
2/12/14	8.33	22.0	672	161		
6/2/14	7.55	23.3	771	165		
8/4/14	7.38	23.8	772	179		
9/15/10	6.66	22.6	2054	915		
11/11/10	6.97	20.6	1800	935		
2/10/11	6.53	20.8	2120	950		
5/13/11	6.54	21.1	2160	887		
7/14/11	6.62	21.5	2160	917		
12/13/11	6.59	20.3	2140	984		
1/30/12	6.41	21.4	2180	989		
4/18/12	6.48	21.2	2170	893		
7/9/12	6.41	21.8	2190	1030		
10/17/12	6.60	21.3	2200	998		
2/13/13	6.45	21.0	2190	962		
5/8/13	6.42	21.0	2160	996		
8/15/13	6.58	21.2	2157	978		
11/4/13	6.53	21.9	2120	998		
2/12/14	6.52	21.0	2160	1000		
5/8/14	6.46	21.0	1990	1010		
8/14/14	6.48	21.0	1940	1040		
8/14/14 DUP	6.48	21.0	1940	1030		

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
BMO-2010-3B	219970	7/29/10	7.48	23.1	420	16.0
		11/10/10	7.43	21.2	370	14.9
		1/20/11	7.44	20.9	416.1	14.4
		4/7/11	7.38	20.1	424.6	14.9
		7/13/11	7.68	22.3	404.5	13.8
		10/13/11	7.63	23.4	411.2	15.9
		2/2/12	7.52	20.4	400.2	16.9
		2/2/2012 DUP	7.52	20.4	400.2	17.1
		4/24/12	7.30	21.8	390	16.0
		7/5/12	7.51	22.4	419.1	15.7
		10/18/12	7.58	21.6	411.9	17.0
		1/16/13	7.58	20.8	420.5	17.4
		4/16/13	7.65	21.2	415.1	17.5
		7/23/13	7.67	21.8	420	19.8
		10/8/13	7.72	20.9	420.3	16.8
		1/15/14	7.65	20.2	431.2	18.8
		5/13/14	7.66	21.0	421.2	18.0
5/13/2014 DUP	7.66	21.0	421.2	18.0		
7/15/14	7.63	21.8	419.1	19.0		
BMO-2010-3M	219969	7/31/10	7.73	24.3	390	14.8
		11/10/10	7.66	21.8	340	12.6
		11/10/10 DUP	7.66	21.8	340	12.7
		1/20/11	7.72	22.6	380.4	11.5
		4/7/11	7.38	23.5	376.5	12.3
		8/25/11	7.17	24.3	340	10.4
		10/13/11	7.73	23.6	375.8	10.5
		2/2/12	7.68	22.0	367.1	10.6
		4/24/12	7.49	23.9	370	10.1
		7/5/12	7.66	23.7	381.8	10.3
		10/18/12	7.71	23.3	379.9	10.4
		1/16/13	7.68	22.1	383.1	10.0
		4/16/13	7.83	22.3	383.7	10.2
		4/16/2013 DUP	7.83	22.3	383.7	10.2
		7/23/13	7.80	23.4	386.0	10.7
		10/8/13	7.76	22.8	384.8	9.4
		1/15/14	7.76	22.1	389.8	9.1
		5/13/14	7.75	22.9	387.1	10.4
		7/15/14	7.74	23.1	386.9	10.2
		BMO-2012-1M	221388	11/13/12	7.55	21.3
2/27/13	6.97			22.4	793	205
5/8/13	6.77			22.9	814	197
8/14/13	7.09			22.9	858	202
11/1/13	6.98			22.4	850	210
2/13/14	7.00			22.2	883	214
5/8/14	6.90			22.9	875	207
7/22/14	6.99			22.6	857	210
1/5/13	7.67			18.5	574.3	91.4
6/14/13	7.61			51.1	604.2	95
BOOTH	914931	6/14/13 DUP	7.61	51.1	604.2	92.5
		7/17/13	7.75	23.2	497.6	75
		10/18/13	7.66	19.3	597.6	92.6
		2/7/08	7.17	23.0	411	29.5
		4/22/08	7.13	27.0	423	26
BURKE	212268	8/5/08	7.06	26.8	496	21.9
		10/20/08	7.57	26.0	466	20.5
		2/11/09	7.23	25.0	363	23.9
		4/28/09	7.16	26.1	369	24.2
		8/19/09	7.36	26.7	486	22.5
		12/16/09	7.28	25.7	488	26
		3/2/10	7.56	12.3	432	23.8
		4/22/10	7.49	16.4	452	24.8
		7/21/10	7.56	25.6	423.7	33.1
		10/10/13	7.87	21.9	469.6	27.5
		1/8/14	8.17	10.9	464.9	28.6
		4/16/14	7.80	21.1	471.0	28.3
		7/21/14	8.19	27.8	448.8	29.6

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)		
CHAMBERS	629807	3/6/08	7.73	17.8	408	7.7		
		5/5/08	7.15	22.1	421	6		
		7/14/08	7.43	23.2	434	5.8		
		10/15/08	7.41	22.5	420	4		
		1/27/09	7.57	21.5	312	5.3		
		4/14/09	7.42	22.4	384	6.8		
		7/15/09	7.83	23.4	414	4.3		
		10/13/09	7.41	22.6	410	6.5		
		1/26/10	7.31	21.3	416	5.7		
		4/23/10	7.47	20.9	427.5	8.34		
		7/21/10	7.49	23.1	430	7.75		
		10/19/10	8.00	23.0	440	7.04		
		1/18/11	7.47	22.4	390	7.30		
		4/11/11	7.18	22.0	427.3	7.74		
		7/18/11	7.18	23.8	420.2	8.18		
		10/12/11	7.33	22.6	425.8	7.8		
		2/6/12	7.43	21.8	434.6	9.08		
		4/23/12	7.46	22.7	460	8.84		
		7/17/12	7.31	22.4	410	8.41		
		10/8/12	7.44	22.4	430.0	10.1		
		1/10/13	7.57	21.5	440.8	9.64		
		4/18/13	7.49	21.7	434.1	9.78		
		7/15/13	7.40	22.7	434.6	9.81		
		7/15/13 DUP	7.40	22.7	434.6	10.2		
		10/10/13	7.51	21.8	439.7	10.3		
1/13/14	7.56	21.0	431.3	10.7				
4/14/14	7.48	22.2	435.9	10.9				
7/10/14	7.50	22.9	436.4	11.0				
COB MW-1	903992	2/22/08	6.93	21.2	1401	720		
		5/20/08	6.88	22.0	2050	980		
		7/30/08	6.88	21.7	1780	730		
		10/23/08	6.95	21.2	1690	750		
		2/12/09	6.92	21.1	1313	750		
		4/21/09	7.15	22.7	1366	720		
		7/22/09	6.94	21.6	1570	680		
		7/22/09 DUP	6.94	21.6	1570	730		
		10/22/09	6.81	22.3	1582	820		
		2/4/10	7.04	21.1	1653	680		
		4/20/10	6.92	21.8	1836	783		
		7/13/10	7.02	22.3	2004	919		
		7/14/11	6.78	21.4	1924	927		
		7/12/12	6.74	23.4	1760	805		
		2/5/13	6.95	21.5	1773	877		
		7/11/13	7.17	21.4	1858	842		
		7/9/14	6.95	21.5	2000	1000		
		7/9/14 DUP	6.95	21.5	2000	1020		
		COB MW-2	903984	5/20/08	7.32	21.2	490	40.5
				7/30/08	7.34	20.8	511	37.6
10/23/08	7.36			20.3	498	34.9		
2/12/09	7.35			20.2	379	35.6		
4/23/09	7.33			21.8	431	34		
7/22/09	7.36			21.3	483	33.5		
10/22/09	7.24			21.0	454	32.2		
3/3/10	7.55			19.7	450	33.5		
4/26/10	7.28			21.3	479.6	34.8		
7/13/10	6.91			21.2	479.5	30.4		
7/13/10 DUP	6.91			21.2	479.5	30.6		
1/20/11	7.47			20.7	440	29.6		
7/14/11	7.11			21.1	472.6	29.8		
1/31/12	7.53			20.3	466.6	30.0		
7/12/12	7.36			21.2	630	29.2		
1/9/13	7.48			20.0	473.5	35.8		
7/25/13	7.34			20.9	485.4	40.6		
1/6/14	7.58			19.9	487.8	40.5		
7/9/14	7.52			20.5	503.5	43.7		

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
COB MW-3	906823	2/28/08	7.39	21.0	416	57.8
		3/27/08	ND	ND	ND	57.7
		4/30/08	ND	ND	ND	37
		5/20/08	7.56	22.3	473	35.8
		7/24/08	ND	ND	ND	64.9
		7/30/08	7.64	22.3	541	67.3
		10/9/08	ND	ND	ND	52.5
		10/23/08	7.43	20.8	507	76.6
		2/12/09	7.35	21.1	432	112
		4/23/09	7.35	22.6	407	43.7
		7/22/09	7.38	21.5	460	52.3
		10/22/09	7.40	21.3	466	74.2
		10/22/09 DUP	7.40	21.3	466	73.9
		3/3/10	7.36	21.1	480	102
		4/26/10	7.35	22.0	497.9	77.6
		7/13/10	7.41	21.7	456.7	46.5
		7/14/11	7.19	21.8	440.0	40.1
		7/12/12	7.34	21.4	450	39.5
		2/5/13	7.60	20.4	476.4	65.1
		2/5/13 DUP	7.60	20.4	476.4	64.7
7/25/13	7.42	21.4	485.0	66.6		
7/9/14	7.61	21.4	525.3	90.9		
2/22/08	6.99	20.6	919	90		
3/24/08	ND	ND	ND	98.2		
4/28/08	ND	ND	ND	98.7		
5/20/08	7.30	21.9	1053	98		
7/30/08	7.17	22.0	1098	97.1		
7/30/08	ND	ND	ND	100		
10/15/08	ND	ND	ND	107		
10/23/08	7.23	21.4	1075	104		
2/12/09	6.98	20.6	814	94		
4/23/09	7.29	22.2	923	98		
7/22/09	7.17	22.5	1037	97.3		
10/22/09	7.17	22.4	988	96.1		
3/3/10	7.48	21.1	1030	97.1		
4/26/10	7.36	21.9	1038	97.7		
4/26/10 DUP	7.36	21.9	1038	97.9		
7/13/10	7.18	22.3	1013	88.7		
7/14/11	6.91	21.6	1019	87.3		
7/12/12	7.07	23.2	1060	92.0		
2/5/13	7.91	21.5	1057	98.3		
7/25/13	7.23	22.7	1074	97.6		
7/9/14	7.42	21.8	1132	81.5		
2/12/08	6.88	21.6	1470	520		
5/29/08	7.01	22.0	1459	520		
7/31/08	6.86	21.6	1502	536		
10/20/08	8.44	24.7	1510	518		
2/11/09	6.68	21.4	1147	567		
4/21/09	6.92	22.5	1150	499		
7/22/09	7.00	22.4	1413	460		
10/20/09	6.60	21.9	1432	513		
2/2/10	6.98	21.2	1439	471		
4/23/10	6.99	20.6	1472	561		
7/20/10	6.69	25.0	1420	569		
7/17/13	6.97	21.6	1409	519		
2/14/08	7.02	20.8	371	33		
5/14/08	8.08	22.1	419	34.2		
7/31/08	7.81	28.4	455	33.7		
10/20/08	8.44	24.7	448	31.2		
2/11/09	7.32	19.2	333	34.3		
4/21/09	8.19	24.9	346	33.4		
7/20/09	8.45	29.8	430	32.3		
10/14/09	7.85	24.6	423	33.6		
2/1/10	7.83	13.6	433	32.4		
4/22/10	7.82	17.9	433	34.5		
7/19/10	7.98	29.3	420	35.0		
10/18/10	7.12	73.1	450	33.1		
1/19/11	8.83	18.4	410	32.1		
4/11/11	7.65	21.0	442.6	34.3		
7/11/11	7.45	24.2	426.5	32.1		
11/22/11	7.86	20.6	426.1	33.7		
2/1/12	7.97	21.8	429.2	34.1		
4/10/12	7.41	22.4	426.8	32.5		
7/18/12	7.45	22.9	430	33.4		
10/9/12	7.70	22.1	432.8	34.3		
1/11/13	7.76	21.5	434.1	32.7		
4/10/13	7.72	21.1	427.5	31		
7/11/13	7.65	23.2	432.5	31.9		
10/7/13	7.68	22.7	430.5	31.4		
1/16/14	7.65	21.6	431.7	30.8		
4/10/14	7.66	22.3	433.1	31.5		
7/10/14	7.68	22.4	428.8	32.2		

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
COOPER C	637069	3/20/08	6.93	21.3	2081	880
		5/5/08	6.78	22.4	2139	990
		7/15/08	6.86	22.3	2162	1040
		7/15/08 DUP	6.86	22.3	2162	960
		10/16/08	6.80	21.4	2078	1020
		1/27/09	6.92	20.5	1489	950
		4/14/09	6.85	21.6	1833	930
		7/14/09	6.75	22.1	1972	910
		10/12/09	6.70	21.8	1858	830
		1/27/10	7.27	19.6	1930	620
		4/22/10	6.76	19.5	1921	884
		7/21/10	6.84	22.9	1761	921
		10/20/10	7.16	20.9	1980	829
		1/17/11	6.95	20.5	1880	756
		4/11/11	6.82	21.0	1942	834
		8/26/11	6.84	21.8	1800	847
		2/1/12	7.13	20.5	2024	867
		4/25/12	6.83	21.5	1960	817
		7/11/12	6.48	22.8	2030	834
		10/10/12	6.98	21.2	1985	863
		2/27/13	6.58	20.9	1805	821
		5/8/13	6.41	20.7	1744	798
		8/13/13	6.69	21.2	1739	756
		11/1/13	6.61	21.2	1624	738
		2/10/14	6.69	21.6	1616	715
5/7/14	6.48	22.5	1612	686		
7/21/14	6.63	23.1	1548	671		
DODSON	644927	2/20/08	7.61	17.3	857	54
		5/12/08	7.11	21.1	1118	34.2
		7/24/08	7.25	21.6	1233	49.3
		10/13/08	7.15	20.5	1095	56.9
		1/22/09	7.20	20.4	892	51.8
		4/9/09	7.09	21.4	1103	50.1
		7/8/09	7.18	21.1	1153	55.9
		10/6/09	7.07	21.1	1140	49.3
		1/21/10	7.15	18.9	1227	44.6
		4/19/10	7.46	19.9	1261	48.8
		4/19/10 DUP	7.46	19.9	1261	48.6
		7/20/10	7.16	22.7	1260	47.5
		10/18/10	6.43	21.2	1260	49.3
		1/19/11	7.88	19.5	1120	57.9
		4/5/11	7.03	20.9	1300	49.0
		7/12/11	6.86	23.7	1352	52.9
		10/10/11	6.79	20.9	1280	50.9
		10/10/11 DUP	6.79	20.9	1280	49.6
		1/31/12	7.17	20.3	1454	50.4
		4/12/12	7.06	20.6	1492	45.4
		7/11/12	7.10	21.5	1790	54.0
		10/4/12	7.27	20.6	1626	48.7
		1/18/13	7.27	20.2	1743	51.8
		1/18/13 DUP	7.27	20.2	1743	51.6
		4/9/13	7.33	19.6	1886	74.4
		7/9/13	7.39	21.0	1825	53.6
		10/9/13	7.24	20.2	1612	63.3
		1/9/14	7.31	19.7	1586	61.4
4/15/14	7.24	20.7	1636	58.5		
7/14/14	7.27	21.9	1651	54.4		
DURAZO	NR	2/10/09	7.22	18.8	848	386
		4/20/09	7.37	22.7	901	367
		7/15/09	7.57	22.8	1102	332
		10/14/09	7.17	21.9	1048	377
		2/1/10	7.30	21.1	1105	344
		4/26/10	7.22	23.1	1099	388
		7/20/10	7.28	23.0	1070	405
		10/19/10	7.28	21.9	1112	398
		1/19/11	7.94	21.6	1050	360
		4/4/11	7.20	21.9	1119	383
		7/14/11	7.01	23.6	1101	409
		10/12/11	7.23	24.9	1000	396
		2/7/12	7.26	25.3	1152	404
		4/12/12	7.41	21.8	1101	407

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)		
EAST	599796	2/8/08	7.45	19.9	423	10.6		
		5/14/08	7.31	20.9	595	14.8		
		7/23/08	7.34	20.8	605	11.8		
		10/14/08	7.33	20.3	531	8.9		
		1/20/09	7.33	20.0	482	12.5		
		4/8/09	7.32	20.6	555	15.9		
		7/13/09	7.33	21.2	613	13.8		
		10/8/09	7.29	20.8	593	13.4		
		1/25/10	7.08	19.0	585	10.7		
		4/21/10	7.42	20.5	616	14.4		
		4/21/10 DUP	7.42	20.5	616	13.9		
		7/14/10	7.45	22.2	577.1	12.1		
		10/20/10	7.64	21.2	650	12.1		
		1/18/11	7.44	21.0	615.9	13.1		
		4/5/11	7.19	20.8	612.5	13.8		
		7/12/11	7.23	21.7	595.1	12.7		
		10/12/11	7.31	21.4	599.7	15.1		
		10/12/11 DUP	7.31	21.4	599.7	15.1		
		1/31/12	7.24	20.0	610	12.8		
		4/11/12	7.53	20.6	609.3	14.6		
		7/9/12	7.20	21.1	580	14.2		
		10/4/12	7.49	20.4	623.8	15.0		
		1/17/13	7.46	20.0	613.0	13.1		
		4/9/13	7.54	19.6	597.7	12.2		
		7/9/13	7.46	21.2	603.6	12.1		
		10/15/13	7.51	20.2	622.6	17.2		
		1/14/14	7.54	20.2	632.2	15.5		
		1/14/14 DUP	7.54	20.2	632.2	15.5		
4/8/14	7.44	20.5	634.7	15.3				
7/8/14	7.43	20.7	618.8	13.1				
ECHAVE	219449	2/1/12	7.39	20.7	390.0	26.7		
		4/23/12	7.50	22.5	440.0	26.4		
		7/17/12	7.44	22.2	430	26.1		
		10/9/12	7.69	21.9	404.7	26.1		
		10/9/12 DUP	7.69	21.9	404.7	26.0		
		1/18/13	7.61	21.7	408.5	25.4		
		5/14/13	7.74	22.2	400.2	25.2		
		7/17/13	7.81	22.1	406.4	24.3		
		10/8/13	7.66	21.4	404.3	24.5		
		1/13/14	7.68	21.0	412.4	25.7		
		4/10/14	7.67	21.4	409.3	26.4		
		7/17/14	7.68	21.6	405.0	26.7		
		EPPELE 641	805641	3/1/08	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		
4/11/12 DUP	7.74			20.6	563.8	19.6		
7/6/12	7.60			21.7	560	18.8		
10/3/12	7.84			20.7	558.8	19.5		
1/17/13	7.76			19.1	559.6	18.8		
4/8/13	7.71			20.4	564.1	17.5		
4/8/13 DUP	7.71			20.4	564.1	17.4		
7/9/13	7.66			21.9	570.1	17.5		
10/15/13	7.86	21.1	682.5	31.9				
1/14/14	7.97	19.1	602.8	29.0				
4/8/14	7.60	19.4	600.2	21.5				
7/8/14	7.65	21.0	596.9	21.6				
FLEMING	218386	7/15/10	6.98	24.2	1390	573		
FRANCO 101	500101	2/6/08	7.47	19.6	1301	670		
		5/5/08	6.93	23.1	1557	680		
		7/14/08	7.00	22.7	1586	680		
		10/15/08	7.20	20.5	1560	680		
		1/22/09	7.19	20.1	1178	740		
		4/14/09	7.24	23.1	1416	690		
		7/13/09	7.30	27.3	1532	670		
		10/12/09	7.16	24.2	1493	650		
		1/26/10	6.91	18.5	1529	640		
		4/23/10	7.43	15.8	1559	699		
		7/13/10	7.48	28.6	901.6	188		

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)		
FRANCO 383	221383	9/13/12	7.66	25.0	1005	318		
		10/5/12	7.63	24.4	1002	324		
		11/13/12	7.67	19.8	988.2	349		
		12/3/12	7.54	19.4	1001	332		
		1/15/13	7.52	13.5	1010	333		
		2/6/13	7.55	18.9	1004	353		
		3/7/13	7.4	20.5	979.9	338		
		4/10/13	7.7	20.4	1000	335		
		7/10/13	7.69	25.7	1018	335		
		10/16/13	7.63	21.9	1018	350		
		1/14/14	7.68	20.1	1039	345		
		4/8/14	7.68	24.3	1044	351		
		4/8/14 DUP	7.68	24.3	1044	330		
		7/14/14	7.63	26.5	1030	349		
FULTZ	212447	2/27/08	6.76	21.1	1827	152		
		4/21/08 <sup>1</sup>	6.74	22.0	1739	137		
		5/14/08 <sup>1</sup>	6.88	22.3	1532	131		
		6/23/08 <sup>1</sup>	6.74	22.0	1788	111		
		7/29/08 <sup>1</sup>	6.74	22.2	1989	152		
		8/28/08 <sup>1</sup>	M	21.6	1889	137		
		9/23/08 <sup>1</sup>	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		
2/4/08	7.61			22.7	479	37.8		
GARNER 635	587635	5/5/08	7.26	24.9	468	35.8		
		7/15/08	7.63	25.6	480	37.4		
		10/15/08	7.65	24.1	472	36		
		1/28/09	7.69	23.4	368	37.4		
		4/15/09	7.83	24.1	412	36.9		
		7/16/09	7.56	25.1	445	35.7		
		10/14/09	7.58	25.2	446	36.1		
		2/2/10	7.79	22.8	465	35.1		
		4/22/10	7.84	23.7	464.1	36.9		
		7/20/10	7.57	25.3	458.2	38.8		
		10/19/10	8.23	25.4	510	37.9		
		1/19/11	7.82	24.1	463.4	35.7		
		1/19/11 DUP	7.82	24.1	463.4	35.7		
		4/6/11	7.76	23.4	467.4	35.8		
		7/15/11	7.19	25.0	457.40	37.7		
		10/11/11	7.57	24.2	400.0	38		
		2/2/12	7.38	22.7	469.5	39.2		
		4/13/12	7.62	24.0	460.0	33.5		
		7/11/12	7.52	24.9	520	37.7		
		7/11/12 DUP	7.52	24.9	520	37.2		
		10/5/12	8.09	23.1	472.9	39.1		
		1/11/13	7.83	23.7	470.8	38.7		
		4/15/13	7.79	23.4	471.5	40		
		7/10/13	7.9	25.0	469.5	36.7		
		10/11/13	7.78	24.0	476.7	38.8		
		1/17/14	7.81	23.2	473.6	41		
		4/15/14	7.74	23.7	470.7	40.4		
		GGOOSE 547	628547	5/21/08	7.08	22.7	856	199
				8/15/08	7.02	24.8	915	178
10/29/08	7.27			22.6	897	216		
2/24/09	7.06			23.8	851	186		
5/14/09	7.15			23.9	743	174		
8/19/09	7.20			23.8	887	175		
11/11/09	7.15			23.1	897	188		



**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)		
GL-03	539782	3/4/08	7.43	25.7	417	20.3		
		5/22/08	7.06	25.3	647	43.3		
		8/4/08	7.10	26.8	673	36.1		
		11/12/08	7.21	25.2	478	34.9		
		2/26/09	7.05	26.5	603	54.8		
		5/5/09	6.91	28.1	682	43.9		
		8/1/09	7.12	27.4	768	43.1		
		11/10/09	6.96	27.0	692	49		
		3/2/10	7.36	24.9	693	43.4		
		3/2/10 DUP	7.36	24.9	693	45.1		
		4/9/10	6.17	25.6	556	48.1		
		7/7/10	6.48	26.3	546	44.4		
		2/1/12	6.57	24.1	559	42.0		
HARDT	NR	2/5/13	7.15	17.5	670.6	17.7		
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		
		7/1/12	6.86	21.4	1906	1110		
		10/17/12	6.74	22.0	1846	1040		
		2/15/13	6.64	20.7	1934	954		
		5/8/13	6.6	21.4	1903	1060		
		8/13/13	6.85	21.6	1925	1030		
		11/1/13	6.74	21.0	1920	1070		
		2/10/14	6.64	21.0	1950	991		
		5/7/14	6.69	21.1	1958	1030		
		7/21/14	6.69	21.6	1903	1030		
		HOWARD 312	221312	8/14/12	8.35	26.3	629.3	69.2
				10/16/12	8.18	26.6	648.3	68.1
2/6/13	8.18			24.1	650.3	71.9		
4/9/13	8.2			24.3	621	67.5		
7/12/13	8.25			26.8	624.9	67.9		
10/16/13	8.12			25.6	623.7	70.2		
1/8/14	8.22			24.8	620.1	70.8		
4/10/14	8.14			26	621.7	66.1		
4/10/14 DUP	8.14			26	621.7	68.2		
7/14/14	8.16			26.6	618.3	69.1		
HOWARD NR	NR			3/4/08	7.06	20.4	1280	571
				5/8/08	6.95	21.0	1494	673
				7/14/08	7.00	21.1	1566	610
		10/15/08	7.00	20.6	1598	683		
		1/28/09	6.82	21.0	1203	640		
		1/28/09 DUP	6.82	21.0	1203	640		
		4/15/09	7.02	21.5	1397	620		
		7/15/09	7.16	21.5	1539	640		
		10/12/09	6.89	21.4	1414	600		
		1/27/10	7.35	20.0	1714	440		
		1/27/10 DUP	7.35	20.0	1714	520		
		4/21/10	7.16	20.8	1490	710		
		7/19/10	6.94	24.6	1350	548		
		10/18/10	6.47	21.4	1420	568		
		1/17/11	7.12	19.8	1370	520		
		4/11/11	7.20	20.6	1489	616		
		8/26/11	7.11	23.2	1160	498		
		10/11/11	7.1	21.0	1220	545		
		10/11/11 DUP	7.1	21.0	1220	538		
		2/1/12	7.29	20.6	1367	630		
		4/13/12	6.99	21.2	1508	632		
		9/13/12	7.12	21.9	1576	699		
		10/16/12	7.06	21.1	1417	576		
		2/6/13	7.06	20.3	1499	679		
		4/9/13	7.38	19.4	1319	521		
		7/12/13	7.40	21.6	1430	590		
		10/16/13	7.15	20.3	1319	522		
		1/8/14	7.24	20.3	1267	462		
		4/10/14	7.23	20.6	1262	471		
		7/14/14	7.18	21.1	1300	496		
		7/14/14 DUP	7.18	21.1	1300	495		

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
KEEFER	209744	2/6/08	7.70	19.0	378	6.8
		5/6/08	7.19	20.3	512	9
		7/16/08	7.21	21.4	539	8
		10/28/08	7.32	20.1	534	21.2
		1/28/09	7.42	19.5	356	6.1
		4/16/09	7.29	20.0	452	7.7
		7/14/09	7.35	22.1	533	7
		10/13/09	7.24	20.7	516	8.7
		1/26/10	7.15	18.8	483	7.3
		4/20/10	7.44	20.5	540.9	8.77
		7/15/10	7.50	22.2	535.8	8.84
		10/19/10	6.72	20.2	470	7.89
		1/18/11	7.45	20.6	450	7.24
		4/6/11	7.48	19.1	546.2	8.04
		7/18/11	7.19	23.2	492.3	7.79
		10/11/11	7.39	20.7	486.9	7.98
		2/6/12	7.36	20.3	482.0	6.84
		4/23/12	7.23	21.6	500	7.14
		7/17/12	7.40	21.0	500	7.29
		10/9/12	7.58	20.1	506.6	8.47
		1/10/13	7.55	19.3	466.3	6.37
		4/18/13	7.58	20	475.9	7.3
		7/11/13	7.67	20.8	485.1	7.23
		7/11/13 DUP	7.67	20.8	485.1	7.24
10/7/13	7.53	20.6	458.9	6.39		
1/7/14	7.61	19.7	464.8	6.54		
4/9/14	7.59	20.2	473.3	6.61		
7/10/14	7.49	21.6	460.5	6.66		
MARCELL	NR	8/26/11	7.12	25.1	1390	669
		9/26/11	6.63	22.1	1502	638
		11/22/11	7.29	21.0	1536	687
		2/1/12	7.42	20.8	1557	705
		4/13/12	7.15	21.8	1560	668
		7/13/12	6.86	22.3	1730	650
		10/17/12	7.18	21.3	1546	660
		10/17/12 DUP	7.18	21.3	1546	657
		2/6/13	7.25	19.8	1553	714
		2/6/13 DUP	7.25	19.8	1553	714
		4/10/13	7.07	19.9	1578	695
		7/15/13	7.09	21.4	1617	724
		2/20/08	7.21	21.1	1435	720
		5/6/08	6.77	21.6	1668	737
7/15/08	6.91	22.3	1775	700		
10/15/08	6.82	21.3	1686	703		
1/28/09	6.85	21	1274	660		
4/15/09	7.04	21.3	1472	657		
7/15/09	7.01	22.2	1607	662		
10/12/09	6.77	21.7	1594	666		
1/26/10	6.71	21.5	1641	685		
4/22/10	6.95	20.1	1691	811		
7/21/10	6.86	23.5	1560	805		
10/18/10	6.97	22.0	1704	775		
1/19/11	7.38	20.6	1610	711		
4/8/11	7.04	19.8	1775	810		
7/12/11	6.60	23.7	1702	790		
10/11/11	7.18	21.8	1590	845		
2/7/12	7.14	20.6	1842	847		
4/11/12	6.82	21.4	1781	833		
7/6/12	6.88	22.4	1827	851		
10/8/12	7.07	20.9	1862	934		
1/10/13	6.89	20.9	1854	902		
1/10/13 DUP	6.89	20.9	1854	889		
4/18/13	7.11	20.4	1889	884		
7/10/13	7.14	22.1	1897	898		
10/14/13	7.00	21.0	1911	908		
1/8/14	7.23	20.9	1942	985		
4/14/14	6.99	20.7	1913	963		
7/14/14	6.95	21.8	1941	975		
MCCONNELL 459	221459	7/27/12	8.25	26.5	510.0	41
		10/8/12	8.12	25.3	517.3	43.4
		1/15/13	8.06	24.5	512.6	37.4
		4/10/13	8.14	23.5	487.0	35.5
		7/10/13	8.10	25.5	480.7	34.5
		10/14/13	8.04	24.9	486.7	34.6
		1/8/14	8.20	23.7	489.4	37.1
		4/14/14	8.08	24.6	474.3	35.9
		9/9/14	8.12	25.1	465.7	33.0

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)		
METZLER	35-71891	3/5/08	7.27	21.6	1055	317		
		5/15/08	7.12	22.8	1051	329		
		7/31/08	7.16	22.5	1078	317		
		10/20/08	7.24	22.2	1080	305		
		10/20/08 DUP	7.24	22.2	1080	326		
		2/11/09	7.12	21.3	818	321		
		4/20/09	7.22	23.2	845	313		
		7/15/09	7.41	22.9	1031	293		
		7/15/09 DUP	7.41	22.9	1031	309		
		10/14/09	7.1	22.7	989	315		
		2/1/10	7.22	21.7	1021	286		
		5/18/10	7.56	21.0	1053	330		
		7/16/10	7.20	24.1	1007	330		
		10/19/10	7.15	22.6	1006	319		
		1/19/11	7.55	21.1	930	298		
		4/4/11	7.03	23.3	1018	323		
		7/12/11	7.07	22.3	993.0	312		
		10/12/11	7.27	22.1	910	301		
		2/7/12	7.36	21.5	1019	326		
		4/12/12	7.34	21.1	1009	320		
MOORE	538847	2/20/08	7.69	22.2	362	7.1		
		5/8/08	7.09	22.4	432	7.5		
		7/16/08	7.34	23.0	482	9.8		
		10/29/08	7.32	22.4	452	19.2		
		1/29/09	7.11	21.7	328	6.6		
		4/16/09	7.40	22.1	374	6.4		
		7/15/09	7.44	23.3	439	5.8		
		10/13/09	7.36	22.6	429	7.1		
		1/26/10	7.54	19.6	423	6.3		
		4/22/10	7.47	20.6	433	7.40		
		7/15/10	7.44	24.1	431.3	7.54		
		7/15/10 DUP	7.44	24.1	431.3	7.11		
		10/19/10	6.79	22.1	430	7.14		
		1/18/11	7.48	21.1	390	6.42		
		4/6/11	7.39	21.4	426.3	6.70		
		7/13/11	6.91	23.2	423.4	7.62		
		10/11/11	7.31	22.5	419.0	7.31		
		1/31/12	7.35	21.7	430	7.21		
		4/23/12	7.34	22.8	470	6.99		
		4/23/12 DUP	7.34	22.8	470	7.05		
		7/17/12	7.36	22.9	430	7.01		
		7/17/12 DUP	7.36	22.9	430	6.99		
		10/8/12	7.64	21.4	433.2	7.51		
		1/10/13	7.50	20.8	439.9	7.16		
		4/19/13	7.68	21.6	434.7	7.25		
		7/11/13	7.56	22.9	442.2	7.14		
		10/7/13	7.59	21.5	431.8	6.99		
		NESS	509127	7/24/08	7.35	26.5	563	50.2
				10/16/08	7.47	21.4	542	48.9
				1/26/09	7.39	17.2	422	52.3
5/11/09	7.52			28.8	472	45.9		
8/11/09	7.56			28.7	525	39.8		
11/12/09	7.53			24.5	537	51.3		
2/2/10	7.67			19.7	535	48.7		
4/21/10	7.70			23.5	518.9	42.1		
7/19/10	7.58			28.9	524.7	48.1		
1/18/11	7.49			21.8	536.6	50.1		
7/12/11	7.48			26.3	520.0	43.5		
2/3/12	7.58			21.1	538.2	49.0		
7/10/12	7.20			26.8	380	40.1		
7/10/12 DUP	7.20			26.8	380	39.2		
1/9/13	7.57			19.1	549.6	53.9		
7/8/13	7.84			27.9	539.2	46.8		
1/6/14	7.61			20.3	542.4	53.4		
7/7/14	7.60			25.3	536.6	48.3		

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
NOTEMAN	212483	2/5/08	6.70	19.9	1317	310
		5/13/08	6.67	23.0	1445	272
		7/24/08	6.68	24.2	1539	274
		10/23/08	6.57	23.2	1643	356
		1/19/09	6.38	22.9	1098	322
		4/7/09	6.56	23.8	1375	303
		7/8/09	6.55	24.6	1405	260
		10/5/09	6.48	24.1	1442	281
		1/20/10	6.79	20.3	1450	289
		4/19/10	6.81	22.4	1446	307
		7/19/10	6.77	24.6	1438	309
		10/18/10	6.08	24.6	1430	280
		1/19/11	6.84	22.3	1446	266
		4/4/11	6.72	22.9	1446	276
		4/4/11 DUP	6.72	22.9	1446	279
		7/11/11	6.78	23.9	1406	272
		10/11/11	6.96	23.4	1250	286
		2/3/12	6.68	21.3	1370	301
		4/23/12	6.68	24.0	1580	291
		7/9/12	6.57	24.7	1360	265
		7/9/12 DUP	6.57	24.7	1360	265
		10/4/12	6.80	23.6	1412	287
		1/17/13	6.69	23.3	1417	288
		4/8/13	6.90	22.3	1409	280
		7/9/13	6.89	24.3	1400	278
		10/14/13	6.75	23.2	1528	355
1/10/14	6.83	22.2	1440	311		
4/10/14	6.84	23.2	1426	301		
7/7/14	6.80	23.2	1423	289		
NOTEMAN HOUSE	212483	2/3/12	7.06	13.5	1520	324
NSD-02	527587	2/5/08	ND	ND	ND	43
		7/7/08	8.02	21.0	609	44
NSD-03	527586	2/5/08	ND	ND	ND	70.7
		7/7/08	7.64	21.0	570	58.9
NWC-02	562944	10/27/08	7.47	22.2	438	5.1
		2/12/09	7.58	21.6	330	6.6
		4/23/09	7.39	23.8	373	6.4
		7/21/09	7.62	23.9	408	5
		10/21/09	7.32	22.6	436	6.8
		2/3/10	7.68	19.6	423	8.5
		4/21/10	7.57	22.1	413	7.26
		7/20/10	7.36	23.7	412.5	6.87
		10/19/10	7.42	22.5	416.2	7.39
		1/18/11	7.47	23.2	390	6.43
		4/6/11	7.27	22.9	413.5	6.4
		7/15/11	7.03	22.5	416.3	7.24
		10/13/11	7.45	21.9	370	7.31
		1/30/12	7.39	21.2	431.3	7.78
		4/25/12	7.42	22.4	370	8.42
		7/18/12	7.33	22.5	430	6.99
		10/10/12	7.58	21.7	423.9	7.46
		1/10/13	7.58	21.8	396.4	9.02
		4/17/13	7.64	21.2	426.2	7.52
		7/12/13	7.65	22.0	429.3	6.91
		10/10/13	7.49	21.2	433.4	7.05
		10/10/13 DUP	7.49	21.2	433.4	7.14
		1/13/14	7.6	21.2	426.7	7.03
		4/7/14	7.59	21.3	432.9	7.34
		7/10/14	7.57	22.0	431.6	7.65
		NWC-03	203321	3/4/08	ND	ND
6/9/08	ND			ND	ND	524
10/27/08	7.07			21.9	1374	489
2/12/09	7.06			20.2	1023	412
4/23/09	6.98			21.9	1129	466
4/23/09 DUP	6.98			21.9	1129	460
7/21/09	7.21			22.9	1194	458
10/21/09	6.94			21.8	1224	444
2/3/10	7.24			20.7	1214	444
4/21/10	7.22			21.6	1178	433
7/20/10	7.04			22.8	1229	477
10/19/10	7.22			21.3	1172	432
1/18/11	7.09			22.8	1120	386
4/6/11	7.19			21.7	1114	361
7/15/11	6.91			21.8	1094	386
10/13/11	7.23			21.6	960	353
1/30/12	7.15			21.5	1061	379
4/25/12	7.17			21.6	920	346
4/25/12 DUP	7.17			21.6	920	347
7/18/12	7.05			22.1	1080	354
10/10/12	7.31			21.1	1029	354
10/10/12 DUP	7.31			21.1	1029	353
1/10/13	7.18			20.8	1051	370

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
NWC-04	551849	3/4/08	ND	ND	ND	240
		6/9/08	ND	ND	ND	231
		10/27/08	7.32	25.0	856	162
		1/22/09	7.23	22.9	688	184
		2/12/09	7.20	19.8	699	181
		2/12/09 DUP	7.20	19.8	699	198
		3/11/09	7.15	23.4	846	197
		4/23/09	7.21	24.1	797	188
		5/28/09	7.01	24.1	933	210
		6/24/09	6.93	25.6	792	169
		7/21/09	7.48	24.3	859	193
		8/19/09	7.12	24.5	906	183
		9/23/09	7.16	23.8	953	202
		10/21/09	7.18	24.3	875	191
		11/18/09	7.24	22.9	909	191
		12/16/09	7.28	22.3	926	193
		2/3/10	7.49	22.3	844	167
		3/8/10	7.33	22.5	880	182
		4/21/10	7.34	22.8	913	218
		5/18/10	7.68	25.8	901.3	210
		6/15/10	7.31	24.5	917.5	212
		7/20/10	7.28	28.3	873.2	188
		8/25/10	7.55	24.8	820.9	196
		9/29/10	7.38	24.5	920.2	205
		10/19/10	7.34	23.6	870.2	195
		11/4/10	7.53	23.9	853.2	197
		12/14/10	7.41	23.6	856.8	182
		1/18/11	7.31	24.1	860	194
		2/17/11	7.46	22.3	848.6	169
		3/17/11	7.44	24.1	888.1	182
		4/5/11	7.32	23.4	878.7	196
		5/11/11	7.32	23.1	868.1	175
		6/17/11	7.28	23.7	856.3	204
		7/15/11	7.06	23.5	875.1	202
		8/25/11	7.32	25.1	780	195
		9/26/11	6.56	26.2	875.4	198
		9/26/11 DUP	6.56	26.2	875.4	199
		10/13/11	7.46	23.3	770	198
		11/22/11	7.36	22.9	853.5	201
		12/8/11	7.33	22.3	872.2	207
		1/30/12	7.34	23.4	914.4	217
		2/17/12	7.45	22.9	898.1	203
		3/15/12	7.39	23.9	888.2	207
		4/25/12	7.16	23.4	870	204
		5/22/12	7.25	23.9	970	178
		6/6/12	7.27	24.4	1040	195
		7/18/12	7.25	23.7	880	205
		8/28/12	7.49	24.2	893.3	208
		9/13/12	7.40	23.9	883.7	205
		10/10/12	7.48	23.2	883.6	207
11/13/12	7.56	21.7	849.8	211		
12/3/12	7.40	23.0	898.6	208		
1/10/13	7.37	22.2	903.1	210		
2/7/13	7.54	23.0	917.5	228		
3/7/13	7.49	22.4	892.4	222		
4/17/13	7.43	22.6	903.8	223		
5/14/13	7.53	23.2	881.7	214		
6/5/13	7.29	33.9	862.7	201		
7/12/13	7.29	23.5	897.2	211		
7/12/13 DUP	7.29	23.5	897.2	200		
8/9/13	7.43	23.5	898.6	207		
9/5/13	7.56	23.8	893.6	214		
10/10/13	7.39	22.6	873.7	197		
11/6/13	7.58	21.8	852.3	202		
12/3/13	7.50	23.1	843.4	199		
1/13/14	7.12	21.9	885.6	197		
2/5/14	7.46	22.4	833.3	198		
3/5/14	7.59	22.8	813.3	168		
4/7/14	7.49	22.9	834.2	187		
5/13/14	7.56	23.4	819.8	186		
6/23/14	7.62	24.5	806.7	188		
7/10/14	7.57	23.8	826.2	194		
8/1/14	7.59	23.5	824.0	187		
9/9/14	7.50	24.0	789.5	163		

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)		
NWC-06	575700	6/9/08	ND	ND	ND	7.2		
		10/27/08	7.35	23.3	414	6.4		
		2/12/09	7.54	21.8	306	8		
		4/23/09	7.30	24.5	354	7.3		
		7/21/09	7.63	23.5	388	6.4		
		10/21/09	7.26	23.2	413	8		
		2/3/10	7.61	20.5	404	7.5		
		2/3/10 DUP	7.61	20.5	404	7.4		
		4/21/10	7.54	22.4	387	8.49		
		7/20/10	7.33	26.0	388.6	8.59		
		10/19/10	7.49	22.7	394.5	8.32		
		1/18/11	7.45	23.4	380	8.24		
		4/6/11	7.42	23.1	388.3	7.76		
		4/6/11 DUP	7.42	23.1	388.3	7.73		
		7/15/11	7.09	22.9	394.3	8.36		
		10/13/11	7.51	22.3	340	8.48		
		1/30/12	7.47	22.1	402.7	8.44		
		4/25/12	7.34	22.5	410	7.11		
		7/18/12	7.39	22.8	380	8.60		
		10/10/12	7.62	21.9	393.6	9.33		
		1/10/13	7.47	21.3	429.2	7.55		
		4/17/13	7.66	21.1	404.1	8.82		
		7/12/13	7.59	22.4	404.1	8.40		
		10/10/13	7.56	21.6	403.3	8.38		
		1/13/14	7.64	21.3	401.8	8.78		
		4/7/14	7.65	21.7	403.7	8.62		
		7/10/14	7.68	22.4	405.9	8.97		
7/10/14 DUP	7.68	22.4	405.9	8.99				
OSBORN	643436	2/25/08	7.35	22.4	508	16.4		
		5/13/08	7.22	22.2	576	17.2		
		7/22/08	7.24	22.9	618	17.7		
		7/22/08 DUP	7.24	22.9	618	17.5		
		10/16/08	7.39	22.4	595	15.9		
		1/20/09	7.33	22.4	469	16		
		4/7/09	7.25	24.0	542	17		
		8/18/09	7.16	24.6	643	17.4		
		10/5/09	7.14	22.9	599	17.9		
		1/21/10	7.47	19.5	591	15.6		
		4/19/10	7.60	21.5	601.9	19.3		
		7/12/10	7.69	24.2	594.0	18.4		
		7/12/11	7.87	29.8	575.9	19.5		
		2/3/12	8.15	15.3	390	19.2		
		1/8/13	7.88	10.5	544.4	20.4		
		7/8/13	7.56	39.2	510.3	19.2		
		1/10/14	7.89	18.1	580.5	18.7		
		7/7/14	7.84	29.2	496.3	18.0		
		PALMER	578819	2/14/08	7.91	17.5	435	15.9
				5/13/08	7.92	22.9	508	16.6
7/22/08	7.64			25.8	548	16.2		
10/16/08	7.61			17.0	527	15.9		
1/20/09	7.33			19.4	441	14.3		
4/8/09	7.65			19.1	475	15.4		
7/8/09	7.47			27.2	521	14.3		
10/5/09	7.81			22.2	538	16.2		
1/20/10	7.72			11.9	510	13.8		
4/22/10	7.97			13.6	520	16.7		
7/12/10	7.62			30.2	518.8	15.7		
10/18/10	8.13			22.1	511.9	16.5		
1/18/11	7.24			17.1	517.0	15.7		
4/5/11	8.04			19.0	499.2	15.8		
7/12/11	7.65			26.6	517.6	16.4		
10/11/11	7.85			22.0	510.4	17		
2/3/12	7.94			10.0	521.4	17.1		
4/11/12	7.52			18.7	519.8	17.3		
7/10/12	7.30			27.9	390	16.6		
10/3/12	8.09			25.7	526.7	17.6		
10/3/12 DUP	8.09			25.7	526.7	17.5		
1/9/13	7.9			17.5	532.8	16.8		
4/8/13	8.07			18.4	534.1	17		
7/17/13	7.74			22.3	531.0	17.2		
10/14/13	8.03			20.1	533.1	16.9		
1/6/14	7.82			11.9	517.4	17.4		
4/7/14	7.96			18.3	534.8	17.3		
7/7/14	8.07	23.9	534.4	18.3				

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
PANAGAKOS	35-76413	4/21/08	6.80	20.5	1228	410
		7/21/08	6.95	21.9	1390	444
		10/13/08	6.86	21.2	1386	480
		10/13/08 DUP	6.86	21.2	1386	500
		1/22/09	6.92	19.7	997	397
		4/9/09	6.81	21.7	1228	431
		4/9/09 DUP	6.81	21.7	1228	426
		7/9/09	6.89	22.3	1469	490
		10/6/09	6.83	21.1	1328	472
		1/21/10	7.06	18.8	1291	318
		4/20/10	7.25	21.0	1528	608
		7/20/10	6.90	24.0	1560	706
		10/18/10	6.38	22.1	1530	568
		7/14/11	6.93	23.3	1070	223
		8/25/11	7.17	23.4	1170	222
		2/6/12	6.98	20.8	1017	166
		2/29/12	7.09	20.3	1080	362
		3/15/12	7.02	21.4	1138	282
		4/12/12	6.90	20.9	1265	346
		4/12/12 DUP	6.90	20.9	1265	352
		7/9/12	6.82	22.2	1140	292
		11/27/2012	7.51	20.1	1164	274
		2/6/13	7.05	19.9	1054	212
		4/9/13	7.24	19.7	1105	232
		7/10/13	7.26	21.4	1218	329
		10/15/13	7.14	20.5	1109	240
		1/10/14	7.23	19.6	1079	227
		4/16/14	7.17	20.4	1103	228
		7/17/14	7.13	21.4	1357.0	467
		PARRA	576415	2/11/08	7.08	21.8
5/15/08	7.10			21.8	1200	405
7/31/08	7.00			22.4	1248	423
7/31/08 DUP	7.00			22.4	1248	404
10/20/08	7.07			22.9	1246	387
2/13/09	7.24			22.1	965	405
4/20/09	7.10			22.6	971	372
7/20/09	7.17			23.9	1174	375
10/20/09	6.80			22.5	1188	388
2/1/10	7.07			21.5	1197	353
4/22/10	6.91			20.3	1219	417
7/14/10	7.13			22.2	1201	403
7/14/10 DUP	7.13			22.2	1201	391
10/20/10	7.51			21.4	1270	411
1/19/11	7.49			20.8	1130	391
4/4/11	6.90			22.6	1207	382
7/12/11	6.76			23.7	1156	404
10/12/11	7.44			22.3	1070	406
2/7/12	7.64			21.4	1212	428
4/13/12	7.49			21.1	1204	402
4/13/12 DUP	7.49			21.1	1204	390
7/18/12	7.03			22.6	1210	418
7/18/12 DUP	7.03			22.6	1210	419
10/9/12	7.30			21.3	1209	428
1/11/13	7.64			20.3	1217	413
4/11/13	7.29			21.2	1206	427
7/17/13	7.21			21.9	1212	411
10/18/13	7.18			21.3	1212	406
1/8/14	7.21			20.8	1221	437
4/15/14	7.18			21.5	1213	416
7/21/14	7.30	22.4	1193	432		

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
PIONKE 395	613395	2/6/08	7.53	19.9	910	394
		5/7/08	7.08	21.4	1100	391
		7/17/08	6.99	21.9	1209	420
		10/27/08	7.03	20.8	1175	460
		1/29/09	7.13	19.9	847	385
		4/14/09	7.58	20.7	1053	411
		7/13/09	7.35	21.5	1165	472
		10/7/09	7.43	21.1	1100	403
		3/8/10	7.72	18.6	1201	406
		4/26/10	7.22	21.9	1224	438
		7/15/10	7.32	22.3	1158	474
		10/18/10	7.33	21.3	1277	473
		10/18/10 DUP	7.33	21.3	1277	487
		1/19/11	7.32	19.9	1222	471
		4/8/11	7.13	19.2	1232	467
		7/12/11	7.30	23.8	1226	500
		10/11/11	6.98	20.8	1100	502
		2/1/12	7.25	17.5	1230	481
		2/1/12 DUP	7.25	17.5	1230	495
		4/12/12	7.17	22.1	1218	508
7/11/12	6.59	22.9	1280	439		
10/17/12	7.16	22.3	1136	419		
9/18/12	7.91	23.4	395.8	14		
10/11/12	7.75	22.8	394.7	14.9		
1/9/13	7.79	22.6	389.9	14.3		
4/17/13	7.74	22.1	391.9	14.6		
7/16/13	7.84	22.9	391.5	13.9		
10/17/13	7.73	22.7	391.5	13.8		
2/5/14	7.75	21.5	394.2	14.9		
4/9/14	7.71	22.9	400.9	14.0		
7/11/14	7.76	23.7	388.9	14.6		
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		
2/12/08	7.11	18.9	428	15.5		
7/22/08	7.10	21.7	795	20.2		
1/16/14	7.38	20.9	1004	234		
2/5/14	7.35	20.8	1004	328		
3/5/14	7.39	21.3	991.4	187		
4/15/14	7.38	21.6	999.4	249		
5/13/14	7.40	21.4	990.9	206		
6/23/14	7.44	21.9	886.4	117		
7/17/14	7.40	22.1	861.3	168		
8/11/14	7.50	21.8	864.9	136		
9/9/14	7.49	21.7	850.4	105		
2/4/08	7.47	21.7	408	7.6		
5/6/08	7.19	22.7	405	8.3		
7/17/08	7.32	24.5	439	8.8		
10/27/08	7.41	22.2	412	7.3		
1/29/09	7.24	22.2	301	8.3		
4/16/09	7.49	22.4	344	7.6		
7/10/09	7.52	23.9	411	6.4		
10/6/09	7.30	23.8	388	8.4		
1/25/10	7.48	22.4	390	7.8		
4/21/10	7.45	22.6	397	9.04		
7/21/10	7.38	25.1	420	8.98		
10/19/10	7.91	23.7	450	10.8		
1/18/11	7.52	23.1	380	8.18		
4/11/11	7.24	23.2	408.5	8.65		
7/18/11	7.27	25.4	402.6	8.44		
10/12/11	7.40	23.3	412.7	8.55		
1/30/12	7.38	22.3	412.2	8.80		
4/10/12	7.40	23.2	404.5	8.70		
7/6/12	7.32	24.2	415.7	8.97		
10/8/12	7.61	22.5	412.0	9.14		
10/8/12 DUP	7.61	22.5	412.0	9.07		
1/17/13	7.52	22.2	409.6	8.82		
4/19/13	7.6	22.1	413.9	8.63		
7/15/13	7.58	23.6	416.2	8.19		
10/7/13	7.68	22.6	412.7	8.37		
1/13/14	7.63	21.9	409.8	8.79		
4/14/14	7.55	22.2	417.5	8.67		
7/10/14	7.58	23.2	413.5	8.92		



**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
RAY	803772	2/15/08	7.30	19.1	1540	159
		4/21/08 <sup>1</sup>	6.92	21.3	1418	125
		5/13/08 <sup>1</sup>	7.05	20.9	1418	123
		6/23/08 <sup>1</sup>	6.87	21.1	1593	130
		7/29/08 <sup>1</sup>	6.98	21.8	1411	120
		8/28/08 <sup>1</sup>	M	21.1	1519	129
		9/23/08 <sup>1</sup>	6.90	22.2	1519	125
		10/22/08	6.96	20.8	1604	145
		1/20/09	6.92	20.6	1355	88
		4/8/09	6.85	21.4	1759	178
		7/9/09	6.93	22.3	1434	126
		10/7/09	6.98	21.3	1288	127
		1/26/10	6.82	20.6	1352	125
		4/20/10	7.14	21.5	1318	134
		7/14/10	7.11	23.8	1313	137
		10/20/10	7.14	19.6	1368	127
		1/17/11	7.04	20.8	1451	132
		1/17/11 DUP	7.04	20.8	1451	125
		4/5/11	7.03	20.8	1387	132
		7/11/11	7.07	22.8	1345	126
		10/12/11	7.06	21.6	1250	130
		1/31/12	7.28	20.5	1360	131
		4/11/12	7.03	20.6	1359	131
		7/6/12	7.11	22.1	1430	129
		10/3/12	7.12	21.1	1464	130
		1/17/13	7.05	19.5	1527	126
		1/17/13 DUP	7.05	19.5	1527	140
		4/8/13	7.32	20	1476	131
		7/9/13	7.18	21.4	1451	128
		10/15/13	7.13	20.8	1487	135
		1/14/14	7.25	19.2	1433	133
4/8/14	7.09	20.8	1502	146		
7/8/14	7.14	21.4	1409	147		
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
		4/21/08 <sup>1</sup>	7.32	21.4	552	128
		5/8/08 <sup>1</sup>	7.14	21.2	622	141
		6/23/08 <sup>1</sup>	7.06	22.9	660	129
		7/29/08 <sup>1</sup>	6.78	23.1	339	134
		8/28/08 <sup>1</sup>	7.18	21.6	635	128
		9/23/08 <sup>1</sup>	7.24	21.9	599	133
		10/22/08	7.36	21.3	650	144
		2/10/09	7.42	17.9	475	141
		4/29/09	7.52	21.9	506	211
		8/3/09	7.39	24.2	674	150
		7/16/10	7.46	23.9	643.4	169
		10/19/10	7.32	21.1	643.8	154
		10/19/10 DUP	7.32	21.1	643.8	154
		1/20/11	7.44	18.1	610	143
		4/8/11	7.30	20.2	658.2	160
		7/14/11	7.12	23.5	653.5	166
		10/12/11	7.41	21.8	665.3	175
		1/30/12	7.40	20.0	580	171
		4/23/12	7.32	23.9	720	166
		7/13/12	7.26	24.0	820	171
		7/13/12 DUP	7.26	24.0	820	166
		10/10/12	7.41	24.3	671.4	177
		1/15/13	7.37	16.9	681.1	174
		4/15/13	7.57	23.8	698	190
		7/15/13	7.39	23.6	697.8	184
		10/16/13	7.47	25.4	710.6	185
		1/9/14	7.46	21.4	701.8	190
		4/11/14	7.52	26.1	711.3	190
		7/18/14	7.48	24.9	709.2	192

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
ROGERS E	216018	2/4/08	7.40	21.0	435	4.6
		5/7/08	7.18	22.2	415	5.9
		7/17/08	7.28	23.0	446	7.1
		10/27/08	7.38	21.4	434	15.7
		2/10/09	7.51	20.7	322	5.4
		4/16/09	7.48	22.0	361	4.9
		7/13/09	7.34	22.6	420	3.8
		10/6/09	7.31	22.3	407	5.8
		1/25/10	7.52	20.6	414	5.1
		4/21/10	7.44	21.1	421	6.04
		7/21/10	7.37	23.8	430	6.47
		10/19/10	7.80	22.8	460	5.92
		1/18/11	7.39	21.5	390	5.50
		4/11/11	7.19	22.7	427.2	6.13
		7/18/11	7.12	24.3	418.5	6.00
		10/13/11	7.52	22.2	370	5.99
		1/30/12	7.38	20.8	427.2	6.22
		4/10/12	7.37	22.1	421.8	6.31
		7/17/12	7.32	22.7	420	5.85
		10/17/12	7.55	21.7	429.0	6.04
		1/17/13	7.46	21.5	431.5	6.01
		4/18/13	7.63	21.3	433.5	6.26
		7/17/13	7.59	22.1	427.7	6.05
		7/17/13 DUP	7.59	22.1	427.7	6.28
		10/10/13	7.51	21.9	436.9	5.8
		1/7/14	7.49	21.0	434.0	6.24
4/14/14	7.59	21.4	431.2	6.11		
7/10/14	7.54	22.4	428.5	6.41		
RUIZ	531770	2/5/08	7.73	18.2	445	263
		5/15/08	7.23	25.9	965	265
		7/30/08	6.99	22.1	999	243
		10/20/08	7.04	22.0	995	238
		2/12/09	6.94	20.9	748	254
		4/21/09	7.18	22.3	759	227
		8/3/09	7.05	22.9	1029	221
		10/28/09	7.09	20.6	920	227
		2/1/10	7.08	20.9	934	236
		4/26/10	7.01	22.5	920.1	240
		7/20/10	7.08	22.5	880	240
		10/20/10	7.52	20.7	970	231
		1/18/11	7.19	20.2	860	213
		4/8/11	7.09	19.8	923.3	236
		8/26/11	6.85	22.6	800	220
		10/13/11	7.19	21.5	810	230
		2/7/12	7.28	20.7	915.6	230
		2/7/12 DUP	7.28	20.7	915.6	228
		4/13/12	7.04	21.1	896.5	203
		7/18/12	6.87	21.6	900	214
		10/9/12	7.18	21.4	890.6	229
		1/11/13	7.21	20.7	895.8	219
		1/11/13 DUP	7.21	20.7	895.8	211
		4/11/13	7.26	21.9	876.8	229
		7/25/13	7.13	21.4	887.3	228
		10/17/13	7.23	20.8	891.9	210
1/8/14	7.32	20.5	886.8	220		
4/15/14	7.26	21.2	873.5	215		
8/11/14	7.32	21.2	869.2	221		

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
SCHWARTZ	210865	2/8/08	7.52	21.5	506	158
		4/21/08 <sup>1</sup>	7.23	21.7	563	122
		5/19/08 <sup>1</sup>	7.38	22.4	629	130
		6/23/08 <sup>1</sup>	7.02	22.1	674	129
		7/29/08 <sup>1</sup>	7.25	22.4	955	245
		8/28/08 <sup>1</sup>	M	22.3	669	131
		9/23/08 <sup>1</sup>	7.27	22.2	607	124
		10/22/08 <sup>1</sup>	7.31	22.0	653	135
		11/19/08 <sup>1</sup>	7.38	21.1	612	140
		12/17/08 <sup>1</sup>	6.78	21.6	472	144
		1/29/09 <sup>1</sup>	7.08	22.0	475	124
		2/23/09 <sup>1</sup>	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
		4/1/11	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
		2/6/12 DUP	7.32	21.3	629.7	114
		4/10/12	7.48	21.6	626.1	120
		7/16/12	7.31	21.9	710	117
		10/17/12	7.48	21.6	645	121
		3/13/13	7.57	20.7	623.6	118
		5/14/13	7.61	21.5	629.7	112
		7/15/13	7.49	22.1	770.2	198
		10/14/13	7.55	20.9	633.3	109
1/13/14	7.61	20.6	663.1	125		
4/9/14	7.48	21.5	635.9	110		
7/18/14	7.45	21.8	790.5	216		
SRC	211345	4/23/08	7.57	25.8	380	19
		8/5/08	7.40	27.2	452	15.4
SWAN	NR	2/13/08	7.28	20.7	467	24.1
		5/14/08	7.24	21.2	479	23.7
		7/24/08	7.35	22.4	506	18
		10/16/08	7.32	20.7	488	19
		1/20/09	7.05	20.4	391	19.8
		4/7/09	7.21	21.5	447	19.9
		7/8/09	7.18	23.1	473	18.5
		10/5/09	7.18	21.4	496	19.7
		1/21/10	7.49	19.5	501	18.4
		4/21/10	7.42	20.3	512.1	20.9
		7/19/10	7.13	23.8	518.6	22.2
		1/18/11	7.19	17.8	483.6	18.7
		7/12/11	7.05	22.4	478.2	19.1
		2/3/12	7.40	20.5	484.5	20.1
		2/3/12 DUP	7.40	20.5	484.5	19.5
		7/10/12	7.00	22.7	370	19.4
		1/1/13	7.38	20.0	489.0	19.3
		7/8/13	7.45	22.8	489.7	19.4
		1/10/14	7.65	19.7	428.6	19.2
		7/7/14	7.44	21.8	464.7	19.4
THOMPSON 341	218341	5/29/13	7.22	24.4	415.9	7.32
		8/9/13	7.57	22.2	420.0	7.62
		10/9/13	7.49	21.6	425.2	7.54
		1/16/14	7.53	21.5	432.7	7.48
		4/14/14	7.50	21.6	425.8	7.68
7/21/14	7.48	22.3	414.2	8.02		
TM-02A	522574	3/4/08	8.67	22.6	302	12.3
		5/23/08	7.75	22.9	321	14.7
		8/15/08	7.84	26.4	369	14.4
		10/30/08	8.07	23.9	375	21.9
		2/24/09	8.10	24.8	340	20.3
		5/6/09	8.06	26.7	320	18.7
		8/12/09	8.34	26.9	398	20
		11/4/09	8.16	26.3	381	21.8
		3/10/10	8.13	25.2	351	21.4
		3/10/10 DUP	8.13	25.2	351	21.3
		4/6/10	6.96	24.6	363	25.6
		7/6/10	7.38	24.6	343	22.1
		2/10/11	6.93	20.2	359	22.9
		7/13/11	7.92	24.8	349	22.5
		2/2/12	7.89	22.2	360	23.0
		8/14/12	7.65	24.6	366	23.4
		2/15/13	7.72	22.2	369	22.1
		8/27/13	7.72	24.7	414	23.5
		2/18/14	7.54	24.3	388	24.5
		8/12/14	7.62	24.7	395	25.6

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
TM-03	522575	5/20/08	7.51	22.2	778	110
		8/6/08	7.08	21.6	828	97
		11/12/08	7.47	20.5	590	128
		2/26/09	7.21	21.8	737	107
		2/26/09 DUP	7.21	21.8	737	102
		5/13/09	7.47	22.2	695	109
		8/18/09	7.48	22.4	822	98
		11/10/09	7.55	21.8	761	106
		3/2/10	7.56	21.6	748	99
		4/14/10	7.55	20.6	635	103
		7/7/10	7.19	21.4	566	103
		2/1/12	7.48	21.1	744	112
TM-06 MILLER	522695	2/27/08	7.44	19.6	457	13.9
		5/20/08	7.50	20.7	506	32.7
		8/4/08	7.41	20.7	529	31.3
		10/29/08	7.55	20.2	531	34.5
		2/26/09	7.18	20.4	574	32.7
		5/13/09	7.35	20.9	465	30.6
		8/18/09	7.50	20.9	560	30.9
		8/18/09 DUP	7.50	20.9	560	29.9
		11/12/09	7.53	20.4	530	31.1
		4/14/10	7.35	19.4	461	29.0
		7/2/10	7.24	20.1	438	29.8
		7/21/11	7.1	20.1	516	31.7
		7/9/12	6.82	20.8	505	33.5
		2/14/13	6.92	19.6	527	31.1
		8/19/13	7.21	19.9	556	32.5
		7/21/14	7.17	19.9	551	33.0
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
		2/1/11	6.87	20.1	393	24.9
		7/21/11	6.90	21.4	402	41.7
		2/9/12	7.15	23.0	670	171
		8/13/12	6.83	21.7	415	25.4
		2/27/13	6.81	19.9	380	25.6
		8/28/13	7.36	21.2	369	25.0
		2/13/14	6.99	20.4	372	27.4
		8/21/14	7.35	20.6	358	48.5
		TM-08 SWAN	522817	2/13/08	7.63	24.1
5/14/08	7.44			24.4	480	12.6
7/23/08	7.76			28.1	522	12.6
12/8/11	6.95			19.6	381	16.8
TM-10 USBP	522696	3/15/12	7.85	20.2	382.3	15.1
		4/24/12	7.88	21.0	280	13.4
		4/24/12 DUP	7.88	21.0	280	13.3
		9/13/12	8.09	21.1	407	13.3
		10/19/12	8.17	21.0	428.2	12.8
		3/7/13	8.33	21.2	415.1	12.7
		4/17/13	8.27	20.3	423.9	12.8
		7/23/13	8.16	21.4	426.1	13.2
		11/6/13	7.90	21.3	386.5	4.81
		11/6/13 DUP	7.90	21.3	386.5	4.64
		1/15/14	7.91	21.1	424.4	3.98
		5/15/14	7.98	20.4	410.6	5.12
		7/15/14	7.86	21.4	421.9	5.46
TM-15 MILLER	522699	2/27/08	7.66	21.9	344	14
		5/23/08	7.54	22.1	371	14.4
		8/5/08	7.42	23.3	413	13.7
		10/28/08	7.63	22.6	387	18.6
		10/28/08 DUP	7.63	22.6	387	18.8
		2/26/09	7.57	22.0	373	14.6
		5/13/09	7.61	23.1	344	13.7
		8/17/09	7.73	23.2	398	14.2
		11/3/09	7.73	23.4	414	14.8
		2/24/10	7.66	22.8	381	14.4
		4/27/10	7.71	23.0	383.6	14.9
		7/20/10	7.77	23.0	324	14.3
		7/12/11	7.36	23.2	380	14.2
		7/10/12	7.04	23.7	379	14.9
		2/12/13	6.96	21.7	393	14.6
		9/4/13	7.2	22.8	412	14.8
		7/22/14	7.18	23.2	407	14.6

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)		
TM-16	522578	3/5/08	7.17	20.6	1351	497		
		5/22/08	7.05	20.5	1304	522		
		8/6/08	6.67	20.9	1410	466		
		11/5/08	7.14	19.8	1162	547		
		2/20/09	6.90	21.1	1292	492		
		5/13/09	6.93	21.1	1179	484		
		8/19/09	7.08	21.2	1354	468		
		11/10/09	7.02	21.0	1310	505		
		3/2/10	7.13	20.4	1313	451		
		4/14/10	6.90	19.9	987	484		
		7/2/10	6.81	20.8	858	474		
		7/14/11	6.97	20.5	1285	511		
		7/16/11	6.97	20.5	1285	513		
		7/9/12	6.95	21.0	1292	544		
		8/15/13	6.86	20.3	1374	539		
		8/4/14	6.79	20.6	1368	550		
TM-19A	522581	3/6/08	8.02	22.2	240	56.1		
		5/22/08	7.36	24.0	501	64.5		
		8/6/08	7.32	22.6	494	55.3		
		11/18/08	7.79	24.3	365	66.3		
		3/3/09	7.41	24.5	489	66.2		
		4/22/09	7.44	24.3	494	62.5		
		8/12/09	7.61	24.4	554	61.3		
		11/4/09	7.47	24.2	522	63		
		3/10/10	7.54	22.9	511	60.6		
		4/9/10	6.49	23.0	435	66.5		
		7/7/10	6.93	23.8	428	63.2		
		2/14/11	6.69	21.4	511	61.9		
		7/15/11	7.11	24.1	499	62.1		
		2/2/12	7.13	22.5	498	62.2		
		7/10/12	7.12	23.5	505	63.7		
		2/15/13	6.74	23.2	522	60.1		
		9/4/13	7.11	23.8	538	61.3		
		2/12/14	6.93	23.6	548	62.8		
		7/21/14	7.06	24.2	542	63.3		
		TM-42	562554	3/5/08	7.10	20.8	1342	482
5/22/08	7.05			21.4	1270	483		
8/6/08	6.69			22.0	1388	467		
11/6/08	6.90			21.0	1025	477		
2/18/09	6.72			22.3	1245	429		
5/7/09	6.88			24.5	1155	430		
5/7/09 DUP	6.88			24.5	1155	445		
8/18/09	7.04			24.4	1336	428		
11/3/09	7.07			23.1	1266	430		
2/24/10	7.13			22.7	1236	390		
4/19/10	6.87			21.5	985	444		
7/2/10	6.81			23.9	827	407		
7/12/11	6.83			22.0	1205	441		
2/9/12	6.76			20.5	1172	444		
7/11/12	6.72			21.1	1155	449		
2/12/13	6.69			20.2	1185	400		
8/28/13	6.89			21.3	1212	416		
7/21/14	6.85			21.4	1205	418		
TM-43	564729			3/3/08	8.57	21.0	341	2.1
				8/4/08	8.14	25.7	436	<5
TM-43A	564726	3/3/08	6.17	19.9	2788	1420		
		8/4/08	6.03	21.6	3149	1320		
TM-43B	565004	3/3/08	6.79	20.6	514	0.7		
		8/5/08	6.89	21.0	507	31.8		
		8/5/08 DUP	6.89	21.0	507	32.5		
TVI 236	802236	3/20/08	7.48	20.0	488	31.3		
		5/7/08	7.13	20.4	494	32.6		
		7/15/08	7.39	21.9	532	37.6		
		10/15/08	7.45	22.3	490	36.6		
		2/11/09	7.32	20.1	391	27.6		
		4/17/09	7.36	19.3	418	28.1		
		4/17/09 DUP	7.36	19.3	418	28.3		
		7/21/09	7.59	22.9	484	31.3		
		10/19/09	7.31	22.1	513	33.2		
		2/2/10	7.39	20.4	497	26		
		4/23/10	7.46	20.0	504.6	30.9		
		7/15/10	7.37	21.5	499.4	39.3		
		7/15/11	6.80	22.4	499.6	42.9		
		7/16/12	7.30	21.1	500	36.3		
		10/9/12	7.56	20.4	513.7	40.9		
		7/18/13	7.38	20.9	514.4	42.4		
		7/16/14	7.41	21.1	517.3	43.9		

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
TVI 875	568875	2/21/08	7.28	21.1	739	244
		5/7/08	7.09	21.2	833	250
		7/15/08	7.27	22.4	925	274
		10/15/08	7.26	22.1	878	245
		2/11/09	7.20	20.7	738	312
		4/17/09	7.31	21.5	690	251
		7/21/09	7.47	22.2	812	236
		10/19/09	7.23	21.9	822	247
		2/2/10	7.32	20.8	939	250
		4/23/10	7.34	20.2	930.4	294
		7/15/10	7.46	21.8	842.5	262
		10/20/10	7.79	21.9	890	242
		1/20/11	7.39	21.0	780	226
		4/11/11	7.20	21.1	820.6	235
		7/15/11	6.75	22.2	791.9	239
		10/12/11	7.35	22.7	868.5	262
		2/3/12	7.20	20.5	850	299
		4/25/12	7.19	21.3	840	267
		7/16/12	7.13	22.2	860	261
		7/16/12 DUP	7.13	22.2	860	267
		10/9/12	7.39	20.9	882.8	281
		2/6/13	7.23	20.8	946.1	335
		4/10/13	7.35	20.9	907.6	296
		7/18/13	7.31	21.4	994.2	355
		10/8/13	7.35	21.0	894.6	275
		1/9/14	7.23	20.3	917.4	305
		4/9/14	7.31	20.9	910.7	296
7/16/14	7.30	21.6	940.2	328		
WALKER	200393	2/13/08	7.05	20.2	650	20
		7/23/08	7.25	20.7	740	45.4
WEED	544535	2/14/08	7.74	21.7	323	11.1
		5/15/08	7.22	22.7	365	12.6
		7/30/08	7.42	32.0	407	11.5
		10/20/08	8.10	31.6	405	10.2
		2/13/09	7.66	21.0	303	12.6
		4/22/09	7.46	22.2	368	11.6
		7/16/09	7.50	21.9	365	10.8
		10/20/09	7.34	21.6	381	12.7
		2/1/10	7.60	20.8	382	12.2
		4/26/10	7.69	22.1	366	13.4
		7/21/10	7.36	22.1	354.9	13.6
		7/21/10 DUP	7.36	22.1	354.9	13.5
		10/19/10	7.63	21.2	378.8	11.7
		1/19/11	7.62	21.1	383.6	12.2
		4/11/11	7.44	21.5	386.6	13
		7/18/11	7.56	22.0	379.3	12.7
		10/12/11	7.02	21.7	382.8	13.3
		2/6/12	7.60	21.4	385.0	13.5
		4/25/12	7.60	22.1	360	12.7
		7/5/12	7.64	21.7	385.8	12.9
		10/9/12	7.66	21.5	385.1	14.0
		2/7/13	7.7	21.4	389.7	14.0
		2/7/13 DUP	7.7	21.4	389.7	13.2
		4/10/13	7.76	20.6	383.9	13.0
		7/19/13	7.63	21.3	386.6	14.2
		10/18/13	7.72	21.1	387.3	13.1
		1/15/14	7.73	20.7	388.4	13.4
		4/10/14	7.85	21.5	387.1	13.5
		7/18/14	7.79	21.4	386.7	14.1

**TABLE 3**  
**Compilation of Analytical Results For Sulfate and Field Parameters**

Well Name	ADWR 55 Registry Number	Sample Date	pH (SU)	Temp (deg C)	SC (µS/cm)	Sulfate, dissolved (mg/L)
WEISKOPF 802	641802	2/15/08	7.48	20.0	1072	500
		5/7/08	7.10	21.8	1251	483
		7/16/08	7.07	22.2	1399	560
		10/28/08	6.98	20.8	1401	602
		1/29/09	6.79	20.7	1014	503
		4/15/09	7.53	21.1	1164	503
		7/15/09	7.84	22.1	1317	486
		10/15/09	6.89	21.4	1216	484
		2/2/10	7.22	20.4	1319	451
		4/22/10	7.30	19.3	1329	572
		7/19/10	7.06	23.1	1330	573
		10/20/10	7.64	21.6	1360	515
		10/20/10 DUP	7.64	21.6	1360	529
		1/17/11	7.16	22.0	1270	481
		4/11/11	6.88	22.4	1365	557
		8/26/11	6.83	23.5	1200	549
		10/13/11	7.07	22.8	1299	539
		2/3/12	7.35	21.5	1363	583
		4/25/12	7.07	23.5	1300	575
		7/13/12	6.83	22.2	1530	552
		10/11/12	7.26	21.3	1369	572
		10/11/12 DUP	7.26	21.3	1369	577
		1/16/13	7.14	20.5	1298	523
		4/17/13	7.22	20.1	1337	558
7/18/13	7.45	21.3	1131	420		
10/17/13	7.29	22.5	1131	437		
1/16/14	7.28	22.7	1323	563		
4/11/14	7.29	23.0	1304	558		
7/18/14	7.17	23.3	1375	608		
WEISKOPF 897	221897	12/6/12	7.93	23.6	398.3	18.5
		1/16/13	7.88	23.1	398.9	18.2
		1/16/13 DUP	7.88	23.1	398.9	18.2
		4/17/13	7.86	22.6	394.4	19.0
		7/18/13	7.84	24.3	393.2	18.0
		10/17/13	7.90	23.3	392.2	18.3
		1/16/14	7.90	23	395.8	18.4
		4/11/14	7.92	23.5	390.5	17.9
		7/18/14	7.87	23.9	387.4	18.4
		WMD-2011-03M	913037	2/2/12	6.66	22.0
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
		4/10/12 DUP	7.49	21.9	420.1	6.65
		7/17/12	7.34	22.2	430	6.38
		10/8/12	7.58	20.8	431.4	7.03
		1/10/13	7.58	20.7	436.1	6.52
		4/18/13	7.65	20.8	436.7	6.66
		7/15/13	7.55	21.8	431.1	6.49
		10/7/13	7.59	21.5	430.2	6.41
		1/7/14	7.50	20.9	435.4	6.77
		4/9/14	7.57	21.5	434.4	6.57
		7/17/14	7.61	21.5	432.0	6.99

Notes:

35-71891 = ADWR 35 Database

ADWR = Arizona Department of Water Resources

deg C = degrees Celsius

DUP = Blind duplicate

M = Multi-Meter Malfunction

mg/L = milligrams per liter

ND = No Data

NR = No Record

SC = Specific Conductance

SU = Standard Units

µS/cm = microsiemens per centimeter

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

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
ANDERSON 396	613396	601134.729	3468816.065	4588.51	3/20/08	145.46	4443.05
					5/5/08	145.84	4442.67
					7/14/08	146.16	4442.35
					10/15/08	146.21	4442.30
					1/27/09	145.97	4442.54
					4/14/09	146.21	4442.30
					7/14/09	146.88	4441.63
					10/12/09	147.31	4441.20
					1/27/10	147.31	4441.20
					4/21/10	147.57	4440.94
					7/19/10	148.34	4440.17
					10/19/10	147.75	4440.76
					1/17/11	148.63	4439.88
					4/11/11	149.46	4439.05
					7/14/11	149.92	4438.59
					10/11/11	150.19	4438.32
					2/1/12	150.19	4438.32
					4/25/12	150.69	4437.82
					7/12/12	151.34	4437.17
					10/10/12	151.50	4437.01
1/17/13	151.24	4437.27					
4/15/13	152.08	4436.43					
7/18/13	152.19	4436.32					
10/16/13	152.41	4436.10					
1/9/14	152.14	4436.37					
4/7/14	152.56	4435.95					
7/11/14	152.02	4436.49					
ANDERSON 458	221458	601118.690	3468826.284	4585.37	9/7/12	173.76	4411.61
					10/10/12	151.82	4433.55
					1/17/13	152.17	4433.20
					4/15/13	158.42	4426.95
					7/18/13	157.56	4427.81
					10/16/13	156.24	4429.13
					1/9/14	152.58	4432.79
					4/7/14	153.54	4431.83
7/11/14	156.66	4428.71					
ASLD 435	616435	593496.865	3468879.791	4471.34	6/27/13	250.85	4220.49
					9/24/13	250.85	4220.49
					12/3/13	250.79	4220.55
					2/25/14	250.75	4220.59
					6/4/14	250.93	4220.41
9/10/14	250.97	4220.37					
AWC-02	616586	598907.911	3468549.357	4547.64	8/27/08	121.12	4426.52
					4/8/08	116	4431.64
					10/23/08 <sup>1</sup>	115	4432.64
					4/22/09 <sup>1</sup>	118	4429.64
					10/9/09 <sup>1</sup>	117	4430.64
					4/23/10 <sup>1</sup>	119	4428.64
					4/11/13	127.64	4420.00
					7/25/13	128.89	4418.75
					10/7/13 <sup>1</sup>	125.00	4422.64
					1/7/14	125.36	4422.28
					5/14/14 <sup>4</sup>	124.89	4422.75
7/16/14	124.49	4423.15					



**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
AWC-03	616585	599090.322	3468681.898	4539.52	8/27/08	119.40	4420.12
					4/8/08	112	4427.52
					10/23/08 <sup>1</sup>	106	4433.52
					4/22/09 <sup>1</sup>	114	4425.52
					10/9/09 <sup>1</sup>	116	4423.52
					4/23/10 <sup>1</sup>	116	4423.52
					4/11/13 <sup>1</sup>	125	4414.52
					7/16/13 <sup>1</sup>	126	4413.52
					10/7/13 <sup>1</sup>	122	4417.52
					1/7/14 <sup>1</sup>	121	4418.60
5/14/14 <sup>1,4</sup>	121.50	4418.02					
7/16/14 <sup>1</sup>	123.50	4416.02					
AWC-04	616584	598949.929	3468717.084	4540.48	8/18/08	112.56	4427.92
					4/8/08	108	4432.48
					10/23/08 <sup>1</sup>	111.31	4429.17
					4/22/09 <sup>1</sup>	110	4430.48
					10/9/09 <sup>1</sup>	110	4430.48
					4/23/10 <sup>1</sup>	109	4431.48
					4/11/13	120.93	4419.55
					7/16/13	123.76	4416.72
					10/7/13 <sup>1</sup>	116.00	4424.48
					1/7/14	115.98	4424.50
5/14/14 <sup>3</sup>	115.32	4425.16					
7/16/14	118.44	4422.04					
AWC-05	590620	599269.904	3468541.692	4542.51	8/27/08	299.65	4242.86
					4/8/08	284	4258.51
					10/23/08	284	4258.51
					4/22/09	286	4256.51
					6/3/09	125	4417.51
					10/9/09 <sup>1</sup>	289	4253.51
					4/23/10 <sup>1</sup>	278	4264.51
					4/11/13	229.56	4312.95
					7/16/13	203.17	4339.34
					10/7/13 <sup>1</sup>	142.00	4400.51
1/7/14	123.09	4419.42					
5/14/14 <sup>4</sup>	346.75	4195.76					
7/16/14	346.34	4196.17					
BANKS 987	647987	606981.921	3469206.175	4648.18	2/27/08	208.00	4440.18
					5/12/08	216.30	4431.88
					7/21/08	228.95	4419.23
					10/13/08	228.20	4419.98
					1/21/09	206.64	4441.54
					4/8/09	205.50	4442.68
					7/9/09	235.68	4412.50
					10/7/09	236.71	4411.47
					2/25/10	216.98	4431.20
					4/20/10	219.35	4428.83
					7/20/10	235.60	4412.58
					10/20/10	230.24	4417.94
					1/17/11	215.28	4432.90
					4/5/11	221.68	4426.50
					7/11/11	237.39	4410.79
					10/12/11	237.34	4410.84
					1/31/12	228.95	4419.23
					4/11/12	219.39	4428.79
					7/6/12	232.59	4415.59
					10/4/12	237.16	4411.02
1/18/13	237.81	4410.37					
4/8/13	237.92	4410.26					
7/9/13	238.32	4409.86					
10/15/13	239.48	4408.70					
1/14/14	239.53	4408.65					
4/8/14	231.49	4416.69					
7/8/14	228.85	4419.33					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
					7/17/13	114.18	4578.18
					1/14/14	113.96	4578.40
7/17/14	113.42	4578.94					
BF-01	539783	604169.077	3472151.593	4835.23	3/4/08	348.99	4486.24
					5/23/08	348.80	4486.43
					8/5/08	348.66	4486.57
					11/5/08	348.94	4486.29
					2/20/09	348.78	4486.45
					5/6/09	348.73	4486.50
					8/17/09	348.73	4486.50
					11/4/09	348.65	4486.58
					3/1/10	348.84	4486.39
					4/7/10	348.70	4486.53
					7/6/10	348.69	4486.54
					7/13/11	348.67	4486.56
					2/1/12	347.84	4487.39
8/13/12	343.95	4491.28					
BIMA	577927	606001.245	3471852.804	4802.05	5/13/08	367.31	4434.74
					8/18/08	370.24	4431.81
					10/23/08	353.96	4448.09
					1/20/09	353.07	4448.98
					4/7/09	357.76	4444.29
					7/8/09	365.44	4436.61
					10/5/09	370.11	4431.94
					4/19/10	382.25	4419.80
					7/21/10	386.89	4415.16
					10/18/10	387.39	4414.66
					1/19/11	391.47	4410.58
4/4/11	395.22	4406.83					
BMO-2008-1G	909474	606467.681	3471723.644	4805.10	8/27/08	62.05	4743.05
					11/11/08	60.95	4744.15
					2/25/09	61.43	4743.67
					4/28/09	62.01	4743.09
					8/4/09	62.96	4742.14
					10/27/09	63.61	4741.49
					2/17/10	64.51	4740.59
					4/15/10	65.05	4740.05
					7/7/10	65.83	4739.27
					2/10/11	67.74	4737.36
					7/12/11	69.37	4735.73
					2/8/12	70.33	4734.77
					8/14/12	71.73	4733.37
					2/14/13	72.95	4732.15
					8/14/13	73.82	4731.28
2/13/14	73.79	4731.31					
7/22/14	74.14	4730.96					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2008-3B	909147	602012.923	3467919.582	4583.97	7/18/08	138.05	4445.92
					11/4/08	137.95	4446.02
					2/19/09	138.19	4445.78
					5/11/09	138.46	4445.51
					8/6/09	139.02	4444.95
					10/26/09	139.60	4444.37
					3/3/10	140.03	4443.94
					4/8/10	140.07	4443.90
					7/1/10	140.70	4443.27
					2/14/11	141.41	4442.56
					7/12/11	142.21	4441.76
					2/23/12	143.90	4440.07
					7/10/12	143.70	4440.27
					2/15/13	144.53	4439.44
BMO-2008-4B	910096	601099.405	3468383.430	4573.17	8/27/13	145.10	4438.87
					2/11/14	145.08	4438.89
					7/21/14	145.36	4438.61
					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
BMO-2008-5B	909653	600438.159	3468994.715	4585.10	9/17/12	136.15	4437.02
					1/15/13	136.13	4437.04
					4/15/13	136.78	4436.39
					9/18/13	137.04	4436.13
					1/9/14	136.96	4436.21
					7/18/14	137.49	4435.68
					9/30/08	145.10	4440.00
					2/18/09	144.35	4440.75
					4/27/09	144.78	4440.32
					8/4/09	145.36	4439.74
					10/29/09	145.88	4439.22
					2/15/10	145.42	4439.68
					4/15/10	145.80	4439.30
					7/7/10	146.59	4438.51
					10/5/10	147.00	4438.10
					2/14/11	147.56	4437.54
					5/12/11	148.04	4437.06
					7/13/11	148.31	4436.79
					12/7/11	148.45	4436.65
					2/3/12	148.47	4436.63
4/18/12	149.02	4436.08					
7/10/12	148.65	4436.45					
10/16/12	149.91	4435.19					
2/7/13	149.94	4435.16					
2/12/13	150.06	4435.04					
5/15/13	150.55	4434.55					
8/20/13	150.82	4434.28					
11/1/13	150.77	4434.33					
2/11/14	150.33	4434.77					
5/7/14	150.83	4434.27					
8/19/14	151.13	4433.97					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2008-5M	909552	600445.071	3468994.282	4585.02	10/2/08	146.65	4438.37
					2/18/09	145.97	4439.05
					4/27/09	146.46	4438.56
					8/4/09	147.13	4437.89
					10/29/09	147.68	4437.34
					2/15/10	147.07	4437.95
					4/16/10	147.34	4437.68
					7/7/10	148.28	4436.74
					10/5/10	148.68	4436.34
					2/14/11	148.74	4436.28
					5/12/11	149.66	4435.36
					7/12/11	150.20	4434.82
					12/7/11	150.30	4434.72
					2/3/12	150.05	4434.97
					4/18/12	150.70	4434.32
					7/10/12	151.65	4433.37
					10/16/12	151.77	4433.25
					2/12/13	152.00	4433.02
					5/15/13	152.42	4432.60
					8/20/13	152.76	4432.26
11/1/13	152.53	4432.49					
2/11/14	151.78	4433.24					
5/7/14	152.26	4432.76					
8/19/14	152.78	4432.24					
BMO-2008-6B	909146	600366.523	3469820.644	4627.44	7/16/08	190.13	4437.31
					11/4/08	190.23	4437.21
					2/19/09	189.71	4437.73
					4/27/09	189.99	4437.45
					8/4/09	190.80	4436.64
					10/26/09	191.04	4436.40
					2/15/10	190.82	4436.62
					4/15/10	190.75	4436.69
					7/1/10	191.43	4436.01
					10/5/10	192.50	4434.94
					2/14/11	192.19	4435.25
					5/12/11	192.70	4434.74
					7/12/11	193.30	4434.14
					12/7/11	193.85	4433.59
					2/3/12	193.60	4433.84
					4/18/12	193.90	4433.54
					7/10/12	194.75	4432.69
					10/16/12	195.71	4431.73
					2/12/13	195.42	4432.02
					5/15/13	195.91	4431.53
8/20/13	196.23	4431.21					
11/1/13	195.77	4431.67					
2/11/14	195.24	4432.20					
5/7/14	195.47	4431.97					
8/19/14	196.36	4431.08					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2008-6M	909019	600367.943	3469813.885	4626.90	7/10/08	191.63	4435.27
					11/4/08	190.25	4436.65
					2/20/09	190.70	4436.20
					4/28/09	190.98	4435.92
					8/4/09	191.77	4435.13
					10/26/09	192.14	4434.76
					2/15/10	191.78	4435.12
					4/15/10	191.64	4435.26
					7/1/10	192.53	4434.37
					10/5/10	192.96	4433.94
					2/14/11	193.14	4433.76
					5/12/11	193.68	4433.22
					7/12/11	194.47	4432.43
					12/7/11	194.92	4431.98
					2/3/12	194.65	4432.25
					4/18/12	195.00	4431.90
					7/10/12	196.10	4430.80
					10/16/12	196.53	4430.37
					2/12/13	196.45	4430.45
					5/15/13	196.90	4430.00
8/20/13	197.43	4429.47					
11/1/13	196.53	4430.37					
2/11/14	196.18	4430.72					
5/7/14	196.33	4430.57					
8/19/14	197.40	4429.50					
BMO-2008-7M	908794	603099.165	3470029.283	4688.33	7/14/08	238.31	4450.02
					11/6/08	239.69	4448.64
					2/18/09	238.90	4449.43
					5/11/09	239.03	4449.30
					8/6/09	239.17	4449.16
					10/27/09	239.55	4448.78
					2/17/10	239.98	4448.35
					4/15/10	240.13	4448.20
					7/6/10	240.28	4448.05
					2/14/11	241.26	4447.07
					7/15/11	241.81	4446.52
					1/30/12	242.44	4445.89
					7/11/12	243.0	4445.33
					2/15/13	243.8	4444.53
					8/28/13	244.32	4444.01
					2/13/14	244.31	4444.02
7/22/14	244.66	4443.67					
BMO-2008-8B	910097	604171.347	3471141.719	4753.25	12/5/08	297.94	4455.31
					2/19/09	297.63	4455.62
					5/5/09	297.37	4455.88
					8/10/09	297.53	4455.72
					11/9/09	297.85	4455.40
					3/3/10	298.37	4454.88
					4/16/10	298.46	4454.79
					7/1/10	298.64	4454.61
					2/11/11	299.56	4453.69
					5/13/11	299.78	4453.47
					7/15/11	300.00	4453.25
					1/30/12	300.52	4452.73
					7/12/12	301.15	4452.10
					2/13/13	302.05	4451.20
					8/12/13	302.48	4450.77
7/24/14	301.86	4451.39					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2008-8M	909711	604167.912	3471127.902	4752.45	12/9/08	299.79	4452.66
					2/19/09	298.32	4454.13
					5/5/09	298.27	4454.18
					8/10/09	298.57	4453.88
					11/5/09	298.81	4453.64
					3/3/10	299.18	4453.27
					4/16/10	299.42	4453.03
					7/1/10	299.70	4452.75
					1/24/11	300.46	4451.99
					5/13/11	301.00	4451.45
					7/15/11	300.96	4451.49
					1/30/12	301.60	4450.85
					7/12/12	302.45	4450.00
					2/14/13	303.07	4449.38
BMO-2008-9M	909255	604668.669	3471121.675	4762.61	8/8/08	287.17	4475.44
					11/5/08	287.65	4474.96
					2/26/09	285.65	4476.96
					5/12/09	285.28	4477.33
					8/17/09	286.09	4476.52
					11/3/09	286.55	4476.06
					3/4/10	287.45	4475.16
					4/6/10	287.81	4474.80
					7/1/10	288.26	4474.35
					2/10/11	289.77	4472.84
					5/13/11	290.47	4472.14
					7/15/11	290.95	4471.66
					2/1/12	293.44	4469.17
					7/12/12	294.65	4467.96
2/13/13	296.67	4465.94					
8/12/13	297.63	4464.98					
2/18/14	293.68	4468.93					
7/24/14	293.53	4469.08					
BMO-2008-10GL	909435	605264.072	3471702.043	4792.21	8/20/08	521.75	4270.46
					11/5/08	520.50	4271.71
					2/25/09	516.72	4275.49
					5/12/09	514.68	4277.53
					8/11/09	513.23	4278.98
					11/2/09	509.43	4282.78
					3/4/10	510.88	4281.33
					4/8/10	506.31	4285.90
					7/2/10	511.80	4280.41
					7/13/11	512.16	4280.05
					2/2/12	511.34	4280.87
					7/13/12	510.90	4281.31
					2/18/13	509.91	4282.30
					8/13/13	509.32	4282.89
8/7/14	507.21	4285.00					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2008-10GU	909272	605267.551	3471731.866	4793.45	8/4/08	299.28	4494.17
					11/5/08	295.89	4497.56
					2/25/09	289.84	4503.61
					5/6/09	289.35	4504.10
					8/11/09	289.09	4504.36
					11/2/09	289.77	4503.68
					3/10/10	289.58	4503.87
					4/7/10	289.5	4503.95
					7/6/10	288.93	4504.52
					7/13/11	301.02	4492.43
					2/1/12	326.51	4466.94
					7/13/12	328.7	4464.75
8/19/13	283.97	4509.48					
BMO-2008-11G	909434	603800.995	3472626.482	4844.67	8/22/08	577.76	4266.91
					11/12/08	576.80	4267.87
					2/26/09	575.91	4268.76
					4/8/09	575.46	4269.21
					8/12/09	574.84	4269.83
					11/9/09	573.41	4271.26
					3/1/10	573.68	4270.99
					4/9/10	573.56	4271.11
					7/1/10	572.97	4271.70
					2/10/11	571.61	4273.06
					7/22/11	571.20	4273.47
					1/31/12	569.83	4274.84
					8/14/12	569.70	4274.97
					2/13/13	568.75	4275.92
					8/27/13	566.50	4278.17
2/19/14	564.68	4279.99					
8/14/14	564.24	4280.43					
BMO-2008-13B	909551	601657.612	3470076.358	4649.21	10/3/08	206.42	4442.79
					2/17/09	206.11	4443.10
					5/6/09	206.32	4442.89
					8/5/09	206.79	4442.42
					10/28/09	207.08	4442.13
					2/16/10	207.26	4441.95
					4/14/10	207.27	4441.94
					7/6/10	207.68	4441.53
					2/10/11	208.51	4440.70
					5/13/11	208.95	4440.26
					7/15/11	209.36	4439.85
					2/9/12	209.78	4439.43
					7/11/12	210.60	4438.61
					2/27/13	211.40	4437.81
9/4/13	212.15	4437.06					
8/19/14	212.68	4436.53					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2008-13M	909760	601650.495	3470040.455	4647.15	12/3/08	206.00	4441.15
					2/17/09	208.74	4438.41
					4/29/09	208.53	4438.62
					8/5/09	208.85	4438.30
					10/28/09	208.91	4438.24
					2/16/10	209.16	4437.99
					4/13/10	209.20	4437.95
					7/2/10	209.30	4437.85
					2/10/11	210.36	4436.79
					5/13/11	210.50	4436.65
					7/15/11	210.67	4436.48
					2/6/12	210.90	4436.25
					8/13/12	211.42	4435.73
					2/15/13	212.13	4435.02
BMO-2010-1M	219957	605581.263	3469935.750	4718.55	9/7/10	224.13	4494.42
					11/10/10	222.97	4495.58
					2/11/11	222.01	4496.54
					5/12/11	223.08	4495.47
					8/31/11	224.38	4494.17
					12/13/11	222.86	4495.69
					2/8/12	222.97	4495.58
					4/24/12	223.87	4494.68
					7/9/12	225.05	4493.50
					10/17/12	225.63	4492.92
					2/13/13	226.85	4491.70
					5/8/13	227.45	4491.10
					8/15/13	228.10	4490.45
					11/4/13	224.41	4494.14
2/12/14	222.90	4495.65					
6/2/14	222.80	4495.75					
8/4/14	223.14	4495.41					
BMO-2010-2M	219958	605685.549	3470564.646	4746.16	9/7/10	264.13	4482.03
					11/11/10	263.94	4482.22
					2/10/11	264.13	4482.03
					5/13/11	266.97	4479.19
					7/14/11	268.05	4478.11
					12/13/11	270.98	4475.18
					1/30/12	271.50	4474.66
					4/18/12	272.31	4473.85
					7/9/12	273.20	4472.96
					10/17/12	274.27	4471.89
					2/13/13	275.52	4470.64
					5/8/13	276.05	4470.11
					8/15/13	278.76	4467.40
					11/4/13	273.26	4472.90
2/12/14	271.44	4474.72					
5/8/14	270.65	4475.51					
8/14/14	270.78	4475.38					
BMO-2010-3B	219970	599977.962	3468347.363	4550.59	7/28/10	115.38	4435.21
					11/10/10	115.80	4434.79
					1/20/11	115.46	4435.13
					4/7/11	116.11	4434.48
					7/13/11	117.30	4433.29
					10/13/11	117.72	4432.87
					2/2/12	117.18	4433.41
					4/24/12	117.92	4432.67
					7/5/12	118.84	4431.75
					10/18/12	119.13	4431.46
					1/16/13	118.89	4431.70
					4/16/13	119.36	4431.23
					7/23/13	120.02	4430.57
					10/8/13	119.63	4430.96
1/15/14	118.96	4431.63					
5/13/14	119.40	4431.19					
7/15/14	120.06	4430.53					



**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
BMO-2010-3M	219969	599970.801	3468353.543	4550.53	7/30/10	118.63	4431.90
					11/10/10	118.75	4431.78
					1/20/11	118.32	4432.21
					4/7/11	119.09	4431.44
					8/25/11	120.74	4429.79
					10/13/11	120.67	4429.86
					2/2/12	119.91	4430.62
					4/24/12	120.93	4429.60
					7/5/12	122.05	4428.48
					10/18/12	122.06	4428.47
					1/16/13	121.86	4428.67
					4/16/13	122.26	4428.27
					7/23/13	122.97	4427.56
					10/8/13	121.91	4428.62
BMO-2012-1M	221388	606097.384	3469746.747	4719.76	11/13/12	231.90	4487.86
					2/27/13	233.20	4486.56
					5/8/13	233.97	4485.79
					8/14/13	233.96	4485.80
					11/1/13	230.44	4489.32
					2/13/14	229.85	4489.91
					5/8/14	229.89	4489.87
7/22/14	229.94	4489.82					
BOOTH	914931	601132.466	3468049.945	4568.21	1/15/13	131.47	4436.74
					4/19/13	132.04	4436.17
					10/18/13	132.56	4435.65
BURKE	212268	602230.087	3473029.816	4856.30	4/22/08	606.55	4249.75
					8/5/08	605.86	4250.44
					10/28/08	604.88	4251.42
					2/19/09	603.91	4252.39
					4/28/09	603.70	4252.60
					8/19/09	602.66	4253.64
					10/10/13	601.06	4255.24
					1/8/14	592.90	4263.40
					4/16/14	592.51	4263.79
7/21/14	592.35	4263.95					
COB MW-1	903992	603153.259	3469889.889	4683.26	2/22/08	232.47	4450.79
					5/20/08	233.12	4450.14
					7/30/08	233.37	4449.89
					10/23/08	233.62	4449.64
					2/12/09	234.05	4449.21
					4/21/09	234.99	4448.27
					7/22/09	234.34	4448.92
					10/22/09	234.69	4448.57
					2/4/10	235.15	4448.11
					4/20/10	235.47	4447.79
					7/13/10	235.68	4447.58
					7/14/11	236.98	4446.28
					7/12/12	238.24	4445.02
					2/5/13	239.11	4444.15
7/11/13	239.67	4443.59					
7/9/14	240.03	4443.23					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
COB MW-2	903984	600973.257	3468114.836	4566.21	2/22/08	122.85	4443.36
					5/20/08	123.00	4443.21
					7/30/08	123.53	4442.68
					10/23/08	124.02	4442.19
					2/12/09	123.39	4442.82
					4/23/09	124.16	4442.05
					7/22/09	124.91	4441.30
					10/22/09	125.33	4440.88
					3/3/10	124.93	4441.28
					4/26/10	125.47	4440.74
					7/13/10	126.54	4439.67
					1/20/11	126.46	4439.75
					7/14/11	128.17	4438.04
					1/31/12	128.04	4438.17
					7/12/12	129.58	4436.63
					1/9/13	129.28	4436.93
7/25/13	130.21	4436.00					
1/6/14	130.11	4436.10					
7/9/14	131.32	4434.89					
COB MW-3	906823	599169.225	3468726.000	4538.63	2/28/08	120.84	4417.79
					5/20/08	125.00	4413.63
					7/30/08	118.50	4420.13
					10/23/08	117.93	4420.70
					2/12/09	110.91	4427.72
					4/23/09	125.13	4413.50
					7/22/09	124.09	4414.54
					10/22/09	118.03	4420.60
					3/3/10	120.14	4418.49
					4/26/10	123.12	4415.51
					7/13/10	128.60	4410.03
					7/14/11	132.41	4406.22
					7/12/12	133.89	4404.74
					2/5/13	123.68	4414.95
					7/25/13	129.05	4409.58
					1/6/14	127.52	4411.11
7/9/14	124.19	4414.44					
COB WL	593116	606357.506	3472502.012	4832.06	2/22/08	56.50	4775.56
					5/20/08	57.50	4774.56
					7/30/08	58.64	4773.42
					10/23/08	58.76	4773.30
					2/12/09	58.89	4773.17
					4/23/09	59.73	4772.33
					7/22/09	61.27	4770.79
					10/22/09	62.82	4769.24
					3/3/10	65.24	4766.82
					4/26/10	66.13	4765.93
					7/13/10	67.52	4764.54
					7/14/11	73.86	4758.20
					7/12/12	78.85	4753.21
					2/5/13	82.41	4749.65
					7/25/13	81.36	4750.70
					7/9/14	78.12	4753.94

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
COLLINS	565260	602551.286	3471341.335	4733.72	2/12/08	289.47	4444.25
					5/29/08	288.53	4445.19
					7/31/08	290.08	4443.64
					10/20/08	290.15	4443.57
					4/21/09	290.66	4443.06
					7/20/09	290.78	4442.94
					10/20/09	290.52	4443.20
					2/2/10	291.64	4442.08
					4/23/10	291.96	4441.76
					7/20/10	292.21	4441.51
COOPER C	637069	601349.987	3468913.011	4599.14	3/4/08	155.08	4444.06
					5/5/08	155.34	4443.80
					7/15/08	156.01	4443.13
					10/16/08	155.85	4443.29
					1/27/09	155.62	4443.52
					4/14/09	155.86	4443.28
					7/14/09	156.50	4442.64
					10/12/09	156.89	4442.25
					1/27/10	157.03	4442.11
					4/22/10	157.31	4441.83
					7/21/10	158.00	4441.14
					10/20/10	158.41	4440.73
					1/17/11	158.37	4440.77
					4/11/11	158.74	4440.40
					8/26/11	159.51	4439.63
					10/13/11	159.81	4439.33
					2/1/12	159.80	4439.34
					4/25/12	160.26	4438.88
					7/12/12	160.88	4438.26
					10/10/12	161.10	4438.04
2/27/13	161.40	4437.74					
5/8/13	161.70	4437.44					
8/13/13	162.07	4437.07					
11/1/13	162.23	4436.91					
2/10/14	161.90	4437.24					
5/7/14	162.63	4436.51					
7/21/14	162.67	4436.47					
DODSON	644927	605594.560	3469063.772	4686.34	5/12/08	81.38	4604.96
					7/24/08	82.20	4604.14
					10/13/08	81.82	4604.52
					1/22/09	82.33	4604.01
					4/9/09	82.84	4603.50
					7/8/09	86.88	4599.46
					10/6/09	87.27	4599.07
					1/21/10	88.54	4597.80
					4/19/10	89.53	4596.81
					7/20/10	90.79	4595.55
					10/18/10	90.33	4596.01
					1/19/11	90.34	4596.00
					4/5/11	91.05	4595.29
					7/12/11	92.07	4594.27
					10/10/11	93.11	4593.23
					1/31/12	93.68	4592.66
					4/12/12	94.19	4592.15
					10/4/12	97.80	4588.54
					1/18/13	99.73	4586.61
					4/9/13	98.09	4588.25
7/9/13	98.38	4587.96					
10/9/13	92.69	4593.65					
1/9/14	93.21	4593.13					
4/15/14	94.64	4591.70					
7/14/14	95.43	4590.91					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
DOUGLASS 791	592791	607632.993	3470222.677	4703.27	2/13/08	22.11	4681.16
					5/13/08	24.60	4678.67
					7/22/08	27.00	4676.27
					10/16/08	23.60	4679.67
					1/19/09	26.51	4676.76
					4/8/09	28.53	4674.74
					7/7/09	31.04	4672.23
					10/5/09	31.49	4671.78
					1/21/10	34.55	4668.72
					4/19/10	36.40	4666.87
					7/12/10	36.74	4666.53
					1/18/11	25.96	4677.31
					1/30/12	27.72	4675.55
					4/11/12	29.99	4673.28
					7/5/12	32.67	4670.60
					1/9/13	27.24	4676.03
7/8/13	32.70	4670.57					
1/6/14	23.56	4679.71					
7/7/14	28.22	4675.05					
DOUGLASS 792	592792	607607.541	3469829.115	4681.73	2/13/08	87.76	4593.97
					5/13/08	87.21	4594.52
					7/22/08	86.90	4594.83
					10/16/08	86.45	4595.28
					1/20/09	86.26	4595.47
					4/8/09	86.04	4595.69
					7/7/09	86.16	4595.57
					10/5/09	86.19	4595.54
					1/21/10	86.45	4595.28
					4/19/10	87.19	4594.54
					7/12/10	87.55	4594.18
					1/18/11	87.8	4593.93
					7/12/11	88.38	4593.35
					1/30/12	88.92	4592.81
					4/11/12	89.18	4592.55
					7/5/12	95.64	4586.09
1/9/13	82.60	4599.13					
7/8/13	83.66	4598.07					
1/6/14	83.55	4598.18					
7/7/14	82.43	4599.30					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
EAST	599796	607076.365	3468712.215	4626.01	2/8/08	50.20	4575.81
					5/14/08	52.45	4573.56
					7/23/08	52.16	4573.85
					10/14/08	52.19	4573.82
					1/20/09	50.52	4575.49
					4/8/09	51.91	4574.10
					7/13/09	56.93	4569.08
					10/8/09	60.95	4565.06
					1/25/10	59.35	4566.66
					4/21/10	58.88	4567.13
					7/14/10	61.86	4564.15
					10/20/10	61.20	4564.81
					1/18/11	59.79	4566.22
					4/5/11	59.73	4566.28
					7/12/11	63.79	4562.22
					10/12/11	63.64	4562.37
					1/31/12	63.82	4562.19
					4/11/12	65.72	4560.29
					7/9/12	70.50	4555.51
					10/4/12	73.34	4552.67
1/17/13	75.04	4550.97					
4/9/13	78.05	4547.96					
7/9/13	78.37	4547.64					
10/15/13	72.38	4553.63					
1/14/14	71.88	4554.13					
4/8/14	71.03	4554.98					
7/8/14	72.03	4553.98					
ECHAVE	219449	599701	3470168	4648	2/1/12	216.71	4431.29
					1/18/13	218.41	4429.59
EPPELE 641	805641	607165.354	3469229.942	4642.86	3/11/08	29.52	4613.34
					5/12/08	30.64	4612.22
					7/21/08	25.59	4617.27
					10/14/08	24.53	4618.33
					1/21/09	27.35	4615.51
					4/8/09	29.08	4613.78
					7/9/09	31.51	4611.35
					10/7/09	29.92	4612.94
					7/20/10	50.38	4592.48
					10/20/10	48.88	4593.98
					1/17/11	51.13	4591.73
					4/5/11	53.81	4589.05
					7/11/11	56.82	4586.04
					10/12/11	37.62	4605.24
					1/31/12	46.80	4596.06
					4/11/12	52.07	4590.79
					7/6/12	62.39	4580.47
					10/3/12	71.66	4571.20
					1/17/13	59.73	4583.13
					4/8/13	83.98	4558.88
					7/9/13	92.84	4550.02
					10/15/13	28.50	4614.36
					1/14/14	49.32	4593.54
4/8/14	52.03	4590.83					
7/8/14	66.62	4576.24					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
FLEMING	218386	605565.701	3469342.523	4693.68	2/18/09	299.30	4394.38
					4/8/09	301.81	4391.87
					7/7/09	304.60	4389.08
					10/6/09	307.84	4385.84
					1/21/10	311.73	4381.95
					4/20/10	315.26	4378.42
					7/15/10	318.32	4375.36
					11/4/10	349.62	4344.06
					1/19/11	356.89	4336.79
					7/12/11	364.72	4328.96
					2/3/12	370.84	4322.84
					7/9/12	373.86	4319.82
					1/18/13	373.96	4319.72
7/17/13	374.88	4318.80					
1/10/14	379.63	4314.05					
7/17/14	372.97	4320.71					
FRANCO 101	500101	602848.756	3468830.905	4636.75	4/10/13	196.05	4440.70
					7/10/13	196.19	4440.56
					10/16/13	196.65	4440.10
					1/14/14	196.77	4439.98
					4/8/14	196.86	4439.89
					7/14/14	197.08	4439.67
FRANCO 383	221383	602817.854	3468831.563	4636.88	9/13/12	195.19	4441.69
					10/5/12	195.00	4441.88
					12/3/12	196.70	4440.18
					1/15/13	196.30	4440.58
					2/6/13	195.62	4441.26
					3/7/13	196.20	4440.68
					4/10/13	196.25	4440.63
					7/10/13	196.13	4440.75
					10/16/13	196.30	4440.58
					1/14/14	196.46	4440.42
					4/8/14	196.89	4439.99
7/14/14	196.87	4440.01					
FULTZ	212447	607153.306	3469063.892	4642.92	10/22/08	40.59	4602.33
					1/21/09	40.66	4602.26
					4/9/09	42.88	4600.04
					7/13/09	54.94	4587.98
					10/8/09	56.16	4586.76
					1/25/10	53.45	4589.47
					4/20/10	63.82	4579.10
					7/14/10	119.86	4523.06
GARNER 557	558557	602659.240	3468962.415	4638.45	2/21/08	191.05	4447.40
					5/5/08	191.28	4447.17
					7/15/08	191.44	4447.01
					10/16/08	191.83	4446.62
					1/28/09	191.92	4446.53
					4/15/09	192.09	4446.36
					7/16/09	192.52	4445.93
					10/14/09	192.82	4445.63
					2/2/10	193.33	4445.12
					4/22/10	193.49	4444.96
					7/20/10	193.93	4444.52
					10/19/10	194.29	4444.16
					1/19/11	194.61	4443.84
					4/6/11	194.86	4443.59
					7/15/11	195.25	4443.20
					10/11/11	195.72	4442.73
					2/2/12	196.09	4442.36
					4/13/12	196.30	4442.15
					7/11/12	196.72	4441.73
					10/5/12	197.08	4441.37
1/11/13	197.51	4440.94					
4/15/13	197.76	4440.69					
7/10/13	197.87	4440.58					
10/11/13	198.27	4440.18					
1/17/14	198.46	4439.99					
4/15/14	198.58	4439.87					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
GARNER 635	587635	602665.352	3468967.902	4640.74	2/4/08	193.20	4447.54
					5/5/08	195.90	4444.84
					7/15/08	193.58	4447.16
					10/15/08	194.35	4446.39
					1/28/09	194.80	4445.94
					4/15/09	195.54	4445.20
					7/16/09	194.88	4445.86
					10/14/09	196.36	4444.38
					2/2/10	195.32	4445.42
					4/22/10	196.01	4444.73
					8/25/10	195.57	4445.17
					10/19/10	225.83	4414.91
					1/19/11	196.89	4443.85
					4/6/11	197.40	4443.34
					7/15/11	198.07	4442.67
					10/11/11	197.75	4442.99
					2/2/12	199.50	4441.24
					4/13/12	200.40	4440.34
					7/11/12	199.15	4441.59
					10/5/12	202.71	4438.03
1/11/13	199.38	4441.36					
4/15/13	200.53	4440.21					
7/10/13	200.13	4440.61					
10/11/13	200.27	4440.47					
1/17/14	201.83	4438.91					
4/15/14	200.67	4440.07					
GGOOSE 547	628547	606256.657	3469820.260	4717.11	5/21/08	220.91	4496.20
					8/15/08	238.48	4478.63
					10/29/08	235.90	4481.21
					2/24/09	236.13	4480.98
					5/14/09	236.17	4480.94
					8/19/09	236.01	4481.10
					8/19/09	236.01	4481.10
					11/11/09	237.66	4479.45
					3/9/10	238.84	4478.27
4/27/10	239.17	4477.94					
GL-03	539782	604386.940	3473747.943	4924.31	5/22/08	660.15	4264.16
					8/4/08	659.79	4264.52
					12/2/08	658.25	4266.06
					2/26/09	658.62	4265.69
					5/5/09	657.23	4267.08
					8/12/09	656.56	4267.75
					8/12/09	656.56	4267.75
					11/10/09	655.31	4269.00
					3/2/10	655.52	4268.79
					4/9/10	655.35	4268.96
					7/7/10	655.05	4269.26
2/1/12	651.72	4272.59					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
GOAR RANCH	610695	602454.751	3468892.471	4631.13	2/21/08	183.90	4447.23
					5/5/08	188.11	4443.02
					7/16/08	184.41	4446.72
					10/22/08	184.68	4446.45
					1/27/09	184.87	4446.26
					4/15/09	184.96	4446.17
					7/7/09	185.36	4445.77
					10/12/09	185.72	4445.41
					2/2/10	186.25	4444.88
					4/22/10	186.44	4444.69
					7/13/10	186.76	4444.37
					1/19/11	187.52	4443.61
					7/12/11	188.24	4442.89
					2/6/12	189.02	4442.11
					9/13/12	190.08	4441.05
					1/11/13	190.48	4440.65
9/18/13	191.21	4439.92					
1/17/14	191.48	4439.65					
7/21/14	191.73	4439.40					
HOBAN	805290	601705.848	3468880.329	4607.60	2/27/08	163.05	4444.55
					5/7/08	163.28	4444.32
					7/14/08	163.87	4443.73
					10/16/08	163.95	4443.65
					1/28/09	163.82	4443.78
					4/15/09	164.16	4443.44
					7/14/09	164.59	4443.01
					10/15/09	165.00	4442.60
					3/2/10	165.32	4442.28
					5/18/10	165.71	4441.89
					7/20/10	166.17	4441.43
					10/19/10	166.45	4441.15
					8/31/11	167.76	4439.84
					12/14/11	168.13	4439.47
					2/1/12	168.09	4439.51
					4/19/12	168.32	4439.28
					7/11/12	169.10	4438.50
					10/17/12	169.40	4438.20
					2/15/13	169.70	4437.90
					5/8/13	169.95	4437.65
8/13/13	170.31	4437.29					
11/1/13	170.54	4437.06					
2/10/14	170.22	4437.38					
5/7/14	170.61	4436.99					
7/21/14	170.90	4436.70					



**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
HOWARD NR	NR	601281.159	3468770.377	4593.91	3/4/08	150.10	4443.81
					5/8/08	150.70	4443.21
					7/14/08	150.91	4443.00
					10/15/08	150.67	4443.24
					1/28/09	150.67	4443.24
					4/15/09	151.15	4442.76
					7/15/09	151.76	4442.15
					10/12/09	152.08	4441.83
					1/27/10	152.20	4441.71
					4/21/10	152.30	4441.61
					7/19/10	153.16	4440.75
					10/18/10	153.53	4440.38
					1/17/11	153.51	4440.40
					4/11/11	154.24	4439.67
					8/26/11	154.79	4439.12
					10/11/11	155.02	4438.89
					2/1/12	155.08	4438.83
					4/13/12	155.40	4438.51
					9/13/12	156.29	4437.62
					10/16/12	156.43	4437.48
2/6/13	156.27	4437.64					
4/9/13	156.71	4437.20					
7/12/13	157.18	4436.73					
10/16/13	157.52	4436.39					
1/8/14	157.16	4436.75					
4/10/14	157.55	4436.36					
7/14/14	157.92	4435.99					
HOWARD 312	221312	601308.920	3468772.630	4594.9356	8/14/12	188.36	4406.58
					10/16/12	193.33	4401.61
					2/6/13	193.74	4401.20
					4/9/13	195.30	4399.64
					7/12/13	198.27	4396.67
					10/16/13	201.08	4393.86
					1/8/14	202.61	4392.33
4/10/14	204.64	4390.30					
7/14/14	206.97	4387.97					
KEEFER	209744	599879.175	3468119.015	4572.03	2/6/08	134.67	4437.36
					5/6/08	135.28	4436.75
					7/16/08	136.24	4435.79
					10/28/08	135.87	4436.16
					1/28/09	134.88	4437.15
					4/16/09	135.00	4437.03
					7/14/09	136.07	4435.96
					10/13/09	136.67	4435.36
					1/26/10	136.26	4435.77
					4/20/10	136.26	4435.77
					7/15/10	137.29	4434.74
					10/19/10	137.68	4434.35
					1/18/11	137.42	4434.61
					4/6/11	137.91	4434.12
					7/18/11	140.39	4431.64
					10/11/11	141.68	4430.35
					2/6/12	139.27	4432.76
					4/23/12	139.76	4432.27
					7/17/12	140.69	4431.34
					10/9/12	141.00	4431.03
1/10/13	140.80	4431.23					
4/8/13	141.32	4430.71					
7/11/13	141.81	4430.22					
10/7/13	141.63	4430.40					
1/7/14	141.10	4430.93					
4/9/14	140.91	4431.12					
7/10/14	141.97	4430.06					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
LADD 251	520251	594788.933	3470348.534	4443.83	3/22/13	221.32	4222.51
					6/14/13	221.78	4222.05
					9/24/13	219.6	4224.23
					12/3/13	217.44	4226.39
					2/25/14	217.59	4226.24
					6/4/14	218.27	4225.56
					9/10/14	219.04	4224.79
LADD 538	505538	596790.675	3469638.573	4527.05	2/9/10	253.10	4273.95
					4/28/10	253.83	4273.22
					7/28/10	254.05	4273.00
					12/8/10	252.87	4274.18
					3/17/11	252.76	4274.29
					6/24/11	288.00	4239.05
					9/29/11	276.58	4250.47
					12/16/11	250.68	4276.37
					2/15/12	253.80	4273.25
					6/11/12	258.90	4268.15
					9/26/12	255.76	4271.29
					12/19/12	249.43	4277.62
					3/22/13	250.51	4276.54
					6/27/13	270.00	4257.05
					9/24/13	250.80	4276.25
					12/3/13	251.36	4275.69
					2/25/14	253.36	4273.69
6/4/14	259.63	4267.42					
9/10/14	248.68	4278.37					
LADD 837	519837	594757.700	3470817.194	4470.11	2/9/10	262.80	4207.31
					4/28/10	262.65	4207.46
					7/28/10	265.75	4204.36
					12/8/10	262.38	4207.73
					3/17/11	262.65	4207.46
					6/24/11	262.51	4207.60
					9/29/11	262.28	4207.83
					12/16/11	264.32	4205.79
					2/15/12	262.24	4207.87
					6/11/12	264.04	4206.07
					9/26/12	261.75	4208.36
					12/19/12	261.94	4208.17
					3/27/13	266.68	4203.43
					6/14/13	261.51	4208.60
					9/24/13	261.38	4208.73
					12/3/13	260.85	4209.26
					2/25/14	261.04	4209.07
6/4/14	262.53	4207.58					
9/10/14	263.68	4206.43					
LADD 977	642977	597619.168	3468714.011	4513.40	3/17/11	82.32	4431.08
					6/24/11	84.00	4429.40
					9/29/11	83.62	4429.78
					12/16/11	84.8	4428.60
					2/15/12	84.67	4428.73
					6/11/12	85.7	4427.70
					9/26/12	84.96	4428.44
					12/19/12	86.27	4427.13
					3/22/13	85.18	4428.22
					6/14/13	86.54	4426.86
					9/24/13	82.66	4430.74
					12/3/13	84.48	4428.92
					2/25/14	85.27	4428.13
					6/4/14	85.88	4427.52
9/10/14	86.15	4427.25					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
MCCONNELL 265	539265	601463.094	3468840.139	4600.70	2/20/08	156.15	4444.55
					5/6/08	156.40	4444.30
					7/15/08	157.07	4443.63
					11/19/08	157.17	4443.53
					1/28/09	156.70	4444.00
					4/15/09	157.22	4443.48
					7/15/09	157.59	4443.11
					10/12/09	158.13	4442.57
					1/26/10	158.35	4442.35
					4/22/10	158.68	4442.02
					7/21/10	159.37	4441.33
					10/18/10	159.63	4441.07
					1/19/11	159.69	4441.01
					4/8/11	159.10	4441.60
					7/12/11	160.77	4439.93
					10/11/11	161.17	4439.53
					2/7/12	161.31	4439.39
					4/11/12	161.57	4439.13
					7/6/12	162.36	4438.34
					10/8/12	162.43	4438.27
1/10/13	162.57	4438.13					
4/18/13	163.08	4437.62					
10/14/13	163.61	4437.09					
1/8/14	163.42	4437.28					
4/14/14	163.79	4436.91					
7/14/14	164.03	4436.67					
MCCONNELL 459	221459	601471.708	3468840.682	4601.55	7/27/12	170.50	4431.05
					10/8/12	166.81	4434.74
					1/15/13	166.32	4435.23
					4/10/13	166.79	4434.76
					7/19/13	167.53	4434.02
					10/14/13	167.13	4434.42
					1/8/14	167.90	4433.65
					4/14/14	167.28	4434.27
					9/9/14	167.37	4434.18
METZLER	35-71891	602091.308	3471381.176	4728.53	3/5/08	288.30	4440.23
					5/15/08	286.53	4442.00
					7/31/08	286.82	4441.71
					10/20/08	287.09	4441.44
					2/11/09	287.74	4440.79
					4/20/09	287.47	4441.06
					7/15/09	287.58	4440.95
					10/14/09	287.99	4440.54
					2/1/10	288.38	4440.15
					5/18/10	288.65	4439.88
					7/16/10	288.88	4439.65
					10/19/10	289.09	4439.44
					1/19/11	289.54	4438.99
					4/4/11	289.87	4438.66
					7/12/11	289.98	4438.55
					10/12/11	290.47	4438.06
					2/7/12	290.92	4437.61
					4/12/12	291.15	4437.38
					7/18/12	291.37	4437.16
					10/4/12	291.63	4436.90
1/11/13	292.15	4436.38					
4/11/13	292.29	4436.24					
7/17/13	292.43	4436.10					
10/17/13	292.86	4435.67					
1/16/14	293.20	4435.33					
4/15/14	293.20	4435.33					
7/21/14	293.45	4435.08					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
NESS	509127	607866.391	3471419.494	4761.23	7/24/08	557.90	4203.33
					10/16/08	549.30	4211.93
					2/25/09	536.40	4224.83
					5/11/09	544.64	4216.59
					8/11/09	566.87	4194.36
					11/12/09	537.34	4223.89
					2/2/10	531.85	4229.38
					4/21/10	568.11	4193.12
					7/19/10	573.02	4188.21
					1/18/11	541.80	4219.43
					7/12/11	597.71	4163.52
					2/3/12	591.24	4169.99
					1/9/13	551.35	4209.88
1/6/14	538.84	4222.39					
7/7/14	594.42	4166.81					
NOTEMAN	212483	606053.800	3471576.400	4800.68	5/13/08	339.77	4460.91
					8/27/08	344.34	4456.34
					11/22/08	322.26	4478.42
					2/25/09	327.54	4473.14
NSD-02	527587	598820.051	3468821.474	4531.38	10/7/09	101.17	4430.21
					3/16/10	99.43	4431.95
					5/25/10	101.63	4429.75
					8/25/10	102.38	4429.00
					3/17/11	102.68	4428.70
					6/17/11	109.29	4422.09
					12/7/11	104.41	4426.97
					3/6/12	104.30	4427.08
					12/14/12	107.24	4424.14
					3/22/13	107.20	4424.18
					6/24/13	113.50	4417.88
					9/23/13	105.00	4426.38
					12/19/13	103.45	4427.93
					3/24/14	103.12	4428.26
6/23/14	107.06	4424.32					
9/23/14	104.77	4426.61					
NSD-03	527586	598070.538	3468694.259	4518.28	10/7/09	85.62	4432.66
					3/16/10	83.51	4434.77
					5/25/10	84.49	4433.79
					8/25/10	85.70	4432.58
					3/17/11	86.76	4431.52
					6/17/11	88.76	4429.52
					12/7/11	89.30	4428.98
					3/6/12	89.24	4429.04
					12/14/12	90.83	4427.45
					3/22/13	88.65	4429.63
					6/24/13	91.70	4426.58
					9/23/13	86.88	4431.40
					12/19/13	89.11	4429.17
					3/24/14	89.48	4428.80
6/23/14	90.77	4427.51					
9/23/14	89.10	4429.18					
NWC-02	562944	600177.435	3467474.673	4600.44	10/27/08	160.51	4439.93
					4/29/09 <sup>2</sup>	160.5	4439.94
					9/10/09 <sup>2</sup>	155	4445.44
					4/2010 <sup>2</sup>	131	4469.44
					3/1/2013 <sup>2</sup>	131	4469.44
NWC-03	203321	601153.857	3468350.838	4574.99	11/3/08	131.48	4443.51
					4/29/09 <sup>2</sup>	130	4444.99
					9/10/09 <sup>2</sup>	126	4448.99
					10/9/09 <sup>5</sup>	125	4449.99

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
NWC-03 CAP	627684	601151.704	3468343.653	4572.82	2/2/09	130.03	4442.79
					4/23/09	130.62	4442.20
					7/21/09	131.26	4441.56
					10/21/09	131.60	4441.22
					2/3/10	131.34	4441.48
					4/21/10	131.86	4440.96
					7/20/10	131.50	4441.32
					1/18/11	132.91	4439.91
					7/15/11	134.42	4438.40
					10/13/11	134.73	4438.09
					1/31/12	134.50	4438.32
					4/25/12	135.09	4437.73
					7/18/12	135.73	4437.09
					10/10/12	135.97	4436.85
					1/10/13	135.60	4437.22
					4/17/13	136.32	4436.50
7/12/13	136.78	4436.04					
10/10/13	136.78	4436.04					
1/13/14	136.43	4436.39					
4/7/14	136.93	4435.89					
7/10/14	137.30	4435.52					
NWC-04	551849	605829.808	3469071.959	4690.77	12/2/08	352.11	4338.66
					4/29/09 <sup>2</sup>	328	4362.77
					9/10/09 <sup>2</sup>	324	4366.77
					4/2010 <sup>2</sup>	216	4474.77
					3/1/2013 <sup>2</sup>	216	4474.77
NWC-06	575700	599822.821	3467749.954	4592.50	4/29/09 <sup>2</sup>	156	4436.50
					9/10/09 <sup>2</sup>	155	4437.50
					10/9/09 <sup>2</sup>	148	4444.50
					4/2010 <sup>2</sup>	140	4452.50
					3/1/13 <sup>2</sup>	140	4452.50
OSBORN	643436	607031.823	3470270.548	4711.95	5/13/08	68.65	4643.30
					8/5/08	69.53	4642.42
					10/16/08	69.83	4642.12
					1/20/09	69.23	4642.72
					4/7/09	69.60	4642.35
					7/8/09	96.61	4615.34
					10/5/09	75.09	4636.86
					1/21/10	75.37	4636.58
					4/19/10	81.59	4630.36
					7/12/10	83.00	4628.95
					7/12/11	74.60	4637.35
2/3/12	74.57	4637.38					
7/9/12	74.63	4637.32					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
PANAGAKOS	35-76413	605304.234	3469323.140	4691.40	1/22/09	155.28	4536.12
					4/9/09	156.15	4535.25
					7/9/09	161.61	4529.79
					10/6/09	167.20	4524.20
					1/21/10	166.92	4524.48
					4/20/10	167.11	4524.29
					7/20/10	171.78	4519.62
					10/18/10	176.39	4515.01
					7/14/11	173.78	4517.62
					8/25/11	172.89	4518.51
					2/6/12	169.09	4522.31
					2/29/12	169.32	4522.08
					3/15/12	169.64	4521.76
					4/12/12	168.85	4522.55
					7/9/12	170.38	4521.02
					11/27/12	169.82	4521.58
					1/18/13	169.12	4522.28
					2/6/13	168.76	4522.64
					4/9/13	167.79	4523.61
					7/10/13	168.51	4522.89
10/15/13	164.49	4526.91					
1/10/14	160.32	4531.08					
4/16/14	158.75	4532.65					
7/17/14	159.69	4531.71					
PARRA	576415	602170.716	3471263.549	4727.21	5/15/08	279.78	4447.43
					8/18/08	280.06	4447.15
					11/3/08	280.39	4446.82
					2/13/09	280.75	4446.46
					4/28/09	280.88	4446.33
					7/20/09	280.99	4446.22
PIONKE 395	613395	601045.471	3468960.981	4592.13	7/17/08	149.88	4442.25
					11/3/08	150.99	4441.14
					2/25/09	149.68	4442.45
					4/14/09	150.01	4442.12
					7/13/09	150.47	4441.66
					10/7/09	150.96	4441.17
					3/8/10	151.11	4441.02
					4/26/10	151.32	4440.81
					7/15/10	151.90	4440.23
					10/18/10	152.38	4439.75
					1/19/11	152.38	4439.75
					4/8/11	153.04	4439.09
					7/12/11	153.57	4438.56
					10/11/11	153.87	4438.26
					2/1/12	153.92	4438.21
					4/12/12	154.35	4437.78
					7/11/12	154.97	4437.16
					10/17/12	155.31	4436.82
					1/9/13	155.25	4436.88
					4/17/13	155.76	4436.37
7/18/13	156.09	4436.04					
10/17/13	156.39	4435.74					
2/5/14	155.84	4436.29					
4/9/14	156.21	4435.92					
7/11/14	156.66	4435.47					
PIONKE 517	221517	600909.967	3468866.654	4587.20792	9/18/12	152.00	4435.21
					10/11/12	152.15	4435.06
					1/9/13	152.23	4434.98
					4/17/13	152.58	4434.63
					7/16/13	153.11	4434.10
					10/17/13	153.27	4433.94
					3/5/14	153.24	4433.97
					4/9/14	153.07	4434.14
7/11/14	153.56	4433.65					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
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
POWER 639	222639	602146.123	3471373.655	4734.38	7/14/10	206.58	4432.51
					10/20/10	206.74	4432.35
					1/16/14	294.07	4440.31
					2/5/14	294.07	4440.31
					3/5/14	294.20	4440.18
					4/15/14	294.14	4440.24
					5/13/14	294.25	4440.13
					6/23/14	294.28	4440.10
					7/17/14	294.32	4440.06
					8/11/14	294.44	4439.94
RAMIREZ	216425	599730.649	3467584.363	4596.61	9/9/14	294.47	4439.91
					10/27/08	159.45	4437.16
					1/29/09	158.74	4437.87
					4/16/09	158.66	4437.95
					7/10/09	159.64	4436.97
					10/6/09	160.36	4436.25
					1/25/10	160.10	4436.51
					4/21/10	159.96	4436.65
					7/21/10	161.05	4435.56
					10/19/10	161.23	4435.38
					1/18/11	161.22	4435.39
					4/11/11	161.48	4435.13
					7/18/11	162.39	4434.22
					10/12/11	163.04	4433.57
					4/10/12	163.22	4433.39
					RAY	803772	607083.422
10/8/12	164.38	4432.23					
4/19/13	164.96	4431.65					
1/13/14	165.26	4431.35					
4/14/14	164.85	4431.76					
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					
10/3/12	60.98	4586.93					
1/17/13	56.57	4591.34					
4/18/13	56.32	4591.59					
7/9/13	60.30	4587.61					
10/15/13	44.33	4603.58					
1/14/14	34.50	4613.41					
4/8/14	36.72	4611.19					
7/8/14	43.38	4604.53					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
ROGERS 596	573596	601001.503	3468491.639	4577.35	11/11/09	135.46	4441.89
					2/25/10	135.89	4441.46
					4/22/10	135.62	4441.73
					7/16/10	136.63	4440.72
					10/19/10	136.61	4440.74
					1/20/11	134.21	4443.14
					4/8/11	137.68	4439.67
					7/14/11	138.09	4439.26
					10/12/11	138.09	4439.26
					1/30/12	137.91	4439.44
					4/23/12	138.61	4438.74
					7/13/12	139.65	4437.70
					10/10/12	139.55	4437.80
					1/15/13	139.23	4438.12
					4/15/13	139.97	4437.38
					7/15/13	139.94	4437.41
10/16/13	140.50	4436.85					
1/9/14	140.12	4437.23					
4/11/14	140.56	4436.79					
7/18/14	140.64	4436.71					
ROGERS 750 <sup>3</sup>	641750	600977.690	3468417.386	4579.02	2/7/08	129.85	4449.17
					7/29/08	131.86	4447.16
					10/22/08	132.08	4446.94
					2/10/09	130.62	4448.40
					4/29/09	131.33	4447.69
					8/3/09	135.07	4443.95
ROGERS E	216018	600449.648	3467636.029	4590.66	7/17/08	149.65	4441.01
					11/3/08	150.15	4440.51
					2/10/09	149.02	4441.64
					4/16/09	149.53	4441.13
					7/13/09	150.31	4440.35
					10/6/09	150.76	4439.90
					1/25/10	150.64	4440.02
					4/21/10	150.97	4439.69
					8/25/10	151.15	4439.51
					10/19/10	151.57	4439.09
					10/13/11	153.79	4436.87
					1/30/12	153.56	4437.10
					4/10/12	154.13	4436.53
					7/17/12	155.10	4435.56
					1/17/13	154.56	4436.10
					4/18/13	155.66	4435.00
7/17/13	155.71	4434.95					
4/14/14	155.97	4434.69					
RUIZ	531770	602857.357	3471424.219	4735.18	2/5/08	293.29	4441.89
					5/15/08	293.57	4441.61
					7/30/08	293.86	4441.32
					10/20/08	294.18	4441.00
					2/12/09	294.62	4440.56
					4/21/09	294.66	4440.52
					8/3/09	294.98	4440.20
					10/28/09	295.33	4439.85
					2/1/10	295.70	4439.48
					4/26/10	295.96	4439.22
					4/8/11	297.20	4437.98
					4/13/12	298.47	4436.71
					1/11/13	299.39	4435.79
					4/11/13	299.72	4435.46
					7/25/13	300.06	4435.12
					10/17/13	300.07	4435.11
1/8/14	300.19	4434.99					
4/15/14	300.31	4434.87					



**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
SCHWARTZ	210865	600811.014	3468269.622	4564.49	2/8/08	121.80	4442.69
					5/19/08	123.49	4441.00
					7/29/08	122.64	4441.85
					10/22/08	123.39	4441.10
					1/29/09	122.87	4441.62
					4/17/09	123.53	4440.96
					7/10/09	124.15	4440.34
					10/6/09	124.55	4439.94
					1/22/10	124.32	4440.17
					4/21/10	124.65	4439.84
					7/21/10	125.80	4438.69
					10/19/10	126.30	4438.19
					1/17/11	125.35	4439.14
					4/11/11	127.50	4436.99
					7/18/11	127.67	4436.82
					10/12/11	127.51	4436.98
					2/6/12	127.34	4437.15
					4/10/12	127.78	4436.71
					7/16/12	128.84	4435.65
					10/17/12	128.98	4435.51
3/13/13	128.81	4435.68					
5/14/13	129.60	4434.89					
7/15/13	129.05	4435.44					
10/14/13	130.15	4434.34					
4/9/14	129.77	4434.72					
7/18/14	129.81	4434.68					
STEPHENS	808560	606981.766	3469072.799	4651.22	5/13/08	44.94	4606.28
					8/5/08	46.61	4604.61
					10/16/08	46.60	4604.62
					1/21/09	47.19	4604.03
					4/8/09	48.45	4602.77
					7/7/09	49.41	4601.81
					10/7/09	50.33	4600.89
					1/26/10	51.13	4600.09
					4/20/10	51.24	4599.98
					7/14/10	51.91	4599.31
					1/18/11	52.98	4598.24
					7/11/11	54.44	4596.78
					1/31/12	55.65	4595.57
					7/9/12	10.69	4640.53
					1/18/13	10.50	4640.72
					7/10/13	58.16	4593.06
					1/14/14	45.51	4605.71
7/8/14	45.39	4605.83					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
SUNBELT	201531	605998.250	3471735.149	4806.52	2/6/08	352.10	4454.42
					5/15/08	358.97	4447.55
					8/5/08	Dry	<4426
					10/16/08	347.00	4459.52
					1/21/09	344.78	4461.74
					4/10/09	349.64	4456.88
					7/8/09	356.99	4449.53
					10/5/09	Dry	<4426
					1/21/10	Dry	<4426
					4/19/10	Dry	<4426
					7/12/10	Dry	<4426
					1/19/11	Dry	<4426
					8/25/11	Dry	<4426
					2/3/12	Dry	<4426
					7/9/12	Dry	<4426
					9/13/12	Dry	<4426
1/17/13	Dry	<4426					
7/9/13	Dry	<4426					
1/10/14	Dry	<4426					
7/8/14	Dry	<4426					
SWAN	NR	607378.547	3470648.298	4716.59	2/13/08	26.50	4690.09
					5/14/08	30.69	4685.90
					7/24/08	32.06	4684.53
					10/16/08	27.53	4689.06
					1/20/09	29.77	4686.82
					4/7/09	31.47	4685.12
					7/8/09	33.61	4682.98
					10/5/09	35.12	4681.47
					1/21/10	36.64	4679.95
					4/21/10	38.06	4678.53
					7/19/10	39.67	4676.92
					1/18/11	35.06	4681.53
					7/12/11	39.32	4677.27
					2/3/12	37.86	4678.73
					7/10/12	40.39	4676.20
					1/9/13	38.51	4678.08
7/8/13	42.26	4674.33					
1/10/14	29.43	4687.16					
7/7/14	33.68	4682.91					
THOMPSON 151	612151	599543.561	3467387.294	4597.62	8/9/13	167.86	4429.76
					10/10/13	167.68	4429.94
					1/16/14	167.19	4430.43
					4/14/14	166.98	4430.64
					7/21/14	167.78	4429.84
TM-02A	522574	604152.059	3472008.794	4808.43	3/4/08	346.62	4461.81
					5/23/08	346.16	4462.27
					8/15/08	353.91	4454.52
					10/30/08	349.45	4458.98
					2/24/09	348.64	4459.79
					5/6/09	349.38	4459.05
					8/12/09	349.13	4459.30
					11/4/09	348.97	4459.46
					3/10/10	348.19	4460.24
					4/6/10	353.86	4454.57
					7/6/10	349.20	4459.23
					2/10/11	347.60	4460.83
					7/13/11	348.14	4460.29
					2/2/12	346.94	4461.49
					8/13/12	344.53	4463.90
					2/14/13	343.50	4464.93
8/27/13	343.84	4464.59					
2/18/14	341.47	4466.96					
8/12/14	338.50	4469.93					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
TM-03	522575	606366.130	3473711.046	4897.85	3/12/08	127.14	4770.71
					5/20/08	127.40	4770.45
					8/6/08	128.02	4769.83
					11/12/08	128.00	4769.85
					2/26/09	126.94	4770.91
					5/13/09	113.86	4783.99
					8/18/09	128.80	4769.05
					11/10/09	125.38	4772.47
					3/2/10	128.02	4769.83
					4/14/10	130.56	4767.29
					7/7/10	131.25	4766.60
2/1/12	135.04	4762.81					
TM-06 MILLER	522695	606055.975	3468376.658	4707.88	2/26/08	158.78	4549.10
					5/20/08	158.76	4549.12
					8/4/08	158.80	4549.08
					10/29/08	158.85	4549.03
					2/16/09	159.28	4548.60
					5/13/09	158.81	4549.07
					8/18/09	158.91	4548.97
					11/12/09	158.96	4548.92
					3/8/10	158.99	4548.89
					4/14/10	159.02	4548.86
					7/2/10	159.13	4548.75
					7/21/11	159.88	4548.00
					7/9/12	161.40	4546.48
					2/14/13	161.05	4546.83
8/19/13	161.30	4546.58					
7/21/14	162.60	4545.28					
TM-10 USBP	522696	601586.268	3471816.397	4741.18	3/15/12	279.30	4461.88
					4/24/12	279.03	4462.15
					9/13/12	278.30	4462.88
					10/19/12	277.45	4463.73
					3/7/13	276.55	4464.63
					4/17/13	276.42	4464.76
					7/23/13	275.99	4465.19
					11/6/13	254.20	4486.98
					1/15/14	262.00	4479.18
					5/15/14	269.39	4471.79
					7/15/14	271.03	4470.15
TM-16	522578	605588.075	3469842.199	4717.71	3/5/08	81.00	4636.71
					5/22/08	81.24	4636.47
					8/6/08	81.65	4636.06
					11/5/08	81.75	4635.96
					2/26/09	81.88	4635.83
					5/13/09	82.01	4635.70
					8/19/09	82.37	4635.34
					11/10/09	82.83	4634.88
					3/2/10	83.09	4634.62
					4/14/10	83.22	4634.49
					7/2/10	83.51	4634.20
					7/14/11	80.41	4637.30
					7/9/12	72.55	4645.16
					8/15/13	61.42	4656.29
8/4/14	62.55	4655.16					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
TM-19A	522581	602458.710	3469197.426	4645.87	3/6/08	199.85	4446.02
					5/22/08	199.50	4446.37
					8/6/08	199.19	4446.68
					11/18/08	199.46	4446.41
					3/3/09	199.81	4446.06
					4/22/09	200.57	4445.30
					8/12/09	201.46	4444.41
					11/4/09	201.16	4444.71
					3/10/10	201.34	4444.53
					4/9/10	201.55	4444.32
					7/7/10	202.35	4443.52
					2/14/11	203.00	4442.87
					7/15/11	203.30	4442.57
					2/2/12	203.84	4442.03
					7/11/12	204.75	4441.12
					10/16/12	205.02	4440.85
2/15/13	205.30	4440.57					
9/4/13	205.73	4440.14					
2/12/14	207.47	4438.40					
7/21/14	210.56	4435.31					
TM-42	562554	603698.271	3469104.903	4666.67	3/5/08	211.04	4455.63
					5/22/08	210.98	4455.69
					8/6/08	211.55	4455.12
					11/6/08	207.05	4459.62
					2/18/09	212.31	4454.36
					5/7/09	212.37	4454.30
					8/18/09	212.77	4453.90
					11/3/09	213.05	4453.62
					2/24/10	213.36	4453.31
					4/19/10	213.51	4453.16
					7/2/10	213.52	4453.15
					7/12/11	214.62	4452.05
					7/11/12	216.10	4450.57
					2/12/13	216.55	4450.12
8/28/13	217.38	4449.29					
7/21/14	218.33	4448.34					
TVI 236	802236	600552.215	3467978.431	4561.98	5/7/08	123.30	4438.68
					7/15/08	121.55	4440.43
					10/15/08	122.35	4439.63
					2/11/09	121.28	4440.70
					4/17/09	122.73	4439.25
					7/21/09	123.96	4438.02
					10/19/09	123.88	4438.10
					2/2/10	122.26	4439.72
					4/23/10	122.70	4439.28
					7/15/10	125.08	4436.90
					7/15/11	127.23	4434.75
					7/16/12	127.81	4434.17
					10/9/12	128.45	4433.53
					7/18/13	127.38	4434.60
7/16/14	129.24	4432.74					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
TVI 713	567713	600729.095	3468412.946	4567.22	5/7/08	127.10	4440.12
					7/14/08	126.30	4440.92
					10/15/08	130.00	4437.22
					2/11/09	149.87	4417.35
					4/17/09	126.73	4440.49
					7/21/09	127.36	4439.86
					10/19/09	127.79	4439.43
					2/2/10	126.71	4440.51
					4/23/10	127.53	4439.69
					7/15/10	129.14	4438.08
					10/20/10	130.84	4436.38
					1/20/11	134.36	4432.86
					4/11/11	135.72	4431.50
					7/15/11	131.61	4435.61
					10/12/11	130.33	4436.89
					2/3/12	130.01	4437.21
					4/25/12	131.33	4435.89
					7/16/12	131.97	4435.25
					10/9/12	132.16	4435.06
					2/6/13	131.14	4436.08
4/10/13	132.08	4435.14					
7/18/13	131.72	4435.50					
10/8/13	133.10	4434.12					
1/9/14	132.37	4434.85					
4/9/14	132.93	4434.29					
7/16/14	132.57	4434.65					
WEISKOPF 802	641802	601154.951	3468658.855	4586.89	2/15/08	143.31	4443.58
					5/7/08	143.90	4442.99
					7/16/08	144.22	4442.67
					10/28/08	145.81	4441.08
					1/29/09	143.99	4442.90
					4/15/09	144.38	4442.51
					7/15/09	144.99	4441.90
					10/15/09	145.66	4441.23
					2/2/10	145.28	4441.61
					4/22/10	145.72	4441.17
					7/19/10	146.46	4440.43
					10/20/10	147.11	4439.78
					1/17/11	146.72	4440.17
					4/11/11	146.31	4440.58
					8/26/11	148.06	4438.83
					10/13/11	148.30	4438.59
					2/1/12	148.23	4438.66
					4/25/12	148.82	4438.07
					7/13/12	149.79	4437.10
					10/11/12	149.73	4437.16
1/16/13	149.49	4437.40					
4/17/13	150.16	4436.73					
7/18/13	150.24	4436.65					
10/17/13	150.69	4436.20					
1/16/14	150.08	4436.81					
4/11/14	150.75	4436.14					
7/18/14	150.85	4436.04					
WEISKOPF 897	221897	601096.780	3468647.358	4585.70	12/6/12	149.27	4436.43
					1/16/13	148.70	4437.00
					4/17/13	149.80	4435.90
					7/18/13	150.15	4435.55
					10/17/13	150.38	4435.32
					1/16/14	149.78	4435.92
					4/11/14	150.50	4435.20
7/18/14	150.55	4435.15					

**TABLE 4**  
**Compilation of Groundwater Elevation Data**

Well Name	ADWR 55 Registry Number	UTM East (meters)	UTM North (meters)	Measuring Point Elevation (ft amsl)	Date	Depth To Water (feet)	Groundwater Elevation (ft amsl)
WMD-2011-03M	913037	605360.830	3470671.273	4746.28	2/2/12	226.66	4519.62
ZANDER	205126	599678.880	3467998.486	4580.94	2/4/08	144.85	4436.09
					5/6/08	145.33	4435.61
					7/16/08	146.40	4434.54
					10/28/08	146.01	4434.93
					2/10/09	144.83	4436.11
					4/16/09	144.94	4436.00
					7/14/09	146.14	4434.80
					10/13/09	146.77	4434.17
					1/26/10	146.34	4434.60
					4/22/10	146.27	4434.67
					7/21/10	147.81	4433.13
					10/19/10	147.80	4433.14
					1/18/11	147.52	4433.42
					4/6/11	147.84	4433.10
					7/13/11	148.91	4432.03
					10/12/11	149.50	4431.44
					1/31/12	149.31	4431.63
					4/10/12	149.64	4431.30
					7/17/12	150.63	4430.31
					10/8/12	150.92	4430.02
1/10/13	150.89	4430.05					
4/18/13	151.36	4429.58					
7/15/13	152.14	4428.80					
10/7/13	151.65	4429.29					
1/7/14	151.10	4429.84					
4/9/14	150.81	4430.13					
7/17/14	152.02	4428.92					

Notes:

35-71891 = ADWR 35 Database

ADWR = Arizona Department of Water Resources

ft amsl = feet above mean sea level

NR = No Record

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

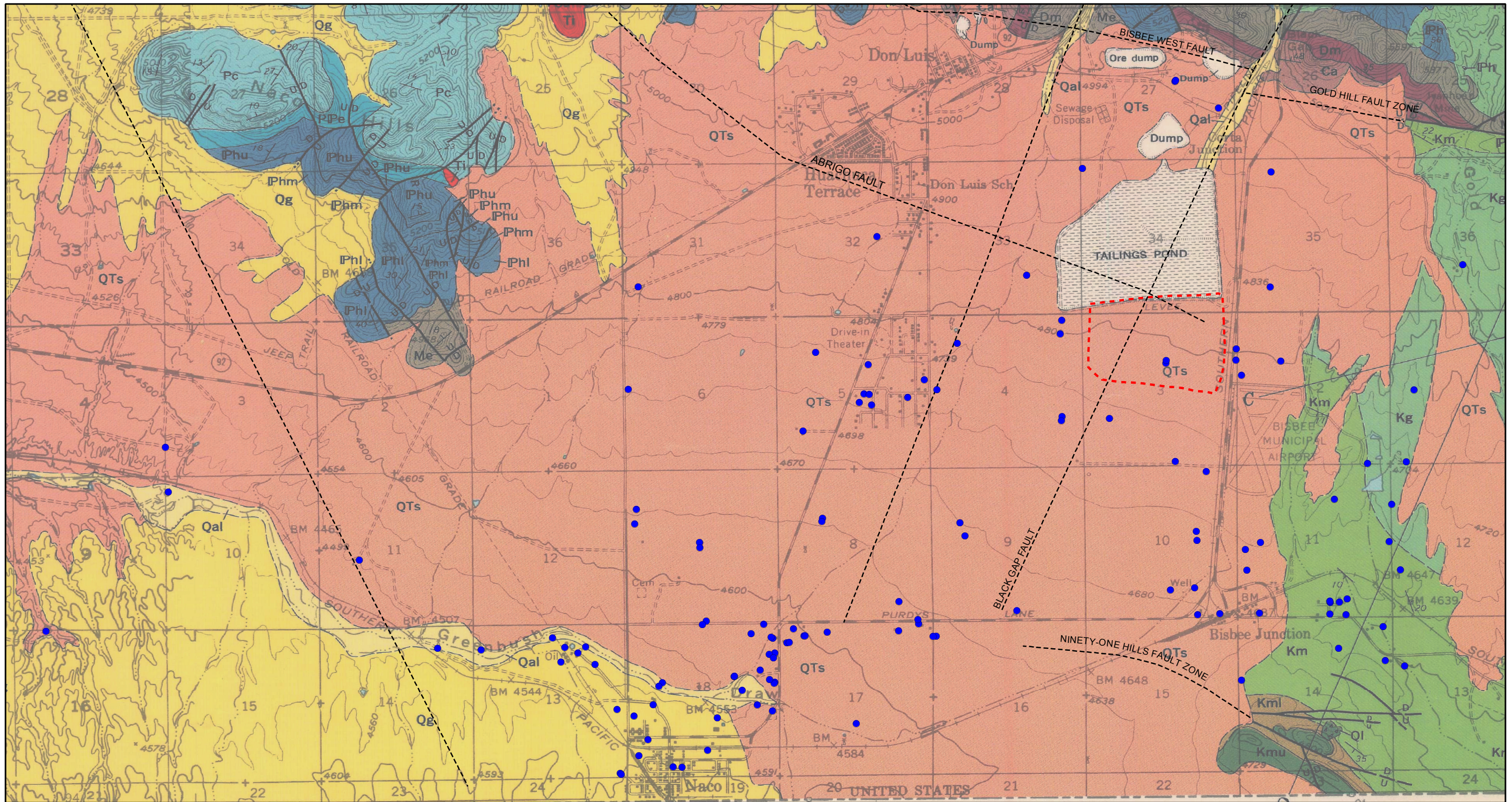
<sup>1</sup> Depth to water measurement provided by Arizona Water Company

<sup>2</sup> Depth to water measurement provided by Naco Water Company

<sup>3</sup> Well previously identified as ROGERS 803

<sup>4</sup> Well shut off at 6 am per AWC. See Table 2 for timing details.

## **FIGURES**

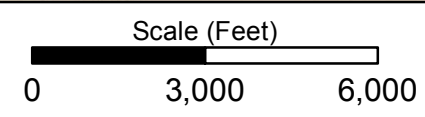


- Legend**
- Monitoring Location
  - ▭ Former Evaporation Ponds
  - Faults (dashed where inferred)
  - Basin Fill
  - Bisbee Group

- Geologic Unit - Hayes and Landis (1964)**
- Qal - Quaternary Alluvium
  - Qg - Quaternary Gravel
  - QTs - Quaternary Tertiary sediment
  - Ti - Tertiary Intrusive
  - Kc - Cintura Formation (not shown)
  - Kmu - Upper Mural Limestone
  - Kml - Lower Mural Limestone
  - Km - Morita Formation
  - Kg - Glance Conglomerate

- Paleozoic Sedimentary Formations**
- Pc - Colina Limestone
  - PPE - Earp Formation
  - Phu, Phm, Phl - Horquilla Limestone
  - Me - Escabrosa Limestone
  - Dm - Martin Limestone
  - Ca - Abrigo Limestone

See Figure 2 for Monitor Location Names

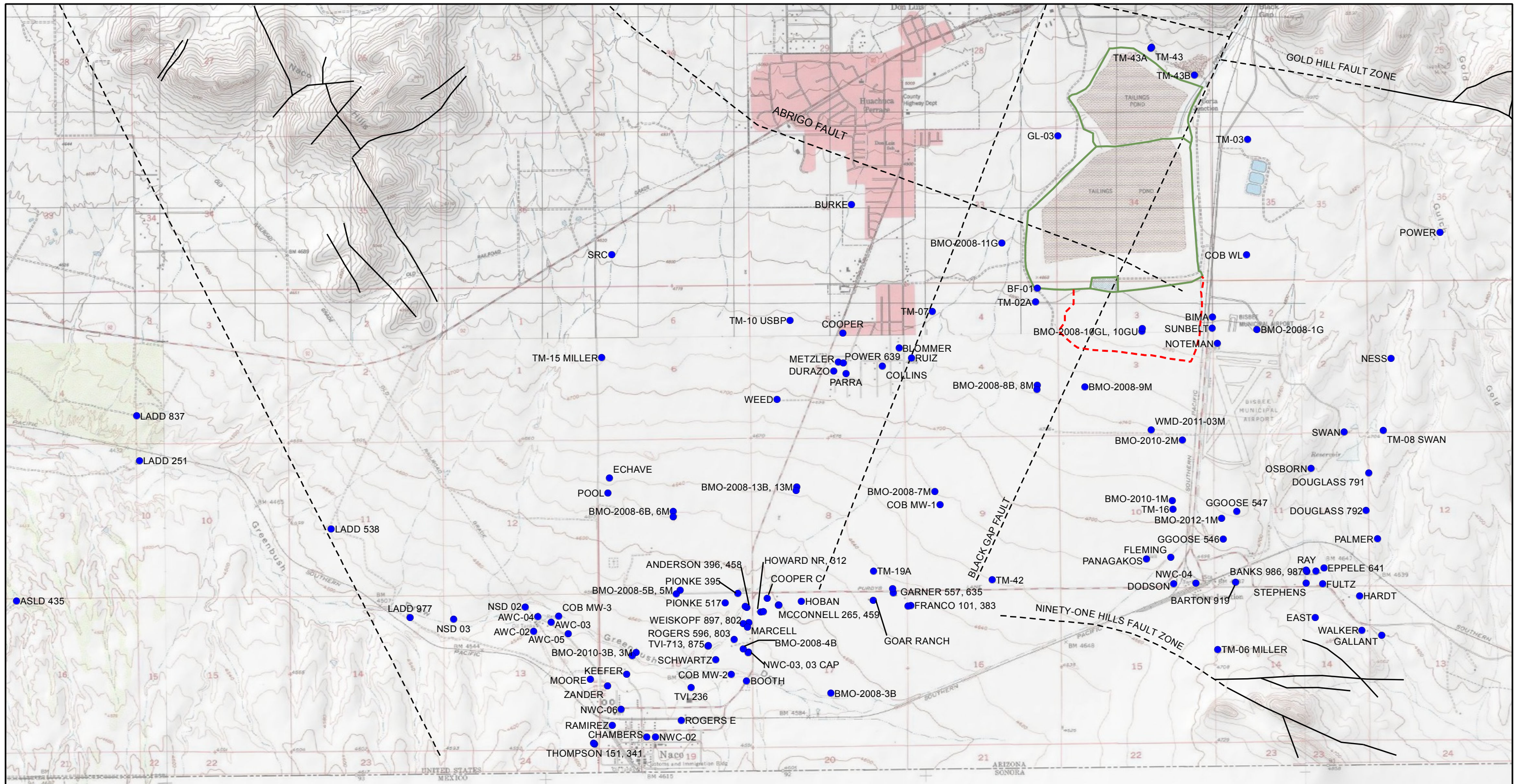


Projection: UTM Zone  
12N NAD83  
Geology reprinted from  
Hayes and Landis (1964)  
USGS Miscellaneous Geologic  
Investigations I-418

Date	2/26/14	File ID	055038-358

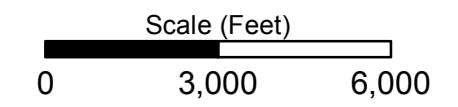
FIGURE 1  
GEOLOGIC MAP  
WITH MONITORING LOCATIONS





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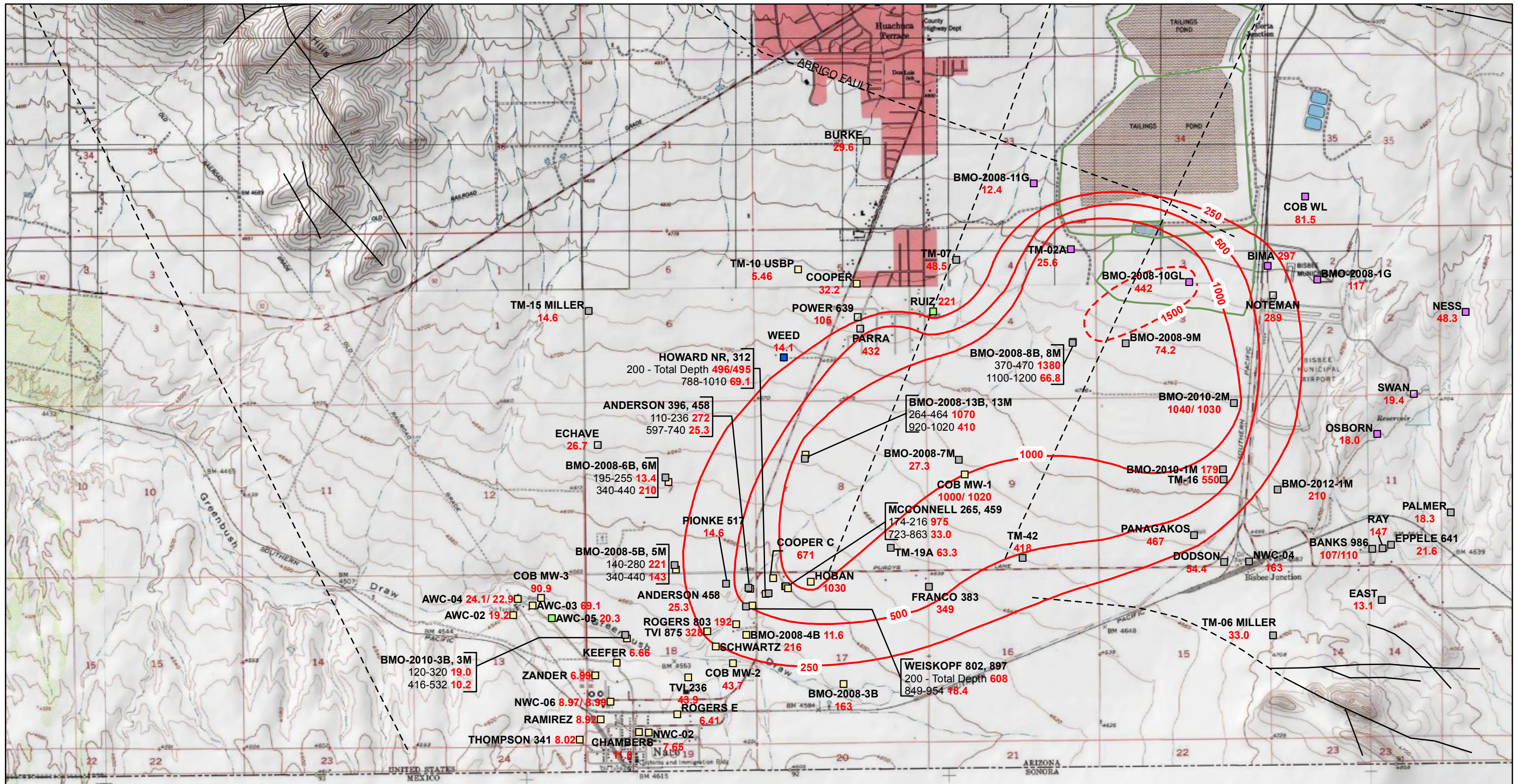
- Legend**
- Monitoring Location
  - Former Evaporation Ponds
  - CTSA Facility
  - - - Faults (dashed where inferred)



Projection: UTM Zone 12N NAD83

Date	3/18/14	File ID	055038-357

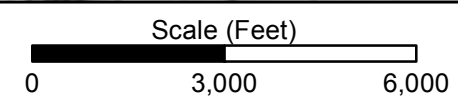
FIGURE 2  
MONITORING LOCATIONS



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- Legend**
- RAY Well ID
  - 147 SO4 Concentration (mg/L)
  - SO4 Concentration Contours (dashed where inferred)
  - Faults (dashed where inferred)
  - CTSA Facility
  - Co-located Wells
    - Well ID
    - Screen (ft bls): Sulfate Levels (mg/L)

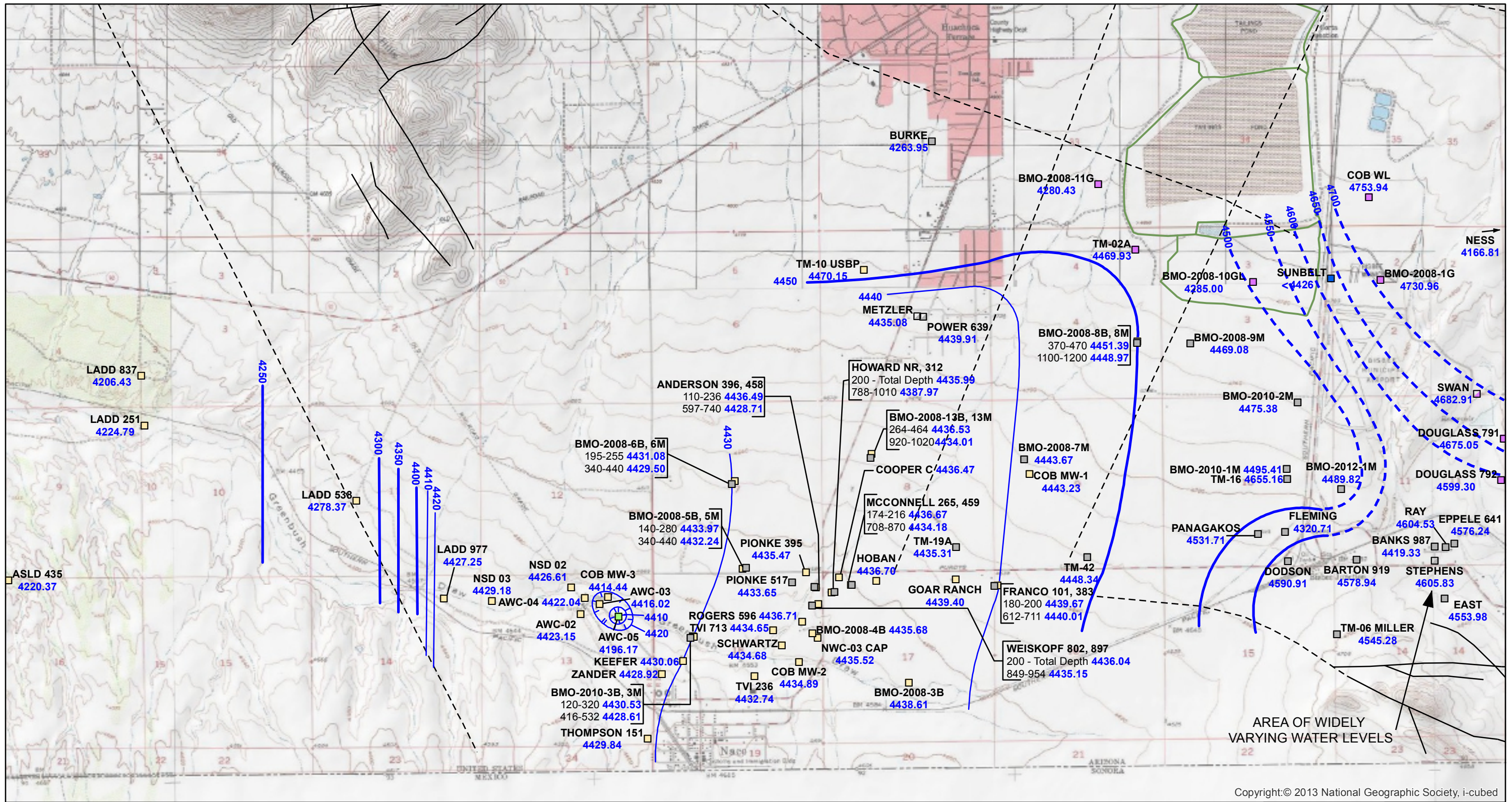
- Screened Formation**
- Basin Fill
  - Basin Fill and Undifferentiated Bisbee Group
  - Undifferentiated Bisbee Group
  - Undifferentiated Bisbee Group - Estimated
  - Undifferentiated Bisbee Group and Glance Conglomerate
  - Glance Conglomerate
  - Glance Conglomerate - Estimated
  - Undifferentiated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



**Notes:**  
 Projection: UTM Zone 12N NAD83  
 mg/L = milligrams per liter  
 ft bls = feet below land surface  
 Sulfate contours are based on third quarter 2014 and historical data.

Date	9/23/14	File ID	055038-373

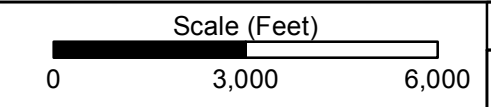
**FIGURE 3**  
**SULFATE CONCENTRATIONS IN GROUNDWATER FOR THIRD QUARTER 2014**



Copyright:© 2013 National Geographic Society, i-cubed

**Legend**

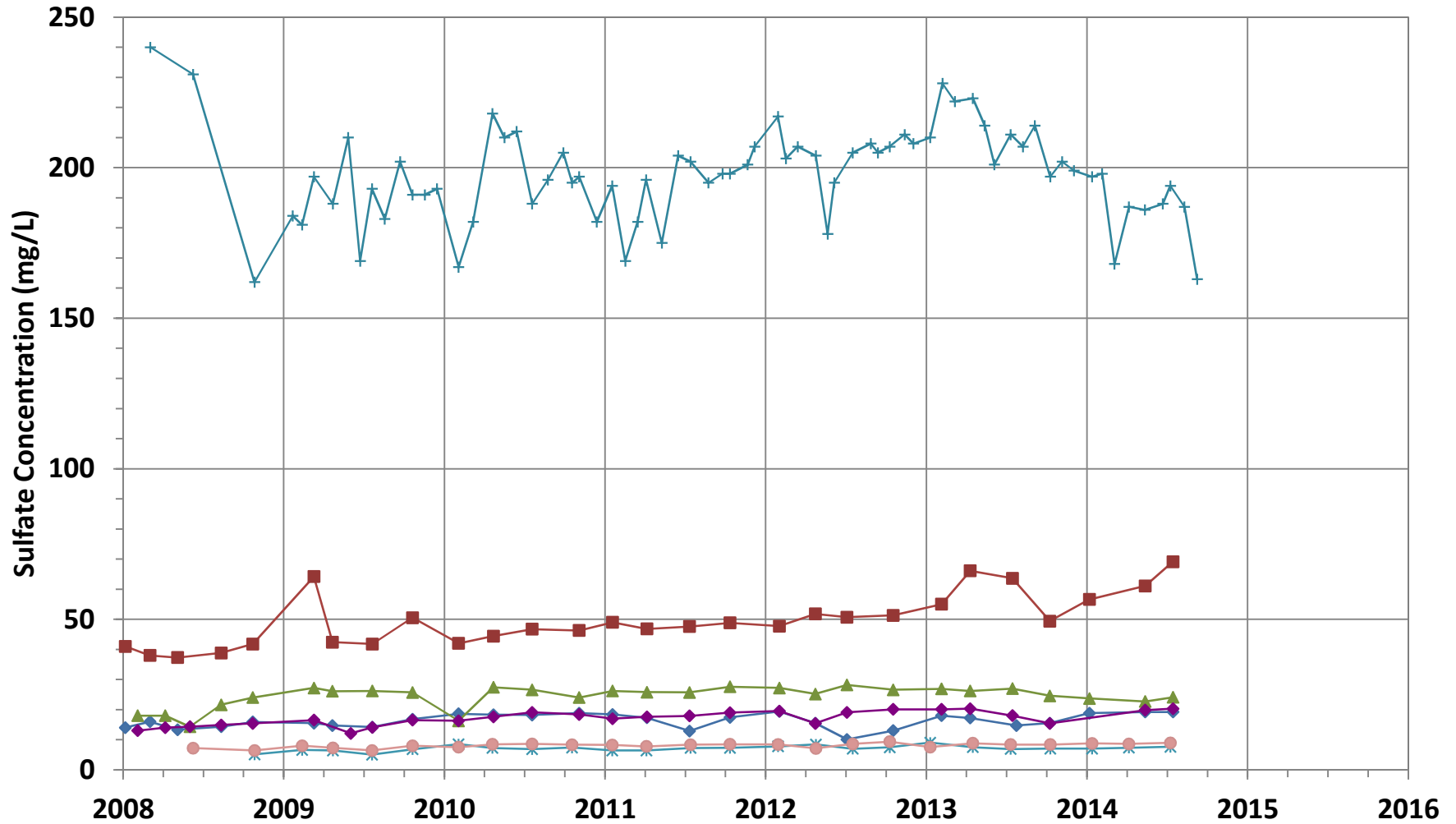
- RAY Well ID
- 4604.53 Groundwater Elevation (ft amsl)
- Groundwater Elevation Contours (10 ft)
- Groundwater Elevation Contours (50 ft) (dashed where inferred)
- Faults (dashed where inferred)
- CTSA Facility
- Co-located Wells
  - Well ID
  - Screen (ft bls): Water Elevation (ft amsl)
- Screened Formation
  - 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



Date	9/23/14	File ID	055038-372

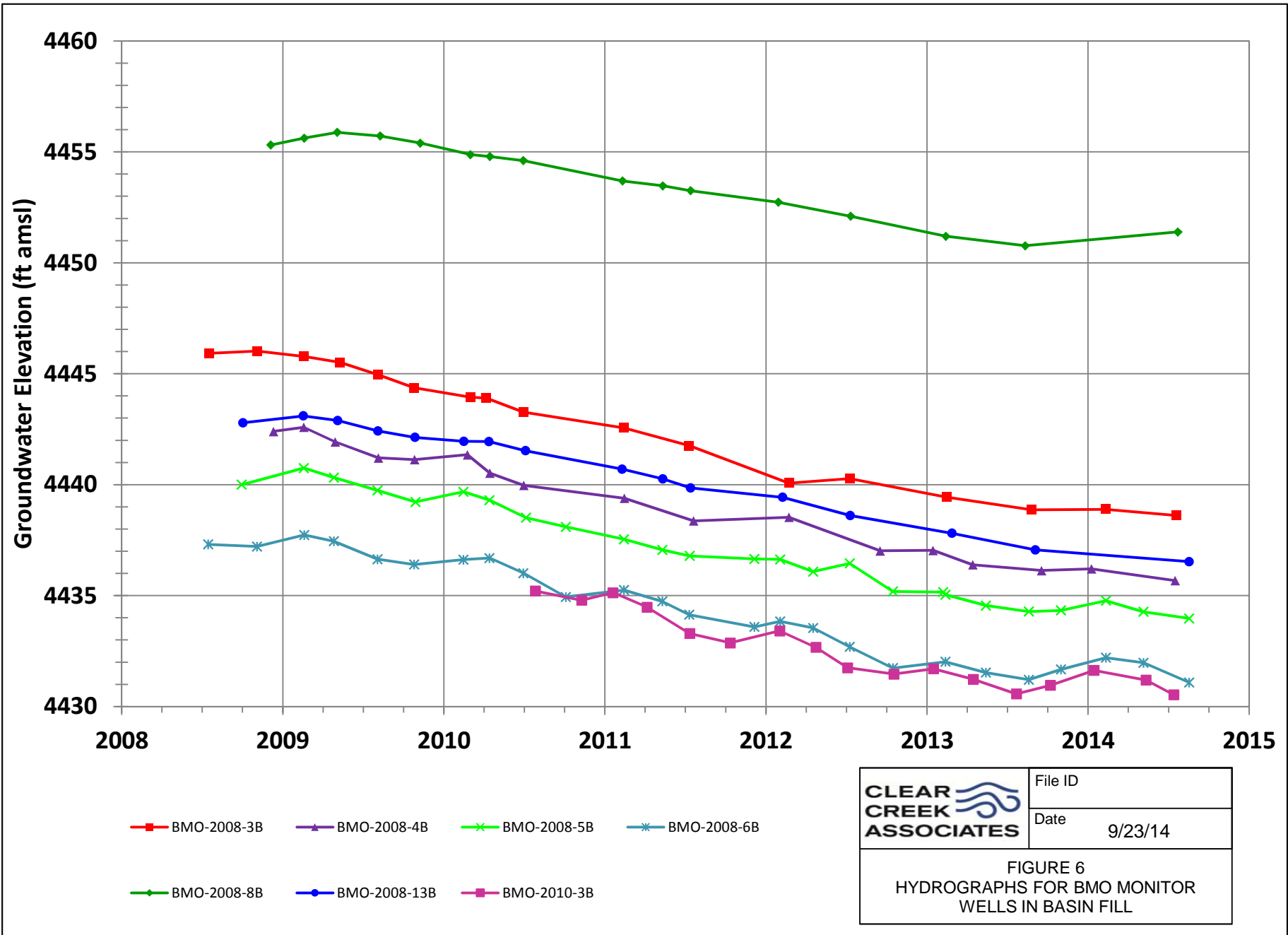
Projection: UTM Zone  
12N NAD83  
ft amsl = feet above mean sea level

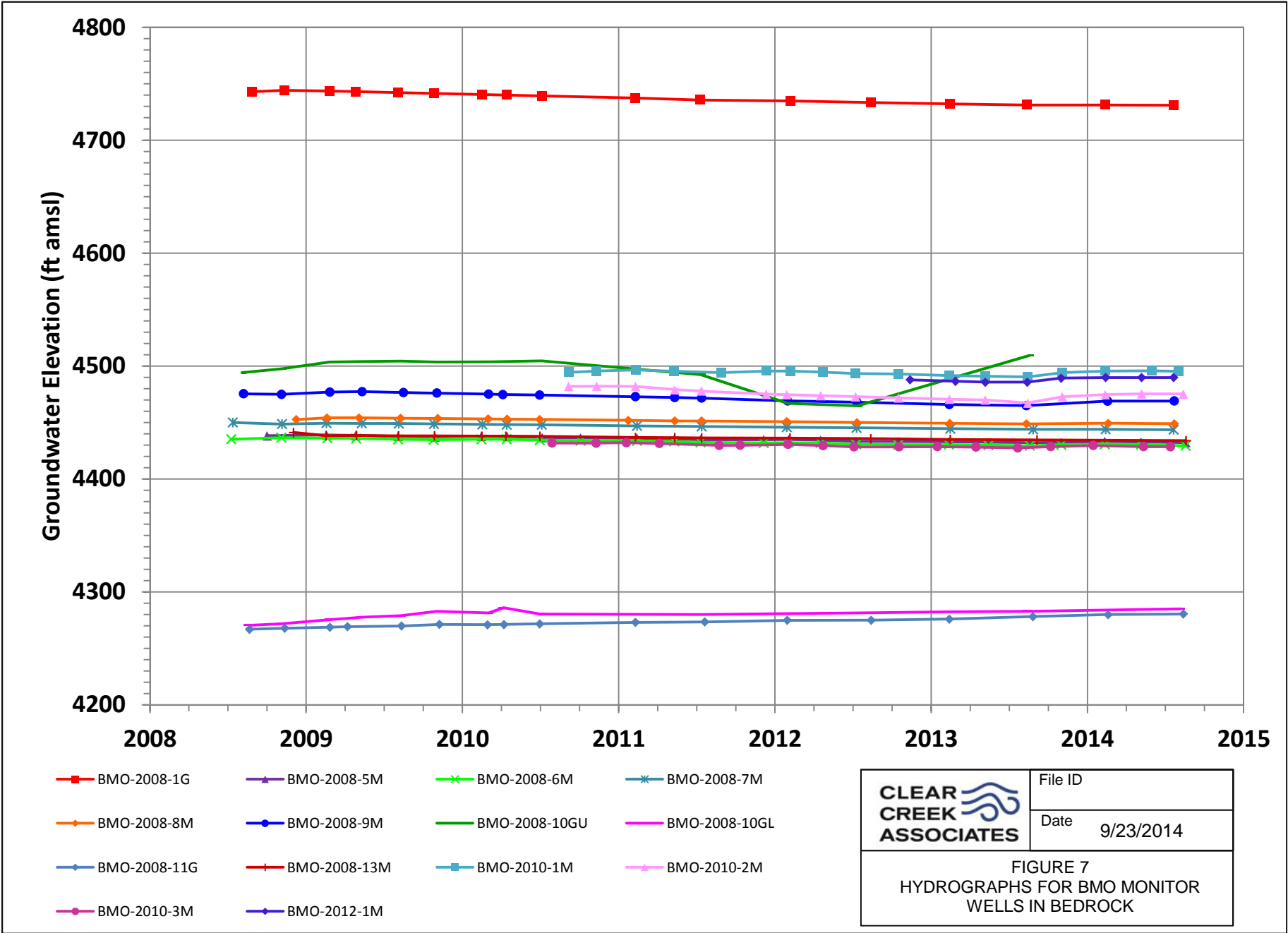
**FIGURE 4**  
GROUNDWATER ELEVATIONS  
FOR THIRD QUARTER 2014



◆ AWC-02    ■ AWC-03    ▲ AWC-04    ◆ AWC-05  
 \* NWC-02    + NWC-04    ● NWC-06

	File ID
	Date 9/23/2014
FIGURE 5 SULFATE CONCENTRATION OVER TIME IN PUBLIC DRINKING WATER SUPPLY WELLS	





**APPENDIX A**  
**DATA VERIFICATION REPORT**

**APPENDIX A**

**DATA VERIFICATION REPORT**

**THIRD QUARTER 2014**

**GROUNDWATER MONITORING REPORT**

Prepared for:

**FREEPORT MINERALS CORPORATION**  
**COPPER QUEEN BRANCH**  
36 West Highway 92  
Bisbee, Arizona 85603

Prepared by:

**CLEAR CREEK ASSOCIATES, P.L.C.**  
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October 22, 2014



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## 1. INTRODUCTION

This report summarizes the data verification review of groundwater samples collected during the third quarter 2014 by Clear Creek Associates (Clear Creek) and Freeport Minerals Corporation, Copper Queen Branch (CQB) and analyzed 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 2014 were provided to Clear Creek by SVL Analytical, Inc. (SVL) of Kellogg, Idaho for preparation of the third quarter 2014 Groundwater Monitoring Report.

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

The laboratory reports for the third quarter 2014 samples are in Appendix B, including COC forms, laboratory correspondence, QC summaries, data qualifiers, and internal QA/QC tests performed by the laboratory. Based on the results of laboratory control samples, matrix spike/recovery and blank spikes, SVL did not advise any modifications regarding the usability and data validation status of the laboratory test results. The analytical results for 102 samples collected by Clear Creek and CQB in third quarter 2014 are contained in 11 reports with the SVL laboratory identification numbers listed in the following table.

SVL ID	WELLS REPORTED
	Number of wells sampled: 80 Number of well samples collected (including duplicates and multiple samples from one well): 90 Number of duplicate samples collected: 6 Number of field and equipment blanks collected: 12 Total number of samples collected: 102
W4G0248	PALMER, NESS, SWAN, OSBORN, NOTEMAN, BIMA, EPPELE 641, RAY, BANKS 986, EAST, COB MW-3, COB MW-2, COB MW-1, COB WL, NWC-04, NWC-06, NWC-02, ROGERS E, KEEFER, DUP20140708
W4G0249	DUP20140709, DUP20140710, FB20140708, EQB20140708, FB20140709, EQB20140709, FB20140710, EQB2014710
W4G0401	RAMIREZ, CHAMBERS, COOPER, ANDERSON 396, ANDERSON 458, PIONKE 517, HOWARD NR, FB20140714, EQB20140714, HOWARD 312, DUP20140714, MCCONNELL 265, FRANCO 383, DODSON, BMO-2010-3B, BMO-2010-3M, TM-10, DUP20140716, AWC-05, AWC-03
W4G0402	AWC-04, AWC-02, TVI 875, TVI 236, FB20140716, EQB20140716, ECHAVE, ZANDER, POWER 639
W4G0594	COOPER C, HOBAN, TM-19A, TM-42, BMO-2008-3B, TM-6, BMO-2012-1M, BMO-2008-1G, TM-15, BMO-2008-7M, BMO-2008-8M, BMO-2008-8B, BMO-2008-9M
W4G0486	PANAGAKOS, SCHWARTZ, ROGERS 803, BMO-2008-4B, WEISKOPF 802, WEISKOPF 897, WEED, BURKE, THOMPSON 341, PARRA
W4H0241	POWER 639, NWC-04, RUIZ
W4H0350	BMO-2010-1M, TM-16, BMO-2008-10GL
W4H0495	BMO-2010-2M, TM-2A, BMO-2008-11G, BMO-2008-6M, BMO-2008-6B, BMO-2008-5M, BMO-2008-5B, BMO-2008-13B, DUP081414
W4H0613	BMO-2008-13M, TM-7, EQB-082114, FB-082114
W4I0197	NWC-04, MCCONNELL 459, POWER 639

## 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 [ $\mu$ S/cm], and temperature in degrees Celsius [ $^{\circ}$ C]),
- Collection of groundwater samples for water quality analysis,
- Collection of groundwater QA and QC samples per requirements in the QAPP, and
- Equipment decontamination.

Field notebook entries and sampling forms were evaluated for quality assurance and met the documentation requirements stated in the QAPP.

### 2.1 Water Level Monitoring

Static water level measurements were attempted at each well that was sampled (where there are no known obstructions or lack of wellhead access to prevent static water level measurement) and at all wells where water level monitoring was conducted by Clear Creek and CQB. Water levels were measured while the well pump was off. Because it is not always possible to ascertain how long the pump had been off prior to water level measurements (for wells equipped with pumps), some water levels may be affected by residual drawdown. Before measuring the water level at each well, the battery on the water level indicator was checked and the sensitivity level was adjusted, if necessary. Each measurement was collected and verified by measuring the depth to water multiple times in order to obtain a consistent reading and accurate measurement.

### 2.2 Groundwater Sampling

Groundwater samples were collected from operable wells designated in the 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 pH<sup>1</sup> and SC<sup>2</sup> 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 probes. 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 distilled 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 distilled 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 C) 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 °C for temperature and 100 µS/cm for specific conductance as described in Section 4.2.1.2 of the QAPP.

During this monitoring period, 90 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 a clean filtration apparatus and one disposable 0.45-micron filter. All bottles were provided by the laboratory and maintained in a clean and secure work area until used in the field.

---

<sup>1</sup> Field pH meters were calibrated using a three point calibration

<sup>2</sup> Field SC meters were calibrated using standard stock solutions

### 2.2.3 Post-Sampling Field Activities

Post-sampling field activities consisted of equipment decontamination, sample storage, and sample shipping. Field equipment that came into contact with the sample was decontaminated using Alconox<sup>®</sup> detergent and distilled water. After washing, the equipment was rinsed with distilled water. After sample collection, samples from each well were placed into a plastic bag to prevent the label from becoming illegible and stored on ice until they could be packed securely for shipping to SVL.

### 3. SAMPLE HANDLING

All third quarter 2014 samples collected by Clear Creek and CQB were shipped to SVL for analysis. COC documentation accompanied all samples submitted and included the sample name, collection date and time. Laboratory reports include the date and time the samples were received by SVL. As noted on the analytical data reports from SVL, all of the sample bottles were received intact, properly preserved, and in good condition. The samples were shipped within one to nine days of sample collection and the time between sample collection and receipt of samples by SVL was two to ten days. The samples were collected, shipped, and received by SVL within the established holding time for dissolved sulfate analysis in accordance with United States Environmental Protection Agency (EPA) Method 300.0

## 4. LABORATORY QUALITY CONTROL

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

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

### 4.1 Licensure

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

### 4.2 Analytical Method

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

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

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

Lab	Method	MDL (mg/L)	RL (mg/L)	Target MDL <sup>1</sup> (mg/L)
SVL	EPA 300.0	0.06	0.30	10

*mg/L = milligrams per liter*  
<sup>1</sup> Target MDL from Table F.2 of QAPP

### 4.4 Timeliness

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



## 4.5 Quality Control Measurements

The following QC samples were prepared and analyzed:

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

### 4.5.1 Calibration Blanks and Calibration Verification Standards

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

### 4.5.2 Analytical Spike

Analytical spike and spike duplicate samples were analyzed for 10 percent of the samples analyzed. The spike samples were prepared by adding a sulfate spike to one randomly chosen sample out of every ten samples analyzed. Spike recoveries for most analyses were between 90 and 110 percent. Instances in which analytical spike recoveries were high or unusable are qualified with an “M1”, or “M3” flag, respectively. The “M1” flag was used on reports W4G0248, W4G0249, W4G0401, W4G0402, W4G0594, W4G0486, W4H0241, and W4H0350. The “M3” qualifier was used on reports W4G0248, W4G0401, W4G0402, and W4G0594. In all cases where a qualifier was used, the method control sample recovery was checked by SVL to ensure that it was acceptable within the criteria specified by their QA Plan. The method control samples were prepared by adding a sulfate spike to de-ionized water.

### 4.5.3 Laboratory Duplicate Samples

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

#### 4.5.4 Sample Re-Analysis

No samples were reanalyzed in the third quarter 2014.

#### 4.5.5 Blank Samples

During the third quarter 2014, twelve blank samples were collected, including six field blanks (FB20140708, FB20140709, FB20140710, FB20140714, FB20140716, and FB-082114) and six field equipment blanks (EQB20140708, EQB20140709, EQB20140710, EQB20140714, EQB20140716, and EQB-082114). Field and equipment blank samples were collected in accordance with procedures described in Section 4.2.1.5 of the QAPP. Field and equipment blank samples were collected and submitted along with other samples to evaluate the potential for contaminant introduction under field conditions. As required by Section 4.2.1.5 of the QAPP, a minimum of one field blank and one equipment blank sample was collected for every twenty samples

Sulfate was detected in two field blanks, FB20140714 and FB20140716, at concentrations of 0.54 mg/L and 0.59 mg/L, respectively. The field blank samples were collected at 10:47 on July 14, 2014, and at 16:31 on July 16, 2014 with commercial distilled water. The field blank FB20140714 was collected after the HOWARD NR and DUP20140714 samples, and prior to the HOWARD 312 sample collection. The field blank FB20140716 was collected after the TVI 236 sample. Sulfate was not detected in the equipment blanks collected at 10:49 on July 14, 2014 and 16:33 on July 16, 2014 with commercial distilled water. Due to the small amount of sulfate detected in the field blanks, no corrective action is needed.

## 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 2014 groundwater sampling and analysis conducted by Clear Creek and CQB.

### 5.1 Precision

Precision indicates how well a measurement can be reproduced. Precision is quantified by calculating the RPD between duplicate samples and by measuring the water level multiple times before recording the result.

For the QA/QC of analytical data, precision was quantified by calculating the RPDs between duplicates among the following groups of duplicate samples:

- Laboratory duplicate samples
- Field duplicate samples

As discussed in Section 4.5.3 there were no exceedances of RPD QA criteria for any laboratory duplicates. During this monitoring period six field-filtered duplicate samples (DUP20140708, DUP20140709, DUP20140710, DUP20140714, DUP20140716, and DUP081414) were collected for analysis. The collection of six duplicate samples meets the QA/QC method and quantity goal stated in Section 4.2.1.5 of the QAPP.

Sulfate results for the duplicate samples collected are provided in the table below. The range of RPD values was between 0.20 and 5.11 percent, all within the 20 percent acceptance criteria for

field duplicates, as stated in Section 3.3.1 of the QAPP. Overall, the DQI for precision is met for the analytical data.

SVL Project No.	Well ID	Duplicate ID	Sample (mg/l)	Duplicate (mg/l)	RPD
<a href="#">W4G0248</a>	BANKS 986	DUP20140708	107	110	2.76%
<a href="#">W4G0248 &amp; W4G0249</a>	COB MW-1	DUP20140709	1000	1020	1.98%
<a href="#">W4G0248 &amp; W4G0249</a>	NWC-06	DUP20140710	8.97	8.99	0.22%
<a href="#">W4G0401</a>	HOWARD NR	DUP20140714	496	495	0.20%
<a href="#">W4G0402 &amp; W4G0401</a>	AWC-04	DUP20140716	24.1	22.9	5.11%
<a href="#">W4H0495</a>	BMO-2010-2M	DUP081414	1040.0	1030.0	0.97%

mg/L = milligrams per liter  
RPD = Relative Percent Difference

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

## 5.2 Bias

Bias is a systematic distortion of measurements causing consistent errors in one direction. Bias is managed in this data set by the consistent application of standardized sample collection and analysis procedures. As discussed in Section 4.5.5, ten (10) of the twelve (12) blank samples had no measurable concentrations of sulfate. Only low concentration of sulfate (0.54 mg/L and 0.59 mg/L) were measured in two (2) of the blank samples. These data indicate that the sampling collection and analysis procedures did not contribute sulfate to the results.

## 5.3 Accuracy

Accuracy is a measure of the agreement of a measurement to a known value and is measured using the recoveries from laboratory control samples. As discussed in Sections 4.5.1, 4.5.2, and 4.5.3 there were no significant exceedances of the recovery QA criteria for any of the calibration standards, analytical spikes, or laboratory duplicates, respectively. As discussed in Section 4.5.5, two (2) of the twelve (12) blank samples had low concentrations of sulfate indicating that the sampling collection and analysis procedures did not significantly contribute sulfate to the results. Water level measurements for the third quarter 2014 were compared to previous quarters to

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

#### **5.4 Representativeness**

All samples and water level measurements were taken from locations specified in the revised groundwater monitoring program (ADEQ, 2010) following sampling procedures specified in the QAPP. Therefore, they provide a good representation of groundwater quality at the sampled locations. The sampling procedures are representative of groundwater quality at the sampled locations because no or little sulfate was detected in the field or equipment blanks. The analytical data are representative of groundwater conditions because the analyses used standard procedures and methods that met QA/QC guidelines of the QAPP.

#### **5.5 Comparability**

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

#### **5.6 Completeness**

All samples collected and subsequently analyzed and reported by SVL satisfy the QA/QC criteria for this project. The completeness of analytical results is 100 percent, which exceeds the minimum 90 percent completeness in Section 3.3.6 of the QAPP.

#### **5.7 Sensitivity**

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

## 6. 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 B**  
**ANALYTICAL REPORTS**



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

**Project Name: Copper Queen Branch Sulfate Mitigation Order**  
Work Order: **W410197**  
Reported: 17-Sep-14 08:48

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received	Notes
NWC-04	W4I0197-01	Ground Water	09-Sep-14 08:55	VH	10-Sep-2014	
MCCONNELL 459	W4I0197-02	Ground Water	09-Sep-14 10:50	VH	10-Sep-2014	
POWER 639	W4I0197-03	Ground Water	09-Sep-14 12:34	VH	10-Sep-2014	

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.





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

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

Work Order: **W410197**

Reported: 17-Sep-14 08:48

Client Sample ID: **NWC-04**

SVL Sample ID: **W410197-01 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 09-Sep-14 08:55

Received: 10-Sep-14

Sampled By: VH

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

**Dissolved Anions by Ion Chromatography**

EPA 300.0	Sulfate as SO4	163	mg/L	3.00	0.55	10	W437294	AEW	09/11/14 18:00	D2
-----------	----------------	-----	------	------	------	----	---------	-----	----------------	----

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

**John Kern**  
Laboratory Director



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

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

Work Order: **W410197**

Reported: 17-Sep-14 08:48

Client Sample ID: **MCCONNELL 459**

SVL Sample ID: **W410197-02 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 09-Sep-14 10:50

Received: 10-Sep-14

Sampled By: VH

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

**Dissolved Anions by Ion Chromatography**

EPA 300.0	Sulfate as SO4	33.0	mg/L	0.30	0.06		W437294	AEW	09/11/14 18:33	
-----------	----------------	------	------	------	------	--	---------	-----	----------------	--

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

**John Kern**  
Laboratory Director



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

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

Work Order: **W410197**

Reported: 17-Sep-14 08:48

Client Sample ID: **POWER 639**

SVL Sample ID: **W410197-03 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 09-Sep-14 12:34

Received: 10-Sep-14

Sampled By: VH

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

**Dissolved Anions by Ion Chromatography**

EPA 300.0	Sulfate as SO4	105	mg/L	3.00	0.55	10	W437294	AEW	09/11/14 18:44	D2
-----------	----------------	-----	------	------	------	----	---------	-----	----------------	----

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

**John Kern**  
Laboratory Director



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

**Project Name: Copper Queen Branch Sulfate Mitigation Order**  
Work Order: **W410197**  
Reported: 17-Sep-14 08:48

**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 SO4	mg/L	<0.30	0.06	0.30	W437294	11-Sep-14	
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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	9.86	10.0	98.6	90 - 110	W437294	11-Sep-14	
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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	38.5	27.6	10.0	109	90 - 110	W437294	11-Sep-14	
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**Quality Control - MATRIX SPIKE DUPLICATE Data**

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

EPA 300.0	Sulfate as SO4	mg/L	38.6	38.5	10.0	110	0.1	20	W437294	11-Sep-14	
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**Notes and Definitions**

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



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

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

Work Order: **W4H0613**

Reported: 10-Sep-14 11:04

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BMO-2008-13M	W4H0613-01	Ground Water	20-Aug-14 16:35	CL	27-Aug-2014
TM-7	W4H0613-02	Ground Water	21-Aug-14 14:08	CL	27-Aug-2014
EQB-082114	W4H0613-03	Ground Water	21-Aug-14 14:30	CL	27-Aug-2014
FB-082114	W4H0613-04	Ground Water	21-Aug-14 14:40	CL	27-Aug-2014

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: **W4H0613**

Reported: 10-Sep-14 11:04

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

SVL Sample ID: **W4H0613-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 20-Aug-14 16:35

Received: 27-Aug-14

Sampled By: CL

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

EPA 300.0	Sulfate as SO4	410	mg/L	3.00	0.55	10	W436180	AEW	09/05/14 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.

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

Work Order: **W4H0613**

Reported: 10-Sep-14 11:04

Client Sample ID: **TM-7**

SVL Sample ID: **W4H0613-02 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 21-Aug-14 14:08

Received: 27-Aug-14

Sampled By: CL

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

EPA 300.0	Sulfate as SO4	48.5	mg/L	0.30	0.06		W436180	AEW	09/05/14 14:27	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4H0613**

Reported: 10-Sep-14 11:04

Client Sample ID: **EQB-082114**

Sampled: 21-Aug-14 14:30

SVL Sample ID: **W4H0613-03 (Ground Water)**

**Sample Report Page 1 of 1**

Received: 27-Aug-14

Sampled By: CL

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

EPA 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.06		W436180	AEW	09/05/14 14:38	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4H0613**

Reported: 10-Sep-14 11:04

Client Sample ID: **FB-082114**

SVL Sample ID: **W4H0613-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 21-Aug-14 14:40

Received: 27-Aug-14

Sampled By: CL

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	0.06		W436128	AEW	09/04/14 21:17	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4H0613**

Reported: 10-Sep-14 11:04

**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 0.06 0.30 W436128 04-Sep-14

**Dissolved Anions by Ion Chromatography**

EPA 300.0 Sulfate as SO4 mg/L <0.30 0.06 0.30 W436180 05-Sep-14

**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 9.91 10.0 99.1 90 - 110 W436128 04-Sep-14

**Dissolved Anions by Ion Chromatography**

EPA 300.0 Sulfate as SO4 mg/L 10.0 10.0 100 90 - 110 W436180 05-Sep-14

**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 73.2 64.2 10.0 90.0 90 - 110 W436128 04-Sep-14 D2,M3

EPA 300.0 Sulfate as SO4 mg/L 13.8 3.11 10.0 107 90 - 110 W436128 05-Sep-14

**Dissolved Anions by Ion Chromatography**

EPA 300.0 Sulfate as SO4 mg/L 16.9 6.10 10.0 108 90 - 110 W436180 05-Sep-14

EPA 300.0 Sulfate as SO4 mg/L 30.5 30.1 10.0 3.68 90 - 110 W436180 05-Sep-14 M2

**Quality Control - MATRIX SPIKE DUPLICATE Data**

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

EPA 300.0 Sulfate as SO4 mg/L 72.7 73.2 10.0 R > 4S 0.7 20 W436128 04-Sep-14 D2,M3

**Dissolved Anions by Ion Chromatography**

EPA 300.0 Sulfate as SO4 mg/L 17.1 16.9 10.0 110 0.9 20 W436180 05-Sep-14



Freeport McMoRan - Bisbee  
36 West Hwy 92  
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4H0613**

Reported: 10-Sep-14 11:04

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### Notes and Definitions

D2	Sample required dilution due to high concentration of target analyte.
M2	Matrix spike recovery was low, but the LCS recovery was acceptable.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The LCS was acceptable.
LCS	Laboratory Control Sample (Blank Spike)
RPD	Relative Percent Difference
UDL	A result is less than the detection limit
R > 4S	% recovery not applicable, sample concentration more than four times greater than spike level
<RL	A result is less than the reporting limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
N/A	Not Applicable

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Freeport McMoRan - Bisbee  
36 West Hwy 92  
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4H0495**

Reported: 29-Aug-14 11:07

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BMO-2010-2M	W4H0495-01	Ground Water	14-Aug-14 09:15	CLS	21-Aug-2014
DUP081414	W4H0495-02	Ground Water	14-Aug-14 09:15	CLS	21-Aug-2014
TM-2A	W4H0495-03	Ground Water	14-Aug-14 10:50	CLS	21-Aug-2014
BMO-2008-11G	W4H0495-04	Ground Water	14-Aug-14 13:30	CLS	21-Aug-2014
BMO-2008-6M	W4H0495-05	Ground Water	19-Aug-14 08:40	CLS	21-Aug-2014
BMO-2008-6B	W4H0495-06	Ground Water	19-Aug-14 09:35	CLS	21-Aug-2014
BMO-2008-5M	W4H0495-07	Ground Water	19-Aug-14 10:55	CLS	21-Aug-2014
BMO-2008-5B	W4H0495-08	Ground Water	19-Aug-14 12:35	CLS	21-Aug-2014
BMO-2008-13B	W4H0495-09	Ground Water	19-Aug-14 13:40	CLS	21-Aug-2014

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

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

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

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



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36 West Hwy 92  
Bisbee, AZ 85603

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

Work Order: **W4H0495**

Reported: 29-Aug-14 11:07

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

SVL Sample ID: **W4H0495-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 14-Aug-14 09:15

Received: 21-Aug-14

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	1040	mg/L	15.0	2.75	50	W434305	AEW	08/22/14 16:03	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Work Order: **W4H0495**

Reported: 29-Aug-14 11:07

Client Sample ID: **DUP081414**

SVL Sample ID: **W4H0495-02 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 14-Aug-14 09:15

Received: 21-Aug-14

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	15.0	2.75	50	W434305	AEW	08/22/14 16:14	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4H0495**

Reported: 29-Aug-14 11:07

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

SVL Sample ID: **W4H0495-03 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 14-Aug-14 10:50

Received: 21-Aug-14

Sampled By: CLS

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

EPA 300.0	Sulfate as SO4	25.6	mg/L	0.30	0.06		W434305	AEW	08/22/14 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: **W4H0495**

Reported: 29-Aug-14 11:07

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

SVL Sample ID: **W4H0495-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 14-Aug-14 13:30

Received: 21-Aug-14

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	12.4	mg/L	0.30	0.06		W434305	AEW	08/22/14 16:35	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Work Order: **W4H0495**

Reported: 29-Aug-14 11:07

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

SVL Sample ID: **W4H0495-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 19-Aug-14 08:40

Received: 21-Aug-14

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	210	mg/L	7.50	1.38	25	W434305	AEW	08/22/14 17:16	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Work Order: **W4H0495**

Reported: 29-Aug-14 11:07

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

Sampled: 19-Aug-14 09:35

SVL Sample ID: **W4H0495-06 (Ground Water)**

Sample Report Page 1 of 1

Received: 21-Aug-14

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	13.4	mg/L	0.30	0.06		W434305	AEW	08/22/14 17:26	
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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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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4H0495**

Reported: 29-Aug-14 11:07

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

SVL Sample ID: **W4H0495-07 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 19-Aug-14 10:55

Received: 21-Aug-14

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	143	mg/L	3.00	0.55	10	W434305	AEW	08/22/14 17:37	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: **W4H0495**

Reported: 29-Aug-14 11:07

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

SVL Sample ID: **W4H0495-08 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 19-Aug-14 12:35

Received: 21-Aug-14

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	221	mg/L	7.50	1.38	25	W434305	AEW	08/22/14 17:47	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: **W4H0495**

Reported: 29-Aug-14 11:07

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

SVL Sample ID: **W4H0495-09 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 19-Aug-14 13:40

Received: 21-Aug-14

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	1070	mg/L	15.0	2.75	50	W434305	AEW	08/22/14 17:58	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Work Order: **W4H0495**

Reported: 29-Aug-14 11:07

**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	0.06	0.30	W434305	22-Aug-14	
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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	10.5	10.0	105	90 - 110	W434305	22-Aug-14	
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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	10.6	<0.30	10.0	106	90 - 110	W434305	22-Aug-14	
EPA 300.0	Sulfate as SO4	mg/L	10.7	<0.30	10.0	107	90 - 110	W434305	22-Aug-14	

**Quality Control - MATRIX SPIKE DUPLICATE Data**

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

EPA 300.0	Sulfate as SO4	mg/L	10.7	10.6	10.0	107	0.6	20	W434305	22-Aug-14	
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**Notes and Definitions**

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



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

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

Work Order: **W4H0350**

Reported: 28-Aug-14 09:24

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
BMO-2010-1M	W4H0350-01	Ground Water	04-Aug-14 14:00	CL	14-Aug-2014
TM-16	W4H0350-02	Ground Water	04-Aug-14 14:55	CL	14-Aug-2014
BMO-2008-106L	W4H0350-03	Ground Water	07-Aug-14 12:45	CL	14-Aug-2014

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: **W4H0350**

Reported: 28-Aug-14 09:24

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

SVL Sample ID: **W4H0350-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 04-Aug-14 14:00

Received: 14-Aug-14

Sampled By: CL

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

EPA 300.0	Sulfate as SO4	179	mg/L	3.00	0.55	10	W434198	AEW	08/20/14 23:50	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: **W4H0350**

Reported: 28-Aug-14 09:24

Client Sample ID: **TM-16**

SVL Sample ID: **W4H0350-02 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 04-Aug-14 14:55

Received: 14-Aug-14

Sampled By: CL

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

EPA 300.0	Sulfate as SO4	550	mg/L	15.0	2.75	50	W434198	AEW	08/21/14 00:01	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4H0350**

Reported: 28-Aug-14 09:24

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

SVL Sample ID: **W4H0350-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 07-Aug-14 12:45

Received: 14-Aug-14

Sampled By: CL

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

EPA 300.0	Sulfate as SO4	442	mg/L	15.0	2.75	50	W434198	AEW	08/21/14 00:32	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4H0350**

Reported: 28-Aug-14 09:24

**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	0.06	0.30	W434198	20-Aug-14	
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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	10.7	10.0	107	90 - 110	W434198	20-Aug-14	
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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	12.3	1.06	10.0	113	90 - 110	W434198	20-Aug-14	M1
EPA 300.0	Sulfate as SO4	mg/L	7.42	<0.30	10.0	72.3	90 - 110	W434198	20-Aug-14	M2

**Quality Control - MATRIX SPIKE DUPLICATE Data**

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

EPA 300.0	Sulfate as SO4	mg/L	12.5	12.3	10.0	115	1.6	20	W434198	20-Aug-14	M1
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**Notes and Definitions**

- D2 Sample required dilution due to high concentration of target analyte.
- M1 Matrix spike recovery was high, but the LCS recovery was acceptable.
- M2 Matrix spike recovery was low, 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

SVL holds the following certifications:

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



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

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

Work Order: **W4H0241**

Reported: 25-Aug-14 17:48

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
POWER-639	W4H0241-01	Ground Water	11-Aug-14 09:49	VH	12-Aug-2014
NWC-04	W4H0241-02	Ground Water	11-Aug-14 10:28	VH	12-Aug-2014
RUIZ	W4H0241-03	Ground Water	11-Aug-14 11:25	VH	12-Aug-2014

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: **W4H0241**

Reported: 25-Aug-14 17:48

Client Sample ID: **POWER-639**

SVL Sample ID: **W4H0241-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 11-Aug-14 09:49

Received: 12-Aug-14

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	136	mg/L	3.00	0.55	10	W434198	AEW	08/20/14 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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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4H0241**

Reported: 25-Aug-14 17:48

Client Sample ID: **NWC-04**

SVL Sample ID: **W4H0241-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 11-Aug-14 10:28

Received: 12-Aug-14

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	187	mg/L	3.00	0.55	10	W434198	AEW	08/20/14 21:12	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4H0241**

Reported: 25-Aug-14 17:48

Client Sample ID: **RUIZ**

SVL Sample ID: **W4H0241-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 11-Aug-14 11:25

Received: 12-Aug-14

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	221	mg/L	3.00	0.55	10	W434198	AEW	08/20/14 21:23	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4H0241**

Reported: 25-Aug-14 17:48

**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 SO4	mg/L	<0.30	0.06	0.30	W434198	20-Aug-14	
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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	10.7	10.0	107	90 - 110	W434198	20-Aug-14	
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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	12.3	1.06	10.0	113	90 - 110	W434198	20-Aug-14	M1
EPA 300.0	Sulfate as SO4	mg/L	7.42	<0.30	10.0	72.3	90 - 110	W434198	20-Aug-14	M2

**Quality Control - MATRIX SPIKE DUPLICATE Data**

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

EPA 300.0	Sulfate as SO4	mg/L	12.5	12.3	10.0	115	1.6	20	W434198	20-Aug-14	M1
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**Notes and Definitions**

- D2 Sample required dilution due to high concentration of target analyte.
- M1 Matrix spike recovery was high, but the LCS recovery was acceptable.
- M2 Matrix spike recovery was low, but the LCS recovery was acceptable.
- LCS Laboratory Control Sample (Blank Spike)
- RPD Relative Percent Difference
- UDL A result is less than the detection limit
- R > 4S % recovery not applicable, sample concentration more than four times greater than spike level
- <RL A result is less than the reporting limit
- MRL Method Reporting Limit
- MDL Method Detection Limit
- N/A Not Applicable





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

**Project Name: Copper Queen Branch Sulfate Mitigation Order**  
Work Order: **W4G0594**  
Reported: 11-Aug-14 08:57

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
COOPER C	W4G0594-01	Ground Water	21-Jul-14 10:00	CLS	29-Jul-2014
HOBAN	W4G0594-02	Ground Water	21-Jul-14 10:55	CLS	29-Jul-2014
TM-19A	W4G0594-03	Ground Water	21-Jul-14 11:55	CLS	29-Jul-2014
TM-42	W4G0594-04	Ground Water	21-Jul-14 13:15	CLS	29-Jul-2014
BMO-2008-3B	W4G0594-05	Ground Water	21-Jul-14 14:10	CLS	29-Jul-2014
TM-6	W4G0594-06	Ground Water	21-Jul-14 15:15	CLS	29-Jul-2014
BMO-2012-1M	W4G0594-07	Ground Water	22-Jul-14 09:30	CLS	29-Jul-2014
BMO-2008-1G	W4G0594-08	Ground Water	22-Jul-14 11:15	CLS	29-Jul-2014
TM-15	W4G0594-09	Ground Water	22-Jul-14 13:00	CLS	29-Jul-2014
BMO-2008-7M	W4G0594-10	Ground Water	22-Jul-14 15:05	CLS	29-Jul-2014
BMO-2008-8M	W4G0594-11	Ground Water	24-Jul-14 10:40	CLS	29-Jul-2014
BMO-2008-8B	W4G0594-12	Ground Water	24-Jul-14 11:40	CLS	29-Jul-2014
BMO-2008-9M	W4G0594-13	Ground Water	24-Jul-14 14:00	CLS	29-Jul-2014

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: **W4G0594**

Reported: 11-Aug-14 08:57

Client Sample ID: **COOPER C**

SVL Sample ID: **W4G0594-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 21-Jul-14 10:00

Received: 29-Jul-14

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	671	mg/L	7.50	1.38	25	W431236	DT	08/04/14 15:38	D2,M3
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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: **W4G0594**

Reported: 11-Aug-14 08:57

Client Sample ID: **HOBAN**

SVL Sample ID: **W4G0594-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 21-Jul-14 10:55

Received: 29-Jul-14

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	15.0	2.75	50	W431236	DT	08/04/14 16:09	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Work Order: **W4G0594**

Reported: 11-Aug-14 08:57

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

SVL Sample ID: **W4G0594-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 21-Jul-14 11:55

Received: 29-Jul-14

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	63.3	mg/L	1.50	0.28	5	W431236	DT	08/04/14 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**  
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0594**

Reported: 11-Aug-14 08:57

Client Sample ID: **TM-42**

SVL Sample ID: **W4G0594-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 21-Jul-14 13:15

Received: 29-Jul-14

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	418	mg/L	7.50	1.38	25	W431236	DT	08/04/14 16:30	D2
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**John Kern**  
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0594**

Reported: 11-Aug-14 08:57

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

SVL Sample ID: **W4G0594-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 21-Jul-14 14:10

Received: 29-Jul-14

Sampled By: CLS

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

EPA 300.0	Sulfate as SO4	163	mg/L	3.00	0.55	10	W431236	DT	08/04/14 16:41	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Work Order: **W4G0594**

Reported: 11-Aug-14 08:57

Client Sample ID: **TM-6**

SVL Sample ID: **W4G0594-06 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 21-Jul-14 15:15

Received: 29-Jul-14

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	33.0	mg/L	0.30	0.06		W431236	DT	08/05/14 15:03	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

**John Kern**  
Laboratory Director



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Bisbee, AZ 85603

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

Work Order: **W4G0594**

Reported: 11-Aug-14 08:57

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

SVL Sample ID: **W4G0594-07 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 22-Jul-14 09:30

Received: 29-Jul-14

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	210	mg/L	3.00	0.55	10	W431236	DT	08/05/14 15:14	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: **W4G0594**

Reported: 11-Aug-14 08:57

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

SVL Sample ID: **W4G0594-08 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 22-Jul-14 11:15

Received: 29-Jul-14

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	117	mg/L	3.00	0.55	10	W431236	DT	08/05/14 15:26	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0594**

Reported: 11-Aug-14 08:57

Client Sample ID: **TM-15**

SVL Sample ID: **W4G0594-09 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 22-Jul-14 13:00

Received: 29-Jul-14

Sampled By: CLS

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

EPA 300.0	Sulfate as SO4	14.6	mg/L	0.30	0.06		W431236	DT	08/05/14 15:37	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0594**

Reported: 11-Aug-14 08:57

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

SVL Sample ID: **W4G0594-10 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 22-Jul-14 15:05

Received: 29-Jul-14

Sampled By: CLS

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

EPA 300.0	Sulfate as SO4	27.3	mg/L	0.30	0.06		W431236	DT	08/05/14 15:48	M1
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0594**

Reported: 11-Aug-14 08:57

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

SVL Sample ID: **W4G0594-11 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 24-Jul-14 10:40

Received: 29-Jul-14

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	66.8	mg/L	1.50	0.28	5	W431236	DT	08/05/14 16:11	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0594**

Reported: 11-Aug-14 08:57

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

Sampled: 24-Jul-14 11:40

SVL Sample ID: **W4G0594-12 (Ground Water)**

Received: 29-Jul-14

**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	1380	mg/L	15.0	2.75	50	W431236	DT	08/05/14 16:23	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0594**

Reported: 11-Aug-14 08:57

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

SVL Sample ID: **W4G0594-13 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 24-Jul-14 14:00

Received: 29-Jul-14

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	74.2	mg/L	1.50	0.28	5	W431236	DT	08/05/14 16:34	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**  
Work Order: **W4G0594**  
Reported: 11-Aug-14 08:57

**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	0.06	0.30	W431236	04-Aug-14	
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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	10.2	10.0	102	90 - 110	W431236	04-Aug-14	
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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	677	671	10.0	R > 4S	90 - 110	W431236	04-Aug-14	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	38.6	27.3	10.0	113	90 - 110	W431236	05-Aug-14	M1

**Quality Control - MATRIX SPIKE DUPLICATE Data**

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

EPA 300.0	Sulfate as SO4	mg/L	684	677	10.0	R > 4S	1.0	20	W431236	04-Aug-14	D2,M3
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**Notes and Definitions**

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

SVL holds the following certifications:

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



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Bisbee, AZ 85603

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

Work Order: **W4G0486**

Reported: 04-Aug-14 09:22

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PANAGAKOS	W4G0486-01	Ground Water	17-Jul-14 16:07	23-Jul-2014
SCHWARTZ	W4G0486-02	Ground Water	18-Jul-14 09:47	23-Jul-2014
ROGERS 803	W4G0486-03	Ground Water	18-Jul-14 11:08	23-Jul-2014
BMO-2008-4B	W4G0486-04	Ground Water	18-Jul-14 12:49	23-Jul-2014
WEISKOPF 802	W4G0486-05	Ground Water	18-Jul-14 15:31	23-Jul-2014
WEISKOPF 897	W4G0486-06	Ground Water	18-Jul-14 16:43	23-Jul-2014
WEED	W4G0486-07	Ground Water	18-Jul-14 17:20	23-Jul-2014
BURKE	W4G0486-08	Ground Water	21-Jul-14 09:45	23-Jul-2014
THOMPSON 341	W4G0486-09	Ground Water	21-Jul-14 10:55	23-Jul-2014
PARRA	W4G0486-10	Ground Water	21-Jul-14 12:35	23-Jul-2014

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: **W4G0486**

Reported: 04-Aug-14 09:22

Client Sample ID: **PANAGAKOS**

SVL Sample ID: **W4G0486-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 17-Jul-14 16:07

Received: 23-Jul-14

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 SO4	467	mg/L	3.00	0.55	10	W431081	DT	07/29/14 19:24	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

**John Kern**  
Laboratory Director



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

Work Order: **W4G0486**

Reported: 04-Aug-14 09:22

Client Sample ID: **SCHWARTZ**

SVL Sample ID: **W4G0486-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Jul-14 09:47

Received: 23-Jul-14

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 SO4	216	mg/L	1.50	0.28	5	W431081	DT	07/29/14 19:35	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0486**

Reported: 04-Aug-14 09:22

Client Sample ID: **ROGERS 803**

SVL Sample ID: **W4G0486-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Jul-14 11:08

Received: 23-Jul-14

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 SO4	192	mg/L	1.50	0.28	5	W431081	DT	07/29/14 19:45	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0486**

Reported: 04-Aug-14 09:22

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

SVL Sample ID: **W4G0486-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Jul-14 12:49

Received: 23-Jul-14

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 SO4	11.6	mg/L	0.30	0.06		W431081	DT	07/29/14 19:56	M1
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0486**

Reported: 04-Aug-14 09:22

Client Sample ID: **WEISKOPF 802**

SVL Sample ID: **W4G0486-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Jul-14 15:31

Received: 23-Jul-14

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 SO4	608	mg/L	15.0	2.75	50	W431081	DT	07/29/14 20:17	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0486**

Reported: 04-Aug-14 09:22

Client Sample ID: **WEISKOPF 897**

Sampled: 18-Jul-14 16:43

SVL Sample ID: **W4G0486-06 (Ground Water)**

Sample Report Page 1 of 1

Received: 23-Jul-14

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 SO4	18.4	mg/L	0.30	0.06		W431081	DT	07/29/14 20:28	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0486**

Reported: 04-Aug-14 09:22

Client Sample ID: **WEED**

SVL Sample ID: **W4G0486-07 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 18-Jul-14 17:20

Received: 23-Jul-14

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 SO4	14.1	mg/L	0.30	0.06		W431081	DT	07/29/14 20:38	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0486**

Reported: 04-Aug-14 09:22

Client Sample ID: **BURKE**

SVL Sample ID: **W4G0486-08 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 21-Jul-14 09:45

Received: 23-Jul-14

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 SO4	29.6	mg/L	0.30	0.06		W431081	DT	07/29/14 20:49	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0486**

Reported: 04-Aug-14 09:22

Client Sample ID: **THOMPSON 341**

SVL Sample ID: **W4G0486-09 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 21-Jul-14 10:55

Received: 23-Jul-14

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 SO4	8.02	mg/L	0.30	0.06		W431081	DT	07/29/14 21:20	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0486**

Reported: 04-Aug-14 09:22

Client Sample ID: **PARRA**

SVL Sample ID: **W4G0486-10 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 21-Jul-14 12:35

Received: 23-Jul-14

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 SO4	432	mg/L	7.50	1.38	25	W431081	DT	07/29/14 21:31	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0486**

Reported: 04-Aug-14 09:22

**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	0.06	0.30	W431081	29-Jul-14	
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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	10.7	10.0	107	90 - 110	W431081	29-Jul-14	
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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	35.7	24.1	10.0	116	90 - 110	W431081	29-Jul-14	M1
EPA 300.0	Sulfate as SO4	mg/L	23.8	11.6	10.0	122	90 - 110	W431081	29-Jul-14	M1

**Quality Control - MATRIX SPIKE DUPLICATE Data**

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

EPA 300.0	Sulfate as SO4	mg/L	36.0	35.7	10.0	119	0.8	20	W431081	29-Jul-14	M1
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**Notes and Definitions**

- D2 Sample required dilution due to high concentration of target analyte.
- M1 Matrix spike recovery was high, but the LCS recovery was acceptable.
- 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: **W4G0402**

Reported: 01-Aug-14 11:25

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
AWC-04	W4G0402-01	Ground Water	16-Jul-14 11:32	VH	18-Jul-2014
AWC-02	W4G0402-02	Ground Water	16-Jul-14 13:28	VH	18-Jul-2014
TVI 875	W4G0402-03	Ground Water	16-Jul-14 15:21	VH	18-Jul-2014
TVI 236	W4G0402-04	Ground Water	16-Jul-14 16:22	VH	18-Jul-2014
FB20140716	W4G0402-05	Ground Water	16-Jul-14 16:31	VH	18-Jul-2014
EQB20140716	W4G0402-06	Ground Water	16-Jul-14 16:33	VH	18-Jul-2014
ECHAVE	W4G0402-07	Ground Water	17-Jul-14 10:10	VH	18-Jul-2014
ZANDER	W4G0402-08	Ground Water	17-Jul-14 11:52	VH	18-Jul-2014
POWER 639	W4G0402-09	Ground Water	17-Jul-14 13:40	VH	18-Jul-2014

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: **W4G0402**

Reported: 01-Aug-14 11:25

Client Sample ID: **AWC-04**

SVL Sample ID: **W4G0402-01 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 16-Jul-14 11:32

Received: 18-Jul-14

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	24.1	mg/L	0.30	0.06		W431081	DT	07/29/14 17:29	M1
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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: **W4G0402**

Reported: 01-Aug-14 11:25

Client Sample ID: **AWC-02**

SVL Sample ID: **W4G0402-02 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 16-Jul-14 13:28

Received: 18-Jul-14

Sampled By: VH

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

EPA 300.0	Sulfate as SO4	19.2	mg/L	0.30	0.06		W431081	DT	07/29/14 18:00	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0402**

Reported: 01-Aug-14 11:25

Client Sample ID: **TVI 875**

SVL Sample ID: **W4G0402-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 16-Jul-14 15:21

Received: 18-Jul-14

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	328	mg/L	3.00	0.55	10	W431081	DT	07/29/14 18:11	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0402**

Reported: 01-Aug-14 11:25

Client Sample ID: **TVI 236**

SVL Sample ID: **W4G0402-04 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 16-Jul-14 16:22

Received: 18-Jul-14

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	43.9	mg/L	0.30	0.06		W431081	DT	07/29/14 18:21	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0402**

Reported: 01-Aug-14 11:25

Client Sample ID: **FB20140716**

SVL Sample ID: **W4G0402-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 16-Jul-14 16:31

Received: 18-Jul-14

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	0.59	mg/L	0.30	0.06		W430247	DT	07/28/14 23:29	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0402**

Reported: 01-Aug-14 11:25

Client Sample ID: **EQB20140716**

SVL Sample ID: **W4G0402-06 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 16-Jul-14 16:33

Received: 18-Jul-14

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	0.06		W430247	DT	07/28/14 23:41	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0402**

Reported: 01-Aug-14 11:25

Client Sample ID: **ECHAVE**

SVL Sample ID: **W4G0402-07 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 17-Jul-14 10:10

Received: 18-Jul-14

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	26.7	mg/L	0.30	0.06		W431081	DT	07/29/14 18:32	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0402**

Reported: 01-Aug-14 11:25

Client Sample ID: **ZANDER**

SVL Sample ID: **W4G0402-08 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 17-Jul-14 11:52

Received: 18-Jul-14

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	0.06		W431081	DT	07/29/14 18:42	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0402**

Reported: 01-Aug-14 11:25

Client Sample ID: **POWER 639**

SVL Sample ID: **W4G0402-09 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 17-Jul-14 13:40

Received: 18-Jul-14

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	168	mg/L	1.50	0.28	5	W431081	DT	07/29/14 19:14	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0402**

Reported: 01-Aug-14 11:25

**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 0.06 0.30 W430247 28-Jul-14

**Dissolved Anions by Ion Chromatography**

EPA 300.0 Sulfate as SO4 mg/L <0.30 0.06 0.30 W431081 29-Jul-14

**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 10.4 10.0 104 90 - 110 W430247 28-Jul-14

**Dissolved Anions by Ion Chromatography**

EPA 300.0 Sulfate as SO4 mg/L 10.7 10.0 107 90 - 110 W431081 29-Jul-14

**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 158 147 10.0 105 90 - 110 W430247 28-Jul-14 D2,M3

EPA 300.0 Sulfate as SO4 mg/L 10.8 0.54 10.0 103 90 - 110 W430247 28-Jul-14

**Dissolved Anions by Ion Chromatography**

EPA 300.0 Sulfate as SO4 mg/L 35.7 24.1 10.0 116 90 - 110 W431081 29-Jul-14 M1

EPA 300.0 Sulfate as SO4 mg/L 23.8 11.6 10.0 122 90 - 110 W431081 29-Jul-14 M1

**Quality Control - MATRIX SPIKE DUPLICATE Data**

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

EPA 300.0 Sulfate as SO4 mg/L 10.9 10.8 10.0 104 1.0 20 W430247 28-Jul-14

**Dissolved Anions by Ion Chromatography**

EPA 300.0 Sulfate as SO4 mg/L 36.0 35.7 10.0 119 0.8 20 W431081 29-Jul-14 M1



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

Work Order: **W4G0402**

Reported: 01-Aug-14 11:25

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### Notes and Definitions

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

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

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

Work Order: **W4G0401**

Reported: 01-Aug-14 11:21

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
RAMIREZ	W4G0401-01	Ground Water	10-Jul-14 15:50	VH	18-Jul-2014
CHAMBERS	W4G0401-02	Ground Water	10-Jul-14 16:24	VH	18-Jul-2014
COOPER	W4G0401-03	Ground Water	10-Jul-14 16:57	VH	18-Jul-2014
ANDERSON 396	W4G0401-04	Ground Water	11-Jul-14 09:16	VH	18-Jul-2014
ANDERSON 458	W4G0401-05	Ground Water	11-Jul-14 10:20	VH	18-Jul-2014
PIONKE 517	W4G0401-06	Ground Water	11-Jul-14 14:05	VH	18-Jul-2014
HOWARD NR	W4G0401-07	Ground Water	14-Jul-14 09:49	VH	18-Jul-2014
FB20140714	W4G0401-08	DI Water	14-Jul-14 10:47	VH	18-Jul-2014
EQB20140714	W4G0401-09	DI Water	14-Jul-14 10:49	VH	18-Jul-2014
HOWARD 312	W4G0401-10	Ground Water	14-Jul-14 11:40	VH	18-Jul-2014
DUP20140714	W4G0401-11	Ground Water	14-Jul-14 18:00	VH	18-Jul-2014
MCCONNELL 265	W4G0401-12	Ground Water	14-Jul-14 13:06	VH	18-Jul-2014
FRANCO 383	W4G0401-13	Ground Water	14-Jul-14 15:13	VH	18-Jul-2014
DODSON	W4G0401-14	Ground Water	14-Jul-14 16:37	VH	18-Jul-2014
BMO-2010-3B	W4G0401-15	Ground Water	15-Jul-14 11:23	VH	18-Jul-2014
BMO-2010-3M	W4G0401-16	Ground Water	15-Jul-14 14:48	VH	18-Jul-2014
TM-10	W4G0401-17	Ground Water	15-Jul-14 15:57	VH	18-Jul-2014
DUP20140716	W4G0401-18	Ground Water	16-Jul-14 18:00	VH	18-Jul-2014
AWC-05	W4G0401-19	Ground Water	16-Jul-14 10:34	VH	18-Jul-2014
AWC-03	W4G0401-20	Ground Water	16-Jul-14 10:58	VH	18-Jul-2014

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.

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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: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **RAMIREZ**

SVL Sample ID: **W4G0401-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jul-14 15:50

Received: 18-Jul-14

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	8.92	mg/L	0.30	0.06		W431080	DT	07/29/14 22:02	
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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: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **CHAMBERS**

SVL Sample ID: **W4G0401-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jul-14 16:24

Received: 18-Jul-14

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	11.0	mg/L	0.30	0.06		W431080	DT	07/29/14 22:34	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **COOPER**

SVL Sample ID: **W4G0401-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jul-14 16:57

Received: 18-Jul-14

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	32.2	mg/L	0.30	0.06		W431080	DT	07/29/14 22:45	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **ANDERSON 396**

SVL Sample ID: **W4G0401-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 11-Jul-14 09:16

Received: 18-Jul-14

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	272	mg/L	3.00	0.55	10	W431080	DT	07/30/14 10:45	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **ANDERSON 458**

Sampled: 11-Jul-14 10:20

SVL Sample ID: **W4G0401-05 (Ground Water)**

Sample Report Page 1 of 1

Received: 18-Jul-14

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	25.3	mg/L	0.30	0.06		W431080	DT	07/29/14 23:27	
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Bisbee, AZ 85603

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

Work Order: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **PIONKE 517**

SVL Sample ID: **W4G0401-06 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 11-Jul-14 14:05

Received: 18-Jul-14

Sampled By: VH

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

EPA 300.0	Sulfate as SO4	14.6	mg/L	0.30	0.06		W431080	DT	07/29/14 23:37	
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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: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **HOWARD NR**

SVL Sample ID: **W4G0401-07 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 14-Jul-14 09:49

Received: 18-Jul-14

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	496	mg/L	7.50	1.38	25	W431080	DT	07/30/14 10:58	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **FB20140714**

Sampled: 14-Jul-14 10:47

SVL Sample ID: **W4G0401-08 (DI Water)**

Received: 18-Jul-14

**Sample Report Page 1 of 1**

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
<b>Anions by Ion Chromatography</b>										
EPA 300.0	Sulfate as SO4	0.54	mg/L	0.30	0.06		W430247	DT	07/28/14 22:15	

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

Work Order: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **EQB20140714**

SVL Sample ID: **W4G0401-09 (DI Water)**

**Sample Report Page 1 of 1**

Sampled: 14-Jul-14 10:49

Received: 18-Jul-14

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	0.06		W430247	DT	07/28/14 23:17	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **HOWARD 312**

SVL Sample ID: **W4G0401-10 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 14-Jul-14 11:40

Received: 18-Jul-14

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	69.1	mg/L	1.50	0.28	5	W431080	DT	07/30/14 11:10	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **DUP20140714**

SVL Sample ID: **W4G0401-11 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 14-Jul-14 18:00

Received: 18-Jul-14

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	495	mg/L	7.50	1.38	25	W431080	DT	07/30/14 11:22	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **MCCONNELL 265**

SVL Sample ID: **W4G0401-12 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 14-Jul-14 13:06

Received: 18-Jul-14

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	975	mg/L	30.0	5.50	100	W431080	DT	07/29/14 22:44	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **FRANCO 383**

SVL Sample ID: **W4G0401-13 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 14-Jul-14 15:13

Received: 18-Jul-14

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	349	mg/L	3.00	0.55	10	W431080	DT	07/29/14 22:56	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **DODSON**

SVL Sample ID: **W4G0401-14 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 14-Jul-14 16:37

Received: 18-Jul-14

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	54.4	mg/L	1.50	0.28	5	W431080	DT	07/30/14 11:35	D2,M1
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0401**

Reported: 01-Aug-14 11:21

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

SVL Sample ID: **W4G0401-15 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Jul-14 11:23

Received: 18-Jul-14

Sampled By: VH

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

EPA 300.0	Sulfate as SO4	19.0	mg/L	0.30	0.06		W431080	DT	07/29/14 23:58	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0401**

Reported: 01-Aug-14 11:21

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

SVL Sample ID: **W4G0401-16 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 15-Jul-14 14:48

Received: 18-Jul-14

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	10.2	mg/L	0.30	0.06		W431080	DT	07/30/14 00:11	
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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: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **TM-10**

SVL Sample ID: **W4G0401-17 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 15-Jul-14 15:57

Received: 18-Jul-14

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	5.46	mg/L	0.30	0.06		W431080	DT	07/30/14 00:23	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **DUP20140716**

SVL Sample ID: **W4G0401-18 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 16-Jul-14 18:00

Received: 18-Jul-14

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	22.9	mg/L	0.30	0.06		W431080	DT	07/30/14 00:35	
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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: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **AWC-05**

SVL Sample ID: **W4G0401-19 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 16-Jul-14 10:34

Received: 18-Jul-14

Sampled By: VH

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

EPA 300.0	Sulfate as SO4	20.3	mg/L	0.30	0.06		W431080	DT	07/30/14 00:48	
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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: **W4G0401**

Reported: 01-Aug-14 11:21

Client Sample ID: **AWC-03**

SVL Sample ID: **W4G0401-20 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 16-Jul-14 10:58

Received: 18-Jul-14

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	69.1	mg/L	1.50	0.28	5	W431080	DT	07/30/14 12:00	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**  
Work Order: **W4G0401**  
Reported: 01-Aug-14 11:21

**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 0.06 0.30 W430247 28-Jul-14

**Dissolved Anions by Ion Chromatography**

EPA 300.0 Sulfate as SO4 mg/L <0.30 0.06 0.30 W431080 29-Jul-14

**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 10.4 10.0 104 90 - 110 W430247 28-Jul-14

**Dissolved Anions by Ion Chromatography**

EPA 300.0 Sulfate as SO4 mg/L 10.5 10.0 105 90 - 110 W431080 29-Jul-14

**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 158 147 10.0 105 90 - 110 W430247 28-Jul-14 D2,M3  
EPA 300.0 Sulfate as SO4 mg/L 10.8 0.54 10.0 103 90 - 110 W430247 28-Jul-14

**Dissolved Anions by Ion Chromatography**

EPA 300.0 Sulfate as SO4 mg/L 20.3 8.92 10.0 114 90 - 110 W431080 29-Jul-14 M1  
EPA 300.0 Sulfate as SO4 mg/L 63.2 54.4 10.0 R > 4S 90 - 110 W431080 30-Jul-14 D2

**Quality Control - MATRIX SPIKE DUPLICATE Data**

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

EPA 300.0 Sulfate as SO4 mg/L 10.9 10.8 10.0 104 1.0 20 W430247 28-Jul-14

**Dissolved Anions by Ion Chromatography**

EPA 300.0 Sulfate as SO4 mg/L 20.6 20.3 10.0 116 1.2 20 W431080 29-Jul-14 M1



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

Work Order: **W4G0401**

Reported: 01-Aug-14 11:21

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### Notes and Definitions

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

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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: **W4G0249**  
Reported: 25-Jul-14 09:23

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
DUP20140709	W4G0249-01	Ground Water	09-Jul-14 18:00	VH	11-Jul-2014
DUP20140710	W4G0249-02	Ground Water	10-Jul-14 18:00	VH	11-Jul-2014
FB20140708	W4G0249-03	DI Water	08-Jul-14 15:15	VH	11-Jul-2014
EQB20140708	W4G0249-04	DI Water	08-Jul-14 15:16	VH	11-Jul-2014
FB20140709	W4G0249-05	DI Water	09-Jul-14 14:50	VH	11-Jul-2014
EQB20140709	W4G0249-06	DI Water	09-Jul-14 14:51	VH	11-Jul-2014
FB20140710	W4G0249-07	DI Water	10-Jul-14 09:52	VH	11-Jul-2014
EQB20140710	W4G0249-08	DI Water	10-Jul-14 09:53	VH	11-Jul-2014

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested. Non-Detects are reported at the MDL. Sample preparation is defined by the client as per their Data Quality Objectives.

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

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



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36 West Highway 92  
Bisbee, AZ 85603

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

Work Order: **W4G0249**

Reported: 25-Jul-14 09:23

Client Sample ID: **DUP20140709**

SVL Sample ID: **W4G0249-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 09-Jul-14 18:00

Received: 11-Jul-14

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	1020	mg/L	7.50	1.38	25	W429041	AEW	07/14/14 21:46	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**  
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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: **W4G0249**

Reported: 25-Jul-14 09:23

Client Sample ID: **DUP20140710**

SVL Sample ID: **W4G0249-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jul-14 18:00

Received: 11-Jul-14

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	8.99	mg/L	0.30	0.06		W429041	AEW	07/14/14 21:57	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Work Order: **W4G0249**

Reported: 25-Jul-14 09:23

Client Sample ID: **FB20140708**

SVL Sample ID: **W4G0249-03 (DI Water)**

Sample Report Page 1 of 1

Sampled: 08-Jul-14 15:15

Received: 11-Jul-14

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	0.06		W430023	AEW	07/21/14 16:51	
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36 West Highway 92  
Bisbee, AZ 85603

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

Work Order: **W4G0249**

Reported: 25-Jul-14 09:23

Client Sample ID: **EQB20140708**

SVL Sample ID: **W4G0249-04 (DI Water)**

Sample Report Page 1 of 1

Sampled: 08-Jul-14 15:16

Received: 11-Jul-14

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	0.06		W430023	AEW	07/21/14 17:02	
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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: **W4G0249**

Reported: 25-Jul-14 09:23

Client Sample ID: **FB20140709**

SVL Sample ID: **W4G0249-05 (DI Water)**

Sample Report Page 1 of 1

Sampled: 09-Jul-14 14:50

Received: 11-Jul-14

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	0.06		W430023	AEW	07/21/14 17:14	
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36 West Highway 92  
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0249**

Reported: 25-Jul-14 09:23

Client Sample ID: **EQB20140709**

SVL Sample ID: **W4G0249-06 (DI Water)**

**Sample Report Page 1 of 1**

Sampled: 09-Jul-14 14:51

Received: 11-Jul-14

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	0.06		W430023	AEW	07/21/14 17:25	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Work Order: **W4G0249**

Reported: 25-Jul-14 09:23

Client Sample ID: **FB20140710**

SVL Sample ID: **W4G0249-07 (DI Water)**

Sample Report Page 1 of 1

Sampled: 10-Jul-14 09:52

Received: 11-Jul-14

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	0.06		W430023	AEW	07/21/14 17:37	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0249**

Reported: 25-Jul-14 09:23

Client Sample ID: **EQB20140710**

SVL Sample ID: **W4G0249-08 (DI Water)**

Sample Report Page 1 of 1

Sampled: 10-Jul-14 09:53

Received: 11-Jul-14

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	0.06		W430023	AEW	07/21/14 17:48	
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Freeport McMoRan - Copper Queen Branch  
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**  
 Work Order: **W4G0249**  
 Reported: 25-Jul-14 09:23

**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 0.06 0.30 W430023 21-Jul-14

**Dissolved Anions by Ion Chromatography**

EPA 300.0 Sulfate as SO4 mg/L <0.30 0.06 0.30 W429041 14-Jul-14

**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 10.0 10.0 100 90 - 110 W430023 21-Jul-14

**Dissolved Anions by Ion Chromatography**

EPA 300.0 Sulfate as SO4 mg/L 10.8 10.0 108 90 - 110 W429041 14-Jul-14

**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 38.2 27.2 10.0 110 90 - 110 W430023 21-Jul-14

EPA 300.0 Sulfate as SO4 mg/L 12.1 1.49 10.0 106 90 - 110 W430023 21-Jul-14

**Dissolved Anions by Ion Chromatography**

EPA 300.0 Sulfate as SO4 mg/L 71.0 60.8 10.0 102 90 - 110 W429041 14-Jul-14 D2

EPA 300.0 Sulfate as SO4 mg/L 32.0 20.5 10.0 116 90 - 110 W429041 14-Jul-14 M1

**Quality Control - MATRIX SPIKE DUPLICATE Data**

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

EPA 300.0 Sulfate as SO4 mg/L 12.2 12.1 10.0 107 0.7 20 W430023 21-Jul-14

**Dissolved Anions by Ion Chromatography**

EPA 300.0 Sulfate as SO4 mg/L 71.1 71.0 10.0 103 0.2 20 W429041 14-Jul-14 D2





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

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

Work Order: **W4G0249**

Reported: 25-Jul-14 09:23

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### Notes and Definitions

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

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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: **W4G0248**  
Reported: 22-Jul-14 11:23

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
PALMER	W4G0248-01	Ground Water	07-Jul-14 10:05	VH	11-Jul-2014
NESS	W4G0248-02	Ground Water	07-Jul-14 13:49	VH	11-Jul-2014
SWAN	W4G0248-03	Ground Water	07-Jul-14 14:51	VH	11-Jul-2014
OSBORN	W4G0248-04	Ground Water	07-Jul-14 15:30	VH	11-Jul-2014
NOTEMAN	W4G0248-05	Ground Water	07-Jul-14 16:23	VH	11-Jul-2014
BIMA	W4G0248-06	Ground Water	08-Jul-14 08:53	VH	11-Jul-2014
EPPELE 641	W4G0248-07	Ground Water	08-Jul-14 10:55	VH	11-Jul-2014
RAY	W4G0248-08	Ground Water	08-Jul-14 12:27	VH	11-Jul-2014
BANKS 986	W4G0248-09	Ground Water	08-Jul-14 15:28	VH	11-Jul-2014
EAST	W4G0248-10	Ground Water	08-Jul-14 16:30	VH	11-Jul-2014
COB MW-3	W4G0248-11	Ground Water	09-Jul-14 09:25	VH	11-Jul-2014
COB MW-2	W4G0248-12	Ground Water	09-Jul-14 10:15	VH	11-Jul-2014
COB MW-1	W4G0248-13	Ground Water	09-Jul-14 13:20	VH	11-Jul-2014
COB WL	W4G0248-14	Ground Water	09-Jul-14 15:19	VH	11-Jul-2014
NWC-04	W4G0248-15	Ground Water	10-Jul-14 08:55	VH	11-Jul-2014
NWC-06	W4G0248-16	Ground Water	10-Jul-14 10:00	VH	11-Jul-2014
NWC-02	W4G0248-17	Ground Water	10-Jul-14 10:37	VH	11-Jul-2014
ROGERS, E	W4G0248-18	Ground Water	10-Jul-14 11:55	VH	11-Jul-2014
KEEFER	W4G0248-19	Ground Water	10-Jul-14 13:02	VH	11-Jul-2014
DUP20140708	W4G0248-20	Ground Water	08-Jul-14 18:00	VH	11-Jul-2014

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

Work Order: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **PALMER**

SVL Sample ID: **W4G0248-01 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 07-Jul-14 10:05

Received: 11-Jul-14

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	18.3	mg/L	0.30	0.06		W429184	AEW	07/17/14 13:54	M1
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36 West Highway 92  
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **NESS**

SVL Sample ID: **W4G0248-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 07-Jul-14 13:49

Received: 11-Jul-14

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	48.3	mg/L	1.50	0.28	5	W429184	AEW	07/17/14 14:26	D1,M3
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **SWAN**

SVL Sample ID: **W4G0248-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 07-Jul-14 14:51

Received: 11-Jul-14

Sampled By: VH

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

EPA 300.0	Sulfate as SO4	19.4	mg/L	0.30	0.06		W429184	AEW	07/17/14 14:47	
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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: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **OSBORN**

SVL Sample ID: **W4G0248-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 07-Jul-14 15:30

Received: 11-Jul-14

Sampled By: VH

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

EPA 300.0	Sulfate as SO4	18.0	mg/L	0.30	0.06		W429184	AEW	07/17/14 14:57	
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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: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **NOTEMAN**

SVL Sample ID: **W4G0248-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 07-Jul-14 16:23

Received: 11-Jul-14

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	289	mg/L	7.50	1.38	25	W429184	AEW	07/17/14 15:08	D2
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36 West Highway 92  
Bisbee, AZ 85603

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

Work Order: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **BIMA**

SVL Sample ID: **W4G0248-06 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 08-Jul-14 08:53

Received: 11-Jul-14

Sampled By: VH

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
<b>Dissolved Anions by Ion Chromatography</b>										
EPA 300.0	Sulfate as SO4	297	mg/L	7.50	1.38	25	W429184	AEW	07/17/14 15:41	D2

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

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Freeport McMoRan - Copper Queen Branch  
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Bisbee, AZ 85603

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

Work Order: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **EPPELE 641**

SVL Sample ID: **W4G0248-07 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 08-Jul-14 10:55

Received: 11-Jul-14

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	21.6	mg/L	0.30	0.06		W429184	AEW	07/17/14 15:51	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **RAY**

SVL Sample ID: **W4G0248-08 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 08-Jul-14 12:27

Received: 11-Jul-14

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	147	mg/L	1.50	0.28	5	W429184	AEW	07/17/14 16:02	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **BANKS 986**

SVL Sample ID: **W4G0248-09 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 08-Jul-14 15:28

Received: 11-Jul-14

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	107	mg/L	1.50	0.28	5	W429184	AEW	07/17/14 16:12	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Work Order: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **EAST**

SVL Sample ID: **W4G0248-10 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 08-Jul-14 16:30

Received: 11-Jul-14

Sampled By: VH

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

EPA 300.0	Sulfate as SO4	13.1	mg/L	0.30	0.06		W429184	AEW	07/17/14 16:23	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0248**

Reported: 22-Jul-14 11:23

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

SVL Sample ID: **W4G0248-11 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 09-Jul-14 09:25

Received: 11-Jul-14

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	90.9	mg/L	1.50	0.28	5	W429184	AEW	07/18/14 11:25	D2
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0248**

Reported: 22-Jul-14 11:23

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

SVL Sample ID: **W4G0248-12 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 09-Jul-14 10:15

Received: 11-Jul-14

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	43.7	mg/L	0.30	0.06		W429184	AEW	07/17/14 16:44	
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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: **W4G0248**

Reported: 22-Jul-14 11:23

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

SVL Sample ID: **W4G0248-13 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 09-Jul-14 13:20

Received: 11-Jul-14

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	1000	mg/L	15.0	2.75	50	W429184	AEW	07/17/14 16:54	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

**John Kern**  
Laboratory Director



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36 West Highway 92  
Bisbee, AZ 85603

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

Work Order: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **COB WL**

SVL Sample ID: **W4G0248-14 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 09-Jul-14 15:19

Received: 11-Jul-14

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	81.5	mg/L	1.50	0.28	5	W429184	AEW	07/17/14 17:05	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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

Work Order: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **NWC-04**

SVL Sample ID: **W4G0248-15 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jul-14 08:55

Received: 11-Jul-14

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	194	mg/L	3.00	0.55	10	W429184	AEW	07/17/14 17:16	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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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **NWC-06**

SVL Sample ID: **W4G0248-16 (Ground Water)**

**Sample Report Page 1 of 1**

Sampled: 10-Jul-14 10:00

Received: 11-Jul-14

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	8.97	mg/L	0.30	0.06		W429184	AEW	07/17/14 17:47	
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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: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **NWC-02**

SVL Sample ID: **W4G0248-17 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jul-14 10:37

Received: 11-Jul-14

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	7.65	mg/L	0.30	0.06		W429184	AEW	07/17/14 17:58	
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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: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **ROGERS, E**

SVL Sample ID: **W4G0248-18 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jul-14 11:55

Received: 11-Jul-14

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	6.41	mg/L	0.30	0.06		W429184	AEW	07/17/14 18:08	
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**Project Name: Copper Queen Branch Sulfate Mitigation Order**

Work Order: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **KEEFER**

SVL Sample ID: **W4G0248-19 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 10-Jul-14 13:02

Received: 11-Jul-14

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	6.66	mg/L	0.30	0.06		W429184	AEW	07/17/14 18:19	
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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: **W4G0248**

Reported: 22-Jul-14 11:23

Client Sample ID: **DUP20140708**

SVL Sample ID: **W4G0248-20 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 08-Jul-14 18:00

Received: 11-Jul-14

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	110	mg/L	3.00	0.55	10	W429184	AEW	07/17/14 18:29	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: **W4G0248**  
 Reported: 22-Jul-14 11:23

**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	0.06	0.30	W429184	17-Jul-14	
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**Quality Control - LABORATORY CONTROL SAMPLE Data**

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

EPA 300.0	Sulfate as SO4	mg/L	10.6	10.0	106	90 - 110	W429184	17-Jul-14	
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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	29.8	18.3	10.0	115	90 - 110	W429184	17-Jul-14	M1
EPA 300.0	Sulfate as SO4	mg/L	59.5	48.3	10.0	R > 4S	90 - 110	W429184	17-Jul-14	D2,M3

**Quality Control - MATRIX SPIKE DUPLICATE Data**

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

EPA 300.0	Sulfate as SO4	mg/L	30.0	29.8	10.0	117	0.8	20	W429184	17-Jul-14	M1
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**Notes and Definitions**

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

SVL holds the following certifications:

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

**APPENDIX C**  
**GROUNDWATER SAMPLING FORMS**



# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 11, 2014
Well ID:	Anderson 396	Weather:	Sunny, 80s
ADWR No:	613396	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	285			Casing Capacity	
				Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	8			2	0.16
				4	0.65
Static Water Level (ft bmp):	152.02			5	1.02
				6	1.47
Casing Volume (gal):	347	x3 =	1042	8	2.61
				10	4.08
Total Volume Purged (gal):	No purge			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
9:04:05 AM				7.35	21.4	1033	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Spigot on storage tank.

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Anderson 396	9:16:17	Poly	500mL	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: Collect from storage tank, no purge.

Additional Comments:


# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 11, 2014
Well ID:	Anderson 458	Weather:	Sunny, 80s
ADWR No:	221458	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	734			Casing Capacity	
				Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	5			2	0.16
				4	0.65
Static Water Level (ft bmp):	156.66			5	1.02
				6	1.47
Casing Volume (gal):	589	x3 =	1767	8	2.61
				10	4.08
Total Volume Purged (gal):	640			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
8:55 AM	Pump On						
9:15 AM	20m	8	160	8.16	23.1	400.6	
9:35 AM	40m	8	320	8.14	24.3	399.2	
9:55 AM	60m	8	480	8.15	24.3	398.4	
10:15 AM	80m	8	640	8.13	24.5	396.7	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Spigot near pressure tanks in shed					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Anderson 458	10:20:13	Poly	500mL	1	300.0	NA	Y

## WATER LEVEL MEASUREMENT COLLECTION

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

## WELL PURGING INFORMATION

- Purged 3 well volumes and field parameters stabilized.
- Purged 3 well volumes based on previous water level and field parameters stabilized.
- Purged well until field parameters stabilized.
- Other: Purge minimum 1 well volume, and stable parameters

Additional Comments:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 16, 2014
Well ID:	AWC-02	Weather:	Overcast, 80s
ADWR No:	616586	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	333			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	20			2	0.16
				4	0.65
				5	1.02
Static Water Level (ft bmp):	124.49			6	1.47
				8	2.61
Casing Volume (gal):	3403	x3 =	10209	10	4.08
Total Volume Purged (gal):	10000			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
11:40 AM	Pump On						
12:00 PM	20m	100	2000	7.53	21.6	505.5	
12:20 PM	40m	100	4000	7.53	21.5	507.6	
12:40 PM	60m	100	6000	7.64	21.9	496.7	
1:00 PM	80m	100	8000	7.56	22.1	495.3	
1:20 PM	100m	100	10000	7.54	21.8	499.5	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Spigot near pressure tanks in shed					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
AWC-02	13:28:31	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 16, 2014
Well ID:	AWC-03	Weather:	Sunn, humid, 80s
ADWR No:	616585	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	270			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	16			2	0.16
			4	0.65	
			5	1.02	
Static Water Level (ft bmp):	123.50			6	1.47
			8	2.61	
Casing Volume (gal):	1530	x3 =	4590	10	4.08
Total Volume Purged (gal):	6120			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
10:46 AM	Pump On						
10:49 AM	3m	680	2040	7.90	21.5	567.4	
10:52 AM	6m	680	4080	7.71	21.3	519.8	
10:55 AM	9m	680	6120	7.68	21.4	506.9	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:	Spigot near pressure tanks in shed						
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
AWC-03	10:58:50	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 paremeters stabilized.
- Purged well until field parameters stabilized.
- Other:

Additional Comments:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 16, 2014
Well ID:	AWC-04	Weather:	Partly cloudy, 80s
ADWR No:	616584	Sampler:	VNH

### WELL DATA

Well Depth (ft bls):	337			Casing Capacity	
				Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	16			2	0.16
				4	0.65
Static Water Level (ft bmp):	118.44			5	1.02
				6	1.47
Casing Volume (gal):	2283	x3 =	6849	8	2.61
				10	4.08
Total Volume Purged (gal):	11700			Casing Volume = gallons/foot * water column (feet)	

### FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
11:12 AM	Pump On						
11:15 AM	3m	780	2340	7.22	21.4	623.5	
11:18 AM	6m	780	4680	7.70	20.8	802.9	
11:21 AM	9m	780	7020	7.36	20.8	678.5	
11:24 AM	12m	780	9360	7.37	20.8	643.5	
11:27 AM	15m	780	11700	7.32	20.7	632.2	
							Pump Off

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

### SAMPLE INFORMATION

Sample Collection Point: Spigot near pressure tanks in shed

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
AWC-04	11:32:36	Poly	250mL	1	300.0	NA	Y
DUP20140716	1800	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 16, 2014
Well ID:	AWC-05	Weather:	Sunny, humid, 80s
ADWR No:	590620	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	1183			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	16			2	0.16
			4	0.65	
			5	1.02	
Static Water Level (ft bmp):	346.34			6	1.47
			8	2.61	
Casing Volume (gal):	8739	x3 =	26217	10	4.08
Total Volume Purged (gal):	26100			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
9:40 AM	Pump On						
9:55 AM	15m	580	8700	7.66	22.1	445.1	
10:10 AM	30m	580	17400	7.80	22.5	442.4	
10:25 AM	45m	580	26100	7.60	22.6	470.9	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:	Spigot near pressure tanks in shed						
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
AWC-05	10:34:51	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 8, 2014
Well ID:	Banks 986	Weather:	Sunny, 80s
ADWR No:	647986	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	435			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
		2		0.16	
Casing Diameter (in):	6			4	0.65
		5		1.02	
Static Water Level (ft bmp):	Use 228.85 from Banks 987			6	1.47
		8		2.61	
Casing Volume (gal):	303	x3 =	909	10	4.08
Total Volume Purged (gal):	920			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1:30 PM	Pump On						
1:45 PM	15m	8	120	7.54	22.5	1190	
2:05 PM	35m	8	280	7.56	23.1	1183	
2:25 PM	55m	8	440	7.53	23.1	1179	
2:45 PM	75m	8	600	7.54	23.0	1176	
3:05 PM	95m	8	760	7.52	23.0	1177	
3:25 PM	115m	8	920	7.58	22.3	1175	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Wellhead spigot

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Banks 986	15:28:01	Poly	250mL	1	300.0	NA	Y
DUP20140708	18:00	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:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 8, 2014
Well ID:	Banks 987	Weather:	Sunny, 80s
ADWR No:	647987	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	339	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Casing Diameter (in):	6	4	0.65
		5	1.02
Static Water Level (ft bmp):	228.85	6	1.47
		8	2.61
Casing Volume (gal):	x3 = 0	10	4.08
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

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

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

## SAMPLE INFORMATION

Sample Collection Point: Wellhead spigot

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**

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 17, 2014
Well ID:	Barton 919	Weather:	Partly cloudy, 70s
ADWR No:	644919	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	130			Casing Capacity	
Casing Diameter (in):	6	Nominal Size (inches)	Gallons per Linear Foot		
		2	0.16		
Static Water Level (ft bmp):	113.42	4	0.65		
		5	1.02		
		6	1.47		
Casing Volume (gal):	x3 =	8	2.61		
		10	4.08		
Total Volume Purged (gal):	Casing Volume = gallons/foot * water column (feet)				

## FIELD SAMPLING DATA

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

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

## SAMPLE INFORMATION

Sample Collection Point:

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

## WATER LEVEL MEASUREMENT COLLECTION

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

## WELL PURGING INFORMATION

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

Additional Comments: **WLO**

# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 8, 2014
Well ID:	Bima	Weather:	Sunny, 60s
ADWR No:	577927	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	460	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Casing Diameter (in):	4	4	0.65
		5	1.02
Static Water Level (ft bmp):		6	1.47
		8	2.61
Casing Volume (gal):	x3 =	10	4.08
Total Volume Purged (gal):	No purge	Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
8:49:07 AM				6.56	21.6	1653	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:	Spigot near p-tanks in shed						
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Bima	8:53:26 AM	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: No purge per owner request, 1 field reading

Additional Comments:

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# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 7-22-14  
 Well ID: BMO-2008-16 Weather: Partly Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L. Skurman

### WELL DATA

Well Depth (ft bls): <u>310</u> Casing Diameter (in): <u>5"</u> Static Water Level (ft bmp): <u>74.14</u> Casing Volume (gal): <u>240.7 x 3 = 722</u> Total Volume Purged (gal): <u>747</u>	Casing Capacity	
	Nominal Size (Inches)	Gallons per Linear Foot
	2	0.16
	4	0.65
	5	1.02
	6	1.47
	8	2.61
	10	4.08
Casing Volume = gallons/foot * water column (feet)		

### FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>0945</u>	<b>Pump On</b>						
<u>1015</u>	<u>30</u>	<u>8.3</u>	<u>249</u>	<u>6.85</u>	<u>22.1</u>	<u>1004</u>	
<u>1035</u>	<u>50</u>	<u>8.3</u>	<u>415</u>	<u>6.86</u>	<u>22.0</u>	<u>1008</u>	
<u>1055</u>	<u>70</u>	<u>8.3</u>	<u>581</u>	<u>6.86</u>	<u>21.9</u>	<u>1009</u>	
<u>1115</u>	<u>90</u>	<u>8.3</u>	<u>747</u>	<u>6.87</u>	<u>22.0</u>	<u>1010</u>	
							<b>Pump Off</b>

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

### SAMPLE INFORMATION

**Sample Collection Point:**

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2008-16</u>	<u>1115</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ice</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:**

236

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# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 7/21/14  
 Well ID: BMO-2008-3B Weather: Partly Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L Shuman

### WELL DATA

Well Depth (ft bls): <u>260</u> Casing Diameter (in): <u>5<sup>4</sup></u> Static Water Level (ft bmp): <u>145.36</u> Casing Volume (gal): <u>117</u> x3 = <u>351</u> Total Volume Purged (gal): <u>540</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
	2	0.16
	4	0.65
	5	1.02
	6	1.47
	8	2.61
	10	4.08
Casing Volume = gallons/foot * water column (feet)		

### FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1350</u>	<b>Pump On</b>						
<u>1400</u>	<u>10</u>	<u>27</u>	<u>135</u>	<u>6.97</u>	<u>21.1</u>	<u>701</u>	
<u>1405</u>	<u>15</u>	<u>27</u>	<u>405</u>	<u>6.94</u>	<u>21.0</u>	<u>706</u>	
<u>1410</u>	<u>20</u>	<u>27</u>	<u>540</u>	<u>6.98</u>	<u>21.0</u>	<u>706</u>	
							<b>Pump Off</b>

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

### SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2008-3B</u>	<u>1410</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ice</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: 114.7

# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 18, 2014
Well ID:	BMO-2008-4B	Weather:	Sunny, 80s
ADWR No:	910096	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	610	Casing Capacity			
Casing Diameter (in):	5	Nominal Size (inches)	Gallons per Linear Foot		
		2	0.16		
Static Water Level (ft bmp):	137.49	4	0.65		
		5	1.02		
Casing Volume (gal):	482	x3 =	1446		
				6	1.47
				8	2.61
Total Volume Purged (gal):	1500	10	4.08		
		Casing Volume = gallons/foot * water column (feet)			

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
11:44 AM	Pump On						
12:04 PM	20m	25	500	7.88	23.6	364.2	
12:24 PM	40m	25	1000	7.81	23.2	374.0	
12:44 PM	60m	25	1500	7.78	23.3	379.1	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Spigot in well shed

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2008-4B	12:49:51	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: Open valves, turn well on by switching both breakers on at electrical box nearby. Return to off when done.

# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 2-19-14  
 Well ID: BMO-2008-5B Weather: Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher J. Shuman

### WELL DATA

Well Depth (ft bls): <u>285</u> Casing Diameter (in): <u>5"</u> Static Water Level (ft bmp): <u>151.13</u> Casing Volume (gal): <u>137 x3 = 411</u> Total Volume Purged (gal): <u>675</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
	2	0.16
	4	0.65
	5	1.02
	6	1.47
	8	2.61
	10	4.08
Casing Volume = gallons/foot * water column (feet)		

### FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1200</u>	<u>Pump On</u>						
<u>1215</u>	<u>5</u>	<u>27</u>	<u>135</u>	<u>6.98</u>	<u>21.7</u>	<u>794</u>	
<u>1225</u>	<u>15</u>	<u>27</u>	<u>405</u>	<u>7.01</u>	<u>21.7</u>	<u>793</u>	
<u>1235</u>	<u>25</u>	<u>27</u>	<u>675</u>	<u>6.99</u>	<u>21.6</u>	<u>795</u>	
							<u>Pump Off</u>

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

### SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2008-5B</u>	<u>1235</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Flu</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: 134

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# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 8-19-14  
 Well ID: BMO-2008-5M Weather: Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L. Sherman

### WELL DATA

Well Depth (ft bis): <u>450</u> Casing Diameter (in): <u>5"</u> Static Water Level (ft bmp): <u>152.78</u> Casing Volume (gal): <u>303.2 x3 = 909.6</u> Total Volume Purged (gal): <u>990</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
	2	0.16
	4	0.65
	5	1.02
	6	1.47
	8	2.61
	10	4.08
Casing Volume = gallons/foot * water column (feet)		

### FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1000</u>	<u>Pump On</u>						
<u>1005</u>	<u>5</u>	<u>18</u>	<u>90</u>	<u>6.90</u>	<u>22.2</u>	<u>645</u>	
<u>1025</u>	<u>25</u>	<u>18</u>	<u>450</u>	<u>7.01</u>	<u>22.1</u>	<u>642</u>	
<u>1045</u>	<u>45</u>	<u>18</u>	<u>810</u>	<u>6.98</u>	<u>22.2</u>	<u>646</u>	
<u>1055</u>	<u>55</u>	<u>18</u>	<u>990</u>	<u>6.97</u>	<u>22.1</u>	<u>645</u>	
							<u>Pump Off</u>

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

### SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2008-5M</u>	<u>1055</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ice</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: 297.3

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# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 8-19-14  
 Well ID: BMO-2008-6B Weather: Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L. Slavina

WELL DATA		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Well Depth (ft bbs):	<u>265</u>	2	0.16
Casing Diameter (in):	<u>5</u>	4	0.65
Static Water Level (ft bmp):	<u>196.36</u>	5	1.02
Casing Volume (gal):	<u>70 x3 = 210</u>	6	1.47
Total Volume Purged (gal):	<u>225</u>	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>0850</u>	<u>Pump On</u>						
<u>0855</u>	<u>5</u>	<u>5.1</u>	<u>25</u>	<u>6.89</u>	<u>21.7</u>	<u>300</u>	
<u>0905</u>	<u>15</u>	<u>5.1</u>	<u>75</u>	<u>7.05</u>	<u>21.6</u>	<u>297</u>	
<u>0920</u>	<u>30</u>	<u>5.1</u>	<u>160</u>	<u>7.99</u>	<u>21.5</u>	<u>296</u>	
<u>0935</u>	<u>45</u>	<u>5.0</u>	<u>225</u>	<u>7.08</u>	<u>21.6</u>	<u>298</u>	
							<u>Pump Off</u>

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

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2008-6B</u>	<u>0935</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ice</u>	<u>X</u>

**WATER LEVEL MEASUREMENT COLLECTION**

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

**WELL PURGING INFORMATION**

Purged 3 well volumes and field parameters stabilized.  
 Purged 3 well volumes based on previous water level and field parameters stabilized.  
 Purged well until field parameters stabilized.  
 Other: \_\_\_\_\_

Additional Comments: 68.7

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# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 8-19-14  
 Well ID: BMO-2008-6M Weather: Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L. Shannon

WELL DATA		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Well Depth (ft bls): <u>450</u>		2	0.16
Casing Diameter (in): <u>5'</u>		4	0.65
Static Water Level (ft bmp): <u>197.40</u>		5	1.02
Casing Volume (gal): <u>257.6 x 3 = 773</u>		6	1.47
Total Volume Purged (gal): <u>840</u>		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>0800</u>	<u>Pump On</u>						
<u>0810</u>	<u>10</u>	<u>21</u>	<u>210</u>	<u>6.90</u>	<u>22.0</u>	<u>774</u>	
<u>0820</u>	<u>20</u>	<u>21</u>	<u>420</u>	<u>6.89</u>	<u>22.2</u>	<u>772</u>	
<u>0830</u>	<u>30</u>	<u>21</u>	<u>630</u>	<u>6.88</u>	<u>22.0</u>	<u>773</u>	
<u>0840</u>	<u>40</u>	<u>21</u>	<u>840</u>	<u>6.90</u>	<u>21.9</u>	<u>774</u>	
							<u>Pump Off</u>

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

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2008-6M</u>	<u>0840</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Jco</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 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: 252L



# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 7-22-14  
 Well ID: BMO-2008-7M Weather: Partly Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L. Summer

### WELL DATA

Well Depth (ft bls): <u>670</u> Casing Diameter (in): <u>5"</u> Static Water Level (ft bmp): <u>244.66</u> Casing Volume (gal): <u>434 x3 = 1302</u> Total Volume Purged (gal): <u>1365</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">Casing Capacity</th> </tr> <tr> <th style="text-align: center;">Nominal Size (inches)</th> <th style="text-align: center;">Gallons per Linear Foot</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">2</td><td style="text-align: center;">0.16</td></tr> <tr><td style="text-align: center;">4</td><td style="text-align: center;">0.65</td></tr> <tr><td style="text-align: center;">5</td><td style="text-align: center;">1.02</td></tr> <tr><td style="text-align: center;">6</td><td style="text-align: center;">1.47</td></tr> <tr><td style="text-align: center;">8</td><td style="text-align: center;">2.61</td></tr> <tr><td style="text-align: center;">10</td><td style="text-align: center;">4.08</td></tr> </tbody> </table> <p style="text-align: center;">Casing Volume = gallons/foot * water column (feet)</p>	Casing Capacity		Nominal Size (inches)	Gallons per Linear Foot	2	0.16	4	0.65	5	1.02	6	1.47	8	2.61	10	4.08
Casing Capacity																	
Nominal Size (inches)	Gallons per Linear Foot																
2	0.16																
4	0.65																
5	1.02																
6	1.47																
8	2.61																
10	4.08																

### FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1400</u>	<u>Pump On</u>						
<u>1425</u>	<u>25</u>	<u>21</u>	<u>525</u>	<u>7.10</u>	<u>23.7</u>	<u>488</u>	
<u>1445</u>	<u>45</u>	<u>21</u>	<u>945</u>	<u>7.11</u>	<u>23.4</u>	<u>487</u>	
<u>1505</u>	<u>65</u>	<u>21</u>	<u>1365</u>	<u>7.13</u>	<u>23.2</u>	<u>488</u>	
							<u>Pump Off</u>

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

### SAMPLE INFORMATION

**Sample Collection Point:**

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2008-7M</u>	<u>1505</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Yes</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: 425.4

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# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 7-24-14  
 Well ID: BMO-2008-8B Weather: Sunny  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L Shuman

### WELL DATA

Well Depth (ft bls): <u>480</u> Casing Diameter (in): <u>5"</u> Static Water Level (ft bmp): <u>301.86</u> Casing Volume (gal): <u>181.6 x3 = 545</u> Total Volume Purged (gal): <u>639</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
	2	0.16
	4	0.65
	5	1.02
	6	1.47
	8	2.61
	10	4.08
Casing Volume = gallons/foot * water column (feet)		

### FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1055</u>	<b>Pump On</b>						
<u>1110</u>	<u>15</u>	<u>14.2</u>	<u>213</u>	<u>6.27</u>	<u>21.3</u>	<u>2510</u>	
<u>1120</u>	<u>25</u>	<u>14.2</u>	<u>355</u>	<u>6.26</u>	<u>21.4</u>	<u>2530</u>	
<u>1130</u>	<u>35</u>	<u>14.2</u>	<u>497</u>	<u>6.22</u>	<u>21.2</u>	<u>2520</u>	
<u>1140</u>	<u>45</u>	<u>14.2</u>	<u>639</u>	<u>6.26</u>	<u>21.2</u>	<u>2520</u>	
							<b>Pump Off</b>

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

### SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2008-8B</u>	<u>1140</u>	<u>P</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ice</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: 178.1

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# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 7-24-14  
 Well ID: BMD-2008-8M Weather: Sunny  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L Sullivan

WELL DATA		Casing Capacity	
Well Depth (ft bls):	<u>1210</u>	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	<u>5"</u>	2	0.16
Static Water Level (ft bmp):	<u>303.48</u>	4	0.65
Casing Volume (gal):	<u>924.6 x3 = 2774</u>	5	1.02
Total Volume Purged (gal):	<u>2816</u>	6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>0800</u>							<u>Pump On</u>
<u>0900</u>	<u>60</u>	<u>176</u>	<u>1056</u>	<u>7.13</u>	<u>24.6</u>	<u>568</u>	
<u>1000</u>	<u>120</u>	<u>176</u>	<u>2112</u>	<u>7.09</u>	<u>24.7</u>	<u>570</u>	
<u>1030</u>	<u>150</u>	<u>176</u>	<u>2640</u>	<u>7.08</u>	<u>24.6</u>	<u>569</u>	
<u>1040</u>	<u>160</u>	<u>176</u>	<u>2816</u>	<u>7.07</u>	<u>24.7</u>	<u>569</u>	
							<u>Pump Off</u>

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

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMD-2008-8M</u>	<u>1040</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Free</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: 906.5

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# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: \_\_\_\_\_  
 Well ID: BMO-2008-9M Weather: 7-24-14  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L. Shuman

WELL DATA		
Well Depth (ft bls): <u>775</u>	Casing Capacity	
Casing Diameter (in): <u>54</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>293.53</u>	2	0.16
Casing Volume (gal): <u>490.6 x3 = 1472</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>1240</u>	<u>Pump On</u>						
<u>1300</u>	<u>20</u>	<u>18.8</u>	<u>376</u>	<u>7.36</u>	<u>24.3</u>	<u>569</u>	
<u>1320</u>	<u>40</u>	<u>18.8</u>	<u>757</u>	<u>7.37</u>	<u>24.2</u>	<u>571</u>	
<u>1340</u>	<u>60</u>	<u>18.8</u>	<u>1128</u>	<u>7.36</u>	<u>24.4</u>	<u>570</u>	
<u>1400</u>	<u>80</u>	<u>18.8</u>	<u>1504</u>	<u>7.36</u>	<u>24.4</u>	<u>571</u>	
							<u>Pump Off</u>

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

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2008-9M</u>	<u>1400</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Fac</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: 481

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# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 8-7-14  
 Well ID: BMO-2008-106L Weather: Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L Skuman

WELL DATA		Casing Capacity	
Well Depth (ft bls): <u>810</u>		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>5"</u>		2	0.16
Static Water Level (ft bmp): <u>507.21</u>		4	0.65
Casing Volume (gal): <u>308.8 x3 = 926.4</u>		5	1.02
Total Volume Purged (gal): <u>942</u>		6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>0845</u>	<b>Pump On</b>						
<u>0950</u>	<u>5</u>	<u>4.5</u>	<u>22.5</u>	<u>6.47</u>	<u>25.8</u>	<u>1420</u>	
<u>0945</u>	<u>60</u>	<u>4.1</u>	<u>270</u>	<u>6.50</u>	<u>25.6</u>	<u>1417</u>	
<u>1045</u>	<u>120</u>	<u>3.7</u>	<u>516</u>	<u>6.54</u>	<u>25.7</u>	<u>1418</u>	
<u>1145</u>	<u>180</u>	<u>3.4</u>	<u>738</u>	<u>6.57</u>	<u>25.8</u>	<u>1419</u>	
<u>1245</u>	<u>240</u>	<u>3.4</u>	<u>942</u>	<u>6.56</u>	<u>25.8</u>	<u>1417</u>	
							<b>Pump Off</b>

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

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2008-106L</u>	<u>1245</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ice</u>	<u>Y</u>

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

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

Additional Comments: 302.2

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# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 8-14-14  
 Well ID: BMO-2008-116 Weather: Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L. Stumm

### WELL DATA

Well Depth (ft bis): <u>760</u> Casing Diameter (in): <u>5"</u> Static Water Level (ft bmp): <u>564.24</u> Casing Volume (gal): <u>199.7 x 3 = 599.1</u> Total Volume Purged (gal): _____	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
	2	0.16
	4	0.65
	5	1.02
	6	1.47
	8	2.61
	10	4.08
Casing Volume = gallons/foot * water column (feet)		

### FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1215</u>	<u>Pump On</u>						
<u>1225</u>	<u>10</u>	<u>8</u>	<u>80</u>	<u>7.51</u>	<u>24.8</u>	<u>361</u>	
<u>1245</u>	<u>30</u>	<u>8</u>	<u>240</u>	<u>7.56</u>	<u>24.8</u>	<u>362</u>	
<u>1315</u>	<u>60</u>	<u>8</u>	<u>480</u>	<u>7.57</u>	<u>24.8</u>	<u>362</u>	
<u>1330</u>	<u>75</u>	<u>8</u>	<u>600</u>	<u>7.58</u>	<u>24.7</u>	<u>360</u>	
							Pump Off

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

### SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2008-116</u>	<u>1330</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ta-</u>	<u>✓</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: 195.8

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# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 8-19-14  
 Well ID: Bmo-2008-13B Weather: Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L. Shannon

### WELL DATA

Well Depth (ft bls): <u>475</u> Casing Diameter (in): <u>5"</u> Static Water Level (ft bmp): <u>212.68</u> Casing Volume (gal): <u>267.5 x3 = 802.5</u> Total Volume Purged (gal): <u>900</u>	Casing Capacity	
	Nominal Size (Inches)	Gallons per Linear Foot
	2	0.16
	4	0.65
	5	1.02
	6	1.47
	8	2.61
	10	4.08
Casing Volume = gallons/foot * water column (feet)		

### FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1255</u>	<u>Pump On</u>						
<u>1305</u>	<u>10</u>	<u>20</u>	<u>200</u>	<u>6.62</u>	<u>21.4</u>	<u>1890</u>	
<u>1320</u>	<u>25</u>	<u>20</u>	<u>500</u>	<u>6.60</u>	<u>21.4</u>	<u>1870</u>	
<u>1330</u>	<u>35</u>	<u>20</u>	<u>700</u>	<u>6.4</u>	<u>21.3</u>	<u>1880</u>	
<u>1340</u>	<u>45</u>	<u>20</u>	<u>900</u>	<u>6.63</u>	<u>21.2</u>	<u>1890</u>	
							<u>Pump Off</u>

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

### SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Bmo-2008-13B</u>	<u>1240</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ja</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: 267.3



# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 8-20-14  
 Well ID: BMO-2008-13M Weather: Partly Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L. Swanson

### WELL DATA

Well Depth (ft bls): <u>1030</u> Casing Diameter (in): <u>5"</u> Static Water Level (ft bmp): <u>213.14</u> Casing Volume (gal): <u>837.3 x3 = 2500</u> Total Volume Purged (gal): <u>2604</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">Casing Capacity</th> </tr> <tr> <th style="text-align: center;">Nominal Size (inches)</th> <th style="text-align: center;">Gallons per Linear Foot</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">2</td><td style="text-align: center;">0.16</td></tr> <tr><td style="text-align: center;">4</td><td style="text-align: center;">0.65</td></tr> <tr><td style="text-align: center;">5</td><td style="text-align: center;">1.02</td></tr> <tr><td style="text-align: center;">6</td><td style="text-align: center;">1.47</td></tr> <tr><td style="text-align: center;">8</td><td style="text-align: center;">2.61</td></tr> <tr><td style="text-align: center;">10</td><td style="text-align: center;">4.08</td></tr> </tbody> </table> <p style="text-align: center;">Casing Volume = gallons/foot * water column (feet)</p>	Casing Capacity		Nominal Size (inches)	Gallons per Linear Foot	2	0.16	4	0.65	5	1.02	6	1.47	8	2.61	10	4.08
Casing Capacity																	
Nominal Size (inches)	Gallons per Linear Foot																
2	0.16																
4	0.65																
5	1.02																
6	1.47																
8	2.61																
10	4.08																

### FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>0615</u>	<u>Pump On</u>						
<u>0835</u>	<u>140</u>	<u>5.7</u>	<u>798</u>	<u>8.46</u>	<u>23.7</u>	<u>1358</u>	
<u>0935</u>	<u>200</u>	<u>4.6</u>	<u>1140</u>	<u>8.51</u>	<u>23.6</u>	<u>1338</u>	
<u>1035</u>	<u>260</u>	<u>3.8</u>	<u>1416</u>	<u>8.58</u>	<u>23.6</u>	<u>1355</u>	
<u>1235</u>	<u>380</u>	<u>3.8</u>	<u>1872</u>	<u>8.57</u>	<u>23.8</u>	<u>1356</u>	
<u>1335</u>	<u>440</u>	<u>2.8</u>	<u>2100</u>	<u>8.50</u>	<u>23.7</u>	<u>1360</u>	
<u>1435</u>	<u>620</u>	<u>2.8</u>	<u>2604</u>	<u>8.48</u>	<u>23.6</u>	<u>1362</u>	
							<u>Pump Off</u>

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

### SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2008-13M</u>	<u>1635</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ice</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: 816.9

# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 8-4-14  
 Well ID: Bmo-2010-1M Weather: Sunny  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L. Sherna

### WELL DATA

Well Depth (ft bls): <u>550</u> Casing Diameter (in): <u>5'</u> Static Water Level (ft bmp): <u>223.14</u> Casing Volume (gal): <u>333.3 x 3 = 1000</u> Total Volume Purged (gal): <u>1005</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
	2	0.16
	4	0.65
	5	1.02
	6	1.47
	8	2.61
	10	4.08
Casing Volume = gallons/foot * water column (feet)		

### FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>0930</u>	<u>Pump On</u>						
<u>0945</u>	<u>15</u>	<u>10</u>	<u>150</u>	<u>7.31</u>	<u>23.8</u>	<u>770</u>	
<u>1030</u>	<u>60</u>	<u>5</u>	<u>325</u>	<u>7.35</u>	<u>23.6</u>	<u>777</u>	
<u>1130</u>	<u>120</u>	<u>3</u>	<u>565</u>	<u>7.34</u>	<u>23.5</u>	<u>771</u>	
<u>1230</u>	<u>180</u>	<u>3</u>	<u>735</u>	<u>7.37</u>	<u>23.8</u>	<u>773</u>	
<u>1330</u>	<u>240</u>	<u>3</u>	<u>915</u>	<u>7.37</u>	<u>23.9</u>	<u>772</u>	
<u>1400</u>	<u>270</u>	<u>3</u>	<u>1005</u>	<u>7.38</u>	<u>23.8</u>	<u>772</u>	
							<u>Pump Off</u>

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

### SAMPLE INFORMATION

**Sample Collection Point:**

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Bmo-2010-1M</u>	<u>1400</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ja</u>	<u>X</u>

### WATER LEVEL MEASUREMENT COLLECTION

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

### WELL PURGING INFORMATION

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

Additional Comments: 326.8

# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 8-14-14  
 Well ID: BMO-2010-2M Weather: cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L Shuman

WELL DATA		Casing Capacity	
Well Depth (ft bis): <u>380</u>		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>5"</u>		2	0.16
Static Water Level (ft bmp): <u>270.78</u>		4	0.65
Casing Volume (gal): <u>11.4 x 3 = 334.2</u>		5	1.02
Total Volume Purged (gal): <u>810</u>		6	1.47
		8	2.61
		10	4.08
		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>0845</u>	<u>Pump On</u>						
<u>0855</u>	<u>10</u>	<u>27</u>	<u>270</u>	<u>6.47</u>	<u>21.0</u>	<u>1940</u>	
<u>0905</u>	<u>20</u>	<u>27</u>	<u>540</u>	<u>6.49</u>	<u>21.0</u>	<u>1930</u>	
<u>0915</u>	<u>30</u>	<u>27</u>	<u>810</u>	<u>6.48</u>	<u>21.0</u>	<u>1940</u>	
							<u>Pump Off</u>

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

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2010-2M</u>	<u>0915</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>TC</u>	<u>Y</u>
<u>Dup 081414</u>	<u>0915</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>TC</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: 109.3  
Duplicate



# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 15, 2014
Well ID:	BMO-2010-3B	Weather:	Overcast, 70s
ADWR No:	219970	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	330			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	5			2	0.16
			4	0.65	
			5	1.02	
Static Water Level (ft bmp):	120.06			6	1.47
			8	2.61	
Casing Volume (gal):	214	x3 =	642	10	4.08
Total Volume Purged (gal):	630			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
9:35 AM	Pump On						
9:50 AM	15m	6	90	7.76	21.6	422.1	
10:05 AM	30m	6	180	7.65	21.6	420.8	
10:20 AM	45m	6	270	7.72	21.7	419.5	
10:35 AM	60m	6	360	7.65	21.8	419.4	
10:50 AM	75m	6	450	7.66	21.9	418.9	
11:05 AM	90m	6	540	7.64	21.9	418.6	
11:20 AM	105m	6	630	7.63	21.8	419.1	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Spigot near pressure tanks in shed					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2010-3B	11:23:30	Poly	500mL	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 15, 2014
Well ID:	BMO-2010-3M	Weather:	Sunny, windy, 60s
ADWR No:	219969	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	532			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	5			2	0.16
		4		0.65	
		5		1.02	
Static Water Level (ft bmp):	121.92			6	1.47
		8		2.61	
Casing Volume (gal):	418	x3 =	1255	10	4.08
Total Volume Purged (gal):	1260			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
11:45 AM	Pump On						
12:05 PM	20m	7	140	7.95	22.2	360.6	Clear, sulphur odor
12:25 PM	40m	7	280	7.77	22.5	383.1	Yellow, sulphur odor
12:45 PM	60m	7	420	7.78	22.8	389.7	Clear, sulphur odor
1:05 PM	80m	7	560	7.77	23.1	388.0	Clear, sulphur odor
1:25 PM	100m	7	700	7.78	23.5	386.2	Clear, odorless
1:45 PM	120m	7	840	7.76	23.2	386.5	Clear, odorless
2:05 PM	140m	7	980	7.81	23.3	386.7	Clear, odorless
2:25 PM	160m	7	1120	7.75	23.3	387.4	Clear, faint sulphur odor
2:45 PM	180m	7	1260	7.74	23.1	386.9	Clear, faint sulphur odor

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

## SAMPLE INFORMATION

Sample Collection Point:		Spigot near pressure tanks in shed					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
BMO-2010-3M	14:48:58	Poly	500mL	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: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 7-22-14  
 Well ID: BMO-2012-1M Weather: Partly Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: \_\_\_\_\_

WELL DATA		Casing Capacity	
Well Depth (ft bls): <u>405</u>		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>5"</u>		2	0.16
Static Water Level (ft bmp): <u>229.94</u>		4	0.65
Casing Volume (gal): <u>128.5 x 3 = 535.5</u>		5	1.02
		6	1.47
		8	2.61
		10	4.08
Total Volume Purged (gal): _____		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>0800</u>	<b>Pump On</b>						
<u>0810</u>	<u>10</u>	<u>6</u>	<u>60</u>	<u>6.95</u>	<u>22.9</u>	<u>857</u>	
<u>0830</u>	<u>30</u>	<u>6</u>	<u>180</u>	<u>6.97</u>	<u>22.8</u>	<u>856</u>	
<u>0900</u>	<u>60</u>	<u>6</u>	<u>360</u>	<u>6.99</u>	<u>22.7</u>	<u>858</u>	
<u>0930</u>	<u>90</u>	<u>6</u>	<u>540</u>	<u>6.99</u>	<u>22.6</u>	<u>857</u>	
							<b>Pump Off</b>

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

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>BMO-2012-1M</u>	<u>0930</u>	<u>PZ</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ju</u>	<u>X</u>

**WATER LEVEL MEASUREMENT COLLECTION**

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

**WELL PURGING INFORMATION**

Purged 3 well volumes and field parameters stabilized.  
 Purged 3 well volumes based on previous water level and field parameters stabilized.  
 Purged well until field parameters stabilized.  
 Other: \_\_\_\_\_

Additional Comments: 176



# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 21, 2014
Well ID:	Burke	Weather:	Overcast, 70s
ADWR No:	212268	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	781			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	6			2	0.16
			4	0.65	
			5	1.02	
Static Water Level (ft bmp):	592.35			6	1.47
			8	2.61	
Casing Volume (gal):	277	x3 =	831	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						
9:36 AM				8.19	27.8	448.8	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Pressure tank spigot next to 20,000gal storage tank

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Burke	9:45:40 AM	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: One grab from tank due to spigot issues

Additional Comments: Short purge from tank, had abrupt stop, couldn't get water to flow from spigot. Grabbed parameter and sample from top of tank, method similar to Osborn. Hand-filter sample.

# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 10, 2014
Well ID:	Chambers	Weather:	Partly cloudy, 80s
ADWR No:	629807	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	245	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Casing Diameter (in):	6	4	0.65
		5	1.02
Static Water Level (ft bmp):		6	1.47
		8	2.61
Casing Volume (gal):	x3 =	10	4.08
Total Volume Purged (gal):	108	Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
4:12 PM	Pump On						
4:15 PM	3m	12	36	7.44	23.3	436.5	
4:18 PM	6m	12	72	7.59	22.7	436.8	
4:21 PM	9m	12	108	7.50	22.9	436.4	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Spigot near wellhead					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Chambers	16:24:04	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 9, 2014
Well ID:	COB MW-1	Weather:	Partly cloudy, 80s
ADWR No:	903992	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	420			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
		2		0.16	
Casing Diameter (in):	8			4	0.65
		5		1.02	
Static Water Level (ft bmp):	240.03			6	1.47
		8		2.61	
Casing Volume (gal):	470	x3 =	1410	10	4.08
Total Volume Purged (gal):	1400			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
10:55 AM	Pump On						
11:15 AM	20m	10	200	6.95	21.9	1728	
11:35 AM	40m	10	400	7.05	21.7	1784	
11:55 AM	60m	10	600	7.00	21.6	1836	
12:15 PM	80m	10	800	6.96	21.5	1882	
12:35 PM	100m	10	1000	6.97	21.6	1924	
12:55 PM	120m	10	1200	6.93	21.6	1952	
1:15 PM	140m	10	1400	6.95	21.5	2000	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Wellhead spigot

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
COB MW-1	13:20:11	Poly	250mL	1	300.0	NA	Y
DUP20140709	18:00	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:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 9, 2014
Well ID:	COB MW-2	Weather:	Partly cloudy, 70s
ADWR No:	903984	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	162			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	4			2	0.16
		4		4	0.65
		5		5	1.02
Static Water Level (ft bmp):	131.32			6	1.47
		8		8	2.61
Casing Volume (gal):	20	x3 =	60	10	4.08
Total Volume Purged (gal):	105			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
9:53 AM	Pump On						
9:58 AM	5m	7	35	7.53	21.1	548.1	
10:03 AM	10m	7	70	7.54	20.6	502.4	
10:08 AM	15m	7	105	7.52	20.5	503.5	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Wellhead spigot					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
COB MW-2	10:15:09	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:	Hand-filter

# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 9, 2014
Well ID:	COB MW-3	Weather:	Partly cloudy, 70s
ADWR No:	903823	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	300			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
		2		0.16	
Casing Diameter (in):	4			4	0.65
		5		1.02	
Static Water Level (ft bmp):	124.19			6	1.47
		8		2.61	
Casing Volume (gal):	115	x3 =	344	10	4.08
Total Volume Purged (gal):	342			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
9:00 AM	Pump On						
9:06 AM	6m	19	114	7.74	21.3	510.6	Faint yellow, odorless
9:12 AM	12m	19	228	7.60	21.3	521.8	Clear, odorless
9:18 AM	18m	19	342	7.61	21.4	525.3	Clear, odorless
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Wellhead spigot					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
COB MW-3	9:25:08 AM	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 9, 2014
Well ID:	COB WL	Weather:	Partly cloudy, 90s
ADWR No:	593116	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	150			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
		2		0.16	
Casing Diameter (in):	4			4	0.65
		5		1.02	
Static Water Level (ft bmp):	78.12			6	1.47
		8		2.61	
Casing Volume (gal):	47	x3 =	141	10	4.08
Total Volume Purged (gal):	123			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
2:43 PM	Pump On						
2:49 PM	6m	8	48	7.27	21.8	926	
2:55 PM	12m	8	96	7.17	21.4	1134	
3:01 PM	18m	1.5	105	7.50	22.1	1097	
3:07 PM	24m	1.5	114	7.52	21.8	1124	
3:13 PM	30m	1.5	123	7.42	21.8	1132	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Wellhead spigot					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
COB WL	3:19:34 PM	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 10, 2014
Well ID:	Cooper	Weather:	Partly cloudy, 80s
ADWR No:	623564	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	325	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Casing Diameter (in):	6	4	0.65
		5	1.02
Static Water Level (ft bmp):		6	1.47
		8	2.61
Casing Volume (gal):	x3 = 0	10	4.08
Total Volume Purged (gal):	120	Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
4:40 PM	Pump On						
4:45 PM	5m	8	40	7.56	23.1	427.8	
4:50 PM	10m	8	80	7.66	22.5	428.5	
4:55 PM	15m	8	120	7.68	22.4	428.8	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Spigot on North side of house					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Cooper	16:57:16	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:

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# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 9-21-14  
 Well ID: Cooper C Weather: Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher E. Sherman

WELL DATA		Casing Capacity	
Well Depth (ft bis): <u>220</u>		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>6"</u>		2	0.16
Static Water Level (ft bmp): <u>162.67</u>		4	0.65
Casing Volume (gal): <u>84.2 x3 = 253</u>		5	1.02
		6	1.47
		8	2.61
		10	4.08
Total Volume Purged (gal): <u>297</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>0930</u>	<b>Pump On</b>						
<u>0940</u>	<u>10</u>	<u>8.5</u>	<u>85</u>	<u>6.64</u>	<u>23.0</u>	<u>1555</u>	
<u>0950</u>	<u>20</u>	<u>8.5</u>	<u>170</u>	<u>6.65</u>	<u>23.1</u>	<u>1547</u>	
<u>1000</u>	<u>30</u>	<u>8.5</u>	<u>297</u>	<u>6.63</u>	<u>23.1</u>	<u>1548</u>	
							<b>Pump Off</b>

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

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Cooper C</u>	<u>1000</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ice</u>	<u>Y</u>

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

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

Additional Comments: 57.3



# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 14, 2014
Well ID:	Dodson	Weather:	Partly cloudy, 80s
ADWR No:	644927	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	200			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	6			2	0.16
			4	0.65	
			5	1.02	
Static Water Level (ft bmp):	95.43			6	1.47
			8	2.61	
Casing Volume (gal):	154	x3 =	461	10	4.08
Total Volume Purged (gal):	650			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
3:40 PM	Pump On						
3:50 PM	10m	13	130	7.42	21.8	1788	
4:00 PM	20m	13	260	7.25	21.2	1786	
4:10 PM	30m	13	390	7.24	21.3	1716	
4:20 PM	40m	13	520	7.33	21.7	1680	
4:30 PM	50m	13	650	7.27	21.9	1651	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Wellhead spigot

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Dodson	4:37:57 PM	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:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 7, 2014
Well ID:	Douglass 791	Weather:	Rainy, 70s
ADWR No:	592791	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	200	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Casing Diameter (in):	5	4	0.65
		5	1.02
Static Water Level (ft bmp):	28.22	6	1.47
		8	2.61
Casing Volume (gal):	x3 =	10	4.08
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

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

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

## SAMPLE INFORMATION

Sample Collection Point:

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

## WATER LEVEL MEASUREMENT COLLECTION

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

## WELL PURGING INFORMATION

- Purged 3 well volumes and field parameters stabilized.
- Purged 3 well volumes based on previous water level and field paremeters stabilized.
- Purged well until field parameters stabilized.
- Other: Pumped dry, stable parameters

Additional Comments: **WLO**

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 7, 2014
Well ID:	Douglass 792	Weather:	Rainy, 70s
ADWR No:	592792	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	200	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Casing Diameter (in):	5	4	0.65
		5	1.02
Static Water Level (ft bmp):	82.43	6	1.47
		8	2.61
Casing Volume (gal):	x3 =	10	4.08
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

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

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

## SAMPLE INFORMATION

Sample Collection Point:

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

## WATER LEVEL MEASUREMENT COLLECTION

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

## WELL PURGING INFORMATION

- Purged 3 well volumes and field parameters stabilized.
- Purged 3 well volumes based on previous water level and field parameters stabilized.
- Purged well until field parameters stabilized.
- Other: Pumped dry, stable parameters

Additional Comments: **WLO**

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 21, 2014
Well ID:	Durazo	Weather:	Sunny, 80s
ADWR No:	NR	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):				4	0.65
				5	1.02
				6	1.47
	8	2.61			
	10	4.08			
Total Volume Purged (gal):	x3 = 0		Casing Volume = gallons/foot * water 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 (S/cm)

## SAMPLE INFORMATION

Sample Collection Point:

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

## WATER LEVEL MEASUREMENT COLLECTION

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

## WELL PURGING INFORMATION

- Purged 3 well volumes and field parameters stabilized.
- Purged 3 well volumes based on previous water level and field parameters stabilized.
- Purged well until field parameters stabilized.
- Other: Pumped dry, stable parameters

**Additional Comments:**      **Unable to collect SWL or sample as well is disconnected, and sounding port is rusted shut.**

# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 8, 2014
Well ID:	East	Weather:	Partly cloudy, 90s
ADWR No:	599769	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	125			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
		2		0.16	
Casing Diameter (in):	6			4	0.65
		5		1.02	
Static Water Level (ft bmp):	72.03			6	1.47
		8		2.61	
Casing Volume (gal):	78	x3 =	233	10	4.08
Total Volume Purged (gal):	240			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
4:00 PM	Pump On						
4:08 PM	8m	10	80	7.24	21.3	612.3	
4:16 PM	16m	10	160	7.46	20.8	616.4	
4:24 PM	24m	10	240	7.43	20.7	618.8	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Wellhead spigot					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
East	4:30:13 PM	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 17, 2014
Well ID:	Echave	Weather:	Sunny, 70s
ADWR No:	219449	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	345			Casing Capacity	
Casing Diameter (in):	6			Nominal Size (inches)	Gallons per Linear Foot
				2	0.16
Static Water Level (ft bmp):	Use 218.41 from 1/18/13			4	0.65
				5	1.02
				6	1.47
				8	2.61
Casing Volume (gal):	186	x3 =	558	10	4.08
Total Volume Purged (gal):	560			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
8:37 AM	Pump On						
8:57 AM	20m	7	140	7.55	21.9	405.6	
9:17 AM	40m	7	280	7.68	21.8	405.0	
9:37 AM	60m	7	420	7.67	21.9	404.8	
9:57 AM	80m	7	560	7.68	21.6	405.0	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Well head spigot, hand-filter

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Echave	10:10:44	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: Switch to turn well on is top right.

# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 8, 2014
Well ID:	Eppele 641	Weather:	Sunny, 70s
ADWR No:	805641	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	265			Casing Capacity	
Casing Diameter (in):	8		Nominal Size (inches)	Gallons per Linear Foot	
			2	0.16	
			4	0.65	
			5	1.02	
			6	1.47	
			8	2.61	
Static Water Level (ft bmp):	66.62			10	4.08
Casing Volume (gal):	518	x3 =	1554		
Total Volume Purged (gal):	550			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
9:45 AM	Pump On						
10:00 AM	14m	10	150	7.63	21.0	584.2	
10:15 AM	29m	10	300	7.66	20.9	589.9	
10:30 AM	44m	10	450	7.65	21.0	596.9	
10:40 AM	54m	10	550				Pumped dry
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Wellhead spigot

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Eppele 641	10:55:05	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: Pumped dry, stable parameters

Additional Comments: Pumped dry at 55min, or 550gal. Wait 15min for recharge, then sample because parameters are stable.

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# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 8-21-14  
 Well ID: Equipment Blank Weather: Partly Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L. Sherman

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

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

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

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>EQD-082114</u>	<u>1430</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Flu</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: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 08-21-14  
 Well ID: Field Blank Weather: 08-21-14 Partly Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L. Shawman

### WELL DATA

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

### FIELD SAMPLING DATA

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

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

### SAMPLE INFORMATION

Sample Collection Point:

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>FB-082114</u>	<u>1440</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ice</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:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 17, 2014
Well ID:	Fleming	Weather:	Partly cloudy, 70s
ADWR No:	218386	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	445	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Casing Diameter (in):	7	4	0.65
		5	1.02
Static Water Level (ft bmp):	372.97	6	1.47
		8	2.61
Casing Volume (gal):	x3 =	10	4.08
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

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

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

## SAMPLE INFORMATION

Sample Collection Point:

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

## WATER LEVEL MEASUREMENT COLLECTION

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

## WELL PURGING INFORMATION

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

Additional Comments: **WLO**





# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 14, 2014
Well ID:	Franco 383	Weather:	Partly cloudy, 80s
ADWR No:	221383	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	711			Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot		
		2	0.16		
Casing Diameter (in):	5			4	0.65
		5	1.02		
Static Water Level (ft bmp):	196.87			6	1.47
		8	2.61		
Casing Volume (gal):	524	x3 =	1573	10	4.08
Total Volume Purged (gal):	640			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
1:50 PM	Pump On						
2:10 PM	20m	8	160	7.44	26.5	1026	
2:30 PM	40m	8	320	7.68	26.4	1029	
2:50 PM	60m	8	480	7.62	26.2	1029	
3:10 PM	80m	8	640	7.63	26.5	1030	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Spigot near pressure tanks in shed

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Franco 383	15:13:56	Poly	500mL	1	300.0	NA	Y

## WATER LEVEL MEASUREMENT COLLECTION

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

## WELL PURGING INFORMATION

- Purged 3 well volumes and field parameters stabilized.
- Purged 3 well volumes based on previous water level and field parameters stabilized.
- Purged well until field parameters stabilized.
- Other: Purge minimum 1 well volume, and stable parameters

Additional Comments:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 21, 2014
Well ID:	Goar Ranch	Weather:	Sunny, 80s
ADWR No:	610695	Sampler:	VNH

### WELL DATA

Well Depth (ft bls):	250	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Casing Diameter (in):	7	4	0.65
		5	1.02
Static Water Level (ft bmp):	191.73	6	1.47
		8	2.61
Casing Volume (gal):	x3 = 0	10	4.08
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)	

### FIELD SAMPLING DATA

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

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

### SAMPLE INFORMATION

Sample Collection Point:

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

### WATER LEVEL MEASUREMENT COLLECTION

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

### WELL PURGING INFORMATION

- Purged 3 well volumes and field parameters stabilized.
- Purged 3 well volumes based on previous water level and field parameters stabilized.
- Purged well until field parameters stabilized.
- Other: Pumped dry, stable parameters

Additional Comments: **WLO**

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# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 7-2-14  
 Well ID: Haban Weather: Partly Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher J. Sheehan

### WELL DATA

Well Depth (ft bis): <u>300</u> Casing Diameter (in): <u>5"</u> Static Water Level (ft bmp): <u>170.90</u> Casing Volume (gal): <u>132 x3 = 396</u> Total Volume Purged (gal): <u>528</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
	2	0.16
	4	0.65
	5	1.02
	6	1.47
	8	2.61
	10	4.08
Casing Volume = gallons/foot * water column (feet)		

### FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1025</u>	<b>Pump On</b>						
<u>1035</u>	<u>10</u>	<u>17.6</u>	<u>176</u>	<u>6.65</u>	<u>21.9</u>	<u>1909</u>	
<u>1045</u>	<u>20</u>	<u>17.6</u>	<u>352</u>	<u>6.68</u>	<u>21.7</u>	<u>1901</u>	
<u>1055</u>	<u>30</u>	<u>17.6</u>	<u>528</u>	<u>6.69</u>	<u>21.6</u>	<u>1903</u>	
							<b>Pump Off</b>

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

### SAMPLE INFORMATION

**Sample Collection Point:**

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Haban</u>	<u>1055</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Free</u>	<input checked="" type="checkbox"/>

### 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:**

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 14, 2014
Well ID:	Howard 312	Weather:	Sunny, 70s
ADWR No:	221312	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	980			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	5			2	0.16
			4	0.65	
			5	1.02	
Static Water Level (ft bmp):	206.97			6	1.47
			8	2.61	
Casing Volume (gal):	788	x3 =	2365	10	4.08
Total Volume Purged (gal):	800			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
9:55 AM	Pump On						
10:15 AM	20m	8	160	8.17	23.0	616.0	Clear, odorless
10:35 AM	40m	8	320	8.18	24.2	617.5	
10:55 AM	60m	8	480	8.15	25.5	618.9	
11:15 AM	80m	8	640	8.16	25.9	619.1	
11:35 AM	100m	8	800	8.16	26.6	618.3	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Spigot near pressure tank in shed

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Howard 312	11:45:43	Poly	500mL	1	300.0	NA	Y

## WATER LEVEL MEASUREMENT COLLECTION

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

## WELL PURGING INFORMATION

- Purged 3 well volumes and field parameters stabilized.
- Purged 3 well volumes based on previous water level and field parameters stabilized.
- Purged well until field parameters stabilized.
- Other: Purge minimum 1 well volume, and stable parameters

Additional Comments:

# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 14, 2014
Well ID:	Howard NR	Weather:	Sunny, 80s
ADWR No:	NR	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	220			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
		2		0.16	
Casing Diameter (in):	6			4	0.65
		5		1.02	
Static Water Level (ft bmp):	157.92			6	1.47
		8		2.61	
Casing Volume (gal):	91	x3 =	274	10	4.08
Total Volume Purged (gal):	440			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
9:05 AM	Pump On						
9:15 AM	9m	11	110	7.46	21.3	1152	Faint yellow, odorless
9:25 AM	19m	11	220	7.32	21.6	1225	Clear, odorless
9:35 AM	29m	11	330	7.25	21.2	1273	
9:45 AM	39m	11	440	7.18	21.1	1300	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Wellhead spigot

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Howard NR	9:49:31	Poly	500mL	1	300.0	NA	Y
DUP20140714	1800	Poly	500mL	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:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 10, 2014
Well ID:	Keefer	Weather:	Partly cloudy, 80s
ADWR No:	209744	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	245			Casing Capacity	
Casing Diameter (in):	6			Nominal Size (inches)	Gallons per Linear Foot
				2	0.16
Static Water Level (ft bmp):	141.97			4	0.65
				5	1.02
Casing Volume (gal):	151	x3 =	454	6	1.47
				8	2.61
				10	4.08
Total Volume Purged (gal):	450			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
12:15 PM	Pump On						
12:30 PM	15m	10	150	7.45	22.6	448.5	
12:45 PM	30m	10	300	7.52	21.6	452.7	
1:00 PM	45m	10	450	7.49	21.6	460.5	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Wellhead spigot

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Keefer	13:02:41	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 14, 2014
Well ID:	McConnell 265	Weather:	Partly cloudy, 80s
ADWR No:	539265	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	216			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	6			2	0.16
			4	0.65	
			5	1.02	
Static Water Level (ft bmp):	164.03			6	1.47
			8	2.61	
Casing Volume (gal):	76	x3 =	229	10	4.08
Total Volume Purged (gal):	270			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
12:32 PM	Pump On						
12:42 PM	10m	9	90	6.89	22.2	1962	Clear, sulphur odor
12:52 PM	20m	9	180	6.96	21.9	1977	Clear, sulphur odor
1:02 PM	30m	9	270	6.95	21.8	1941	Clear, sulphur odor
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Wellhead spigot					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
McConnell 265	13:06:14	Poly	500mL	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Sep 9, 2014
Well ID:	McConnell 459	Weather:	Sunny, 70s
ADWR No:	221459	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	863			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	5			2	0.16
			4	0.65	
			5	1.02	
Static Water Level (ft bmp):	167.37			6	1.47
			8	2.61	
Casing Volume (gal):	710	x3 =	2129	10	4.08
Total Volume Purged (gal):	825			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
9:30 AM	Pump On						
9:45 AM	15m	11	165	7.97	23.4	455.6	
10:00 AM	30m	11	330	8.12	24.1	461.1	
10:15 AM	45m	11	495	8.12	24.8	460.6	
10:30 AM	60m	11	660	8.13	25.0	466.3	
10:45 AM	75m	11	825	8.12	25.1	465.7	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Spigot near pressure-tanks in shed

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
McConnell 459	10:50:44	Poly	250mL	1	300.0	NA	Y

## WATER LEVEL MEASUREMENT COLLECTION

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

## WELL PURGING INFORMATION

- Purged 3 well volumes and field parameters stabilized.
- Purged 3 well volumes based on previous water level and field parameters stabilized.
- Purged well until field parameters stabilized.
- Other: Purge 1 well volume, stable parameters

Additional Comments:

# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 21, 2014
Well ID:	Metzler	Weather:	Sunny, 80s
ADWR No:	35-71891	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	351			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
		2		0.16	
Casing Diameter (in):	6			4	0.65
		5		1.02	
Static Water Level (ft bmp):	293.45			6	1.47
		8		2.61	
Casing Volume (gal):	x3 =	0	10	4.08	
Total Volume Purged (gal):				Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

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

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

## SAMPLE INFORMATION

Sample Collection Point:

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

## WATER LEVEL MEASUREMENT COLLECTION

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

## WELL PURGING INFORMATION

- Purged 3 well volumes and field parameters stabilized.
- Purged 3 well volumes based on previous water level and field parameters stabilized.
- Purged well until field parameters stabilized.
- Other: Pumped dry, stable parameters

Additional Comments: **WLO**

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 7, 2014
Well ID:	Ness	Weather:	Overcast, 70s
ADWR No:	509127	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	812			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	6			2	0.16
			4	0.65	
			5	1.02	
Static Water Level (ft bmp):	594.42			6	1.47
			8	2.61	
Casing Volume (gal):	320	x3 =	959	10	4.08
Total Volume Purged (gal):	960			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
11:45 AM	Pump On						
12:05 PM	20m	8	160	7.46	24.9	535.3	
12:25 PM	40m	8	320	7.58	25.2	534.2	
12:45 PM	60m	8	480	7.62	25.2	534.9	
1:05 PM	80m	8	640	7.62	25.3	536.3	
1:25 PM	100m	8	800	7.63	25.3	536.4	
1:45 PM	120m	8	960	7.60	25.3	536.6	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Spigot on storage tank.

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Ness	13:49:28	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:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 7, 2014
Well ID:	Noteman	Weather:	Overcast, rainy, 70s
ADWR No:	212483	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	470			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	5			2	0.16
			4	0.65	
			5	1.02	
Static Water Level (ft bmp):	Use 327.54 from 2/25/09			6	1.47
			8	2.61	
Casing Volume (gal):	145	x3 =	435	10	4.08
Total Volume Purged (gal):	440			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
4:00 PM	Pump On						
4:10 PM	10m	11	110	6.83	23.2	1428	
4:20 PM	20m	11	220	6.84	23.3	1421	
4:30 PM	30m	11	330	6.86	23.4	1420	
4:40 PM	40m	11	440	6.80	23.2	1423	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Yard spigot under fake rock

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Noteman	16:43:56	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: 287030 Client: Freeport Copper Queen Branch  
 Task No: 1.0 Date: 9-23-14  
 Well ID: NSO-02 Weather: ~~9-23-14~~  
 ADWR No: \_\_\_\_\_ Sampler: BSD

WELL DATA		
Well Depth (ft bls): <u>/</u>	Casing Capacity	
Casing Diameter (in): <u>/</u>	Nominal Size (inches)	Gallons per Linear Foot
Static Water Level (ft bmp): <u>104.77</u>	2	0.16
Casing Volume (gal): <u>/</u> x3 =	4	0.65
Total Volume Purged (gal): <u>/</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
	Pump On						
WLO - NO SAMPLE							
							Pump Off

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

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

**WATER LEVEL MEASUREMENT COLLECTION**

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: Kevin Quint, Rick Lopez (AWC), f Nick w Test America. all onsite.

# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: 1.0 Date: 9-23-14  
 Well ID: 89 NSD-03 Weather: Sunny 70's  
 ADWR No: \_\_\_\_\_ Sampler: BSD

WELL DATA		
Well Depth (ft bls):	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	2	0.16
Static Water Level (ft bmp): <u>89.1</u>	4	0.65
Casing Volume (gal): <u>x3 =</u>	5	1.02
	6	1.47
	8	2.61
	10	4.08
Total Volume Purged (gal):	Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
							WLO - NO SAMPLE
							Pump Off

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

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

**WATER LEVEL MEASUREMENT COLLECTION**

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: Kevin Quint, Nick from Test America and BSD.

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 10, 2014
Well ID:	NWC-02	Weather:	Sunny, 80s
ADWR No:	562944	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	312	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Casing Diameter (in):	6	4	0.65
		5	1.02
Static Water Level (ft bmp):		6	1.47
		8	2.61
Casing Volume (gal):	x3 =	10	4.08
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
10:20 AM				7.60	22.4	429.7	
10:25 AM				7.59	22.1	430.9	
10:30 AM				7.57	22.0	431.6	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Hand-filter from wellhead spigot

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NWC-02	10:37:54	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: Hand-filter

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 10, 2014
Well ID:	NWC-03 CAP	Weather:	Sunny, 60s
ADWR No:	627684	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	179	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Casing Diameter (in):	8	4	0.65
		5	1.02
Static Water Level (ft bmp):	137.30	6	1.47
		8	2.61
Casing Volume (gal):	x3 =	10	4.08
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

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

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

## SAMPLE INFORMATION

Sample Collection Point:

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

## WATER LEVEL MEASUREMENT COLLECTION

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

## WELL PURGING INFORMATION

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

Additional Comments:	<b>WLO</b>



# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 10, 2014
Well ID:	NWC-04	Weather:	Sunny, 70s
ADWR No:	551849	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	462	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Casing Diameter (in):	10	4	0.65
		5	1.02
Static Water Level (ft bmp):		6	1.47
		8	2.61
Casing Volume (gal):	x3 =	10	4.08
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
8:35 AM				7.49	23.9	823.8	
8:40 AM				7.49	23.8	827.3	
8:45 AM				7.57	23.8	826.2	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Hand-filter from wellhead spigot

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NWC-04	8:55:10	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: Hand-filter

# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Aug 11, 2014
Well ID:	NWC-04	Weather:	Sunny, 70s
ADWR No:	551849	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	462		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot	
Casing Diameter (in):	10		2	0.16
			4	0.65
			5	1.02
Static Water Level (ft bmp):			6	1.47
			8	2.61
Casing Volume (gal):	x3 =		10	4.08
Total Volume Purged (gal):	Casing Volume = gallons/foot * water column (feet)			

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
10:10 AM				7.53	24.5	818.1	
10:15 AM				7.60	23.7	819.2	
10:20 AM				7.59	23.5	824.0	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Hand-filter from wellhead spigot					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NWC-04	10:28:32	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: Hand-filter

# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Sep 9, 2014
Well ID:	NWC-04	Weather:	Sunny, 70s
ADWR No:	551849	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	462	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Casing Diameter (in):	10	4	0.65
		5	1.02
Static Water Level (ft bmp):		6	1.47
		8	2.61
Casing Volume (gal):	x3 =	10	4.08
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
8:38 AM				7.56	23.5	809.1	
8:43 AM				7.48	23.9	796.6	
8:48 AM				7.50	24.0	789.5	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Hand-filter from wellhead spigot							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NWC-04	8:55:04	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: Hand-filter

# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 10, 2014
Well ID:	NWC-06	Weather:	Sunny, 80s
ADWR No:	575700	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	340		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot	
Casing Diameter (in):	8		2	0.16
			4	0.65
			5	1.02
Static Water Level (ft bmp):			6	1.47
			8	2.61
Casing Volume (gal):	x3 =		10	4.08
Total Volume Purged (gal):	Casing Volume = gallons/foot * water column (feet)			

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
	Pump On						
9:40 AM				7.53	22.9	400.6	
9:45 AM				7.66	22.3	406.1	
9:50 AM				7.68	22.4	405.9	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Hand-filter from wellhead spigot							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
NWC-06	10:00:40	Poly	250mL	1	300.0	NA	Y
DUP20140710	18:00	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: Hand-filter

# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 7, 2014
Well ID:	Osborn	Weather:	Overcast, 70s
ADWR No:	643436	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	258	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	8	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):	90	Casing Volume = gallons/foot * water 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						
3:24 PM				7.84	29.2	496.3	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Spigot on east side of house					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Osborn	15:30:47	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: Sample from tank, hand filter

Additional Comments:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 17, 2014
Well ID:	Panagakos	Weather:	Overcast, 70s
ADWR No:	35-76413	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	200			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	8			2	0.16
			4	0.65	
			5	1.02	
Static Water Level (ft bmp):	159.69			6	1.47
			8	2.61	
Casing Volume (gal):	105	x3 =	316	10	4.08
Total Volume Purged (gal):	315			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
3:20 PM	Pump On						
3:35 PM	15m	7	105	7.11	22.1	1311.0	
3:50 PM	30m	7	210	7.09	21.5	1348.0	
4:05 PM	45m	7	315	7.13	21.4	1357.0	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Spigot ~50ft southeast from well head							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Panagakos	16:07:26	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: Dig out valve to allow water to flow from well. When finished, return to original closed position

# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 21, 2014
Well ID:	Parra	Weather:	Sunny, 80s
ADWR No:	576415	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	355			Casing Capacity		
Casing Diameter (in):	6			Nominal Size (inches)	Gallons per Linear Foot	
				2	0.16	
				4	0.65	
				5	1.02	
				6	1.47	
				8	2.61	
Static Water Level (ft bmp):	Use 280.99 from 7/20/09			10	4.08	
Casing Volume (gal):	109	x3 =	327	Casing Volume = gallons/foot * water column (feet)		
Total Volume Purged (gal):	336					

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
12:08 PM	Pump On						
12:16 PM	8m	14	112	7.11	22.8	1192	
12:24 PM	16m	14	224	7.34	22.5	1189	
12:32 PM	24m	14	336	7.30	22.4	1193	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Wellhead spigot					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Parra	12:35:14	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 11, 2014
Well ID:	Pionke 517	Weather:	Sunny, 80s
ADWR No:	221517	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	604			Casing Capacity	
Casing Diameter (in):	5			Nominal Size (inches)	Gallons per Linear Foot
				2	0.16
Static Water Level (ft bmp):	153.56			4	0.65
				5	1.02
				6	1.47
				8	2.61
Casing Volume (gal):	459	x3 =	1378	10	4.08
Total Volume Purged (gal):	1440			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
12:00 PM	Pump On						
12:20 PM	20m	12	240	7.72	22.8	390.2	
12:40 PM	40m	12	480	7.69	23.4	390.3	
1:00 PM	60m	12	720	7.75	23.4	389.2	
1:20 PM	80m	12	960	7.77	23.3	389.4	
1:40 PM	100m	12	1200	7.72	23.5	388.7	
2:00 PM	120m	12	1440	7.76	23.7	388.9	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Spigot near pressure tanks in shed

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Pionke 517	14:05:45	Poly	250mL	1	300.0	NA	Y

## WATER LEVEL MEASUREMENT COLLECTION

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

## WELL PURGING INFORMATION

- Purged 3 well volumes and field parameters stabilized.
- Purged 3 well volumes based on previous water level and field parameters stabilized.
- Purged well until field parameters stabilized.
- Other: Purge minimum 1 well volume, and stable parameters

Additional Comments:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 17, 2014
Well ID:	Power 639	Weather:	Overcast, 80s
ADWR No:	222639	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	480			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
		2		0.16	
Casing Diameter (in):	6			4	0.65
		5		1.02	
Static Water Level (ft bmp):	294.32			6	1.47
		8		2.61	
Casing Volume (gal):	273	x3 =	818	10	4.08
Total Volume Purged (gal):	825			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
12:22 PM	Pump On						
12:37 PM	15m	11	165	7.61	22.1	646.3	
12:52 PM	30m	11	330	7.54	22.2	715.7	
1:07 PM	45m	11	495	7.48	21.9	810.2	
1:22 PM	60m	11	660	7.42	22.1	845.6	
1:37 PM	75m	11	825	7.40	22.1	861.3	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Wellhead spigot					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Power 639	13:40:57	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Aug 11, 2014
Well ID:	Power 639	Weather:	Sunny, 70s
ADWR No:	222639	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	480			Casing Capacity	
Casing Diameter (in):	6			Nominal Size (inches)	Gallons per Linear Foot
				2	0.16
Static Water Level (ft bmp):	294.44			4	0.65
				5	1.02
Casing Volume (gal):	273	x3 =	818	6	1.47
				8	2.61
				10	4.08
Total Volume Purged (gal):	800			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
8:25 AM	Pump On						
8:45 AM	20m	10	200	7.83	21.8	631.2	
9:05 AM	40m	10	400	7.56	21.8	780.9	
9:25 AM	60m	10	600	7.51	21.7	841.1	
9:45 AM	80m	10	800	7.50	21.8	864.9	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Wellhead spigot					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Power 639	9:49:27	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Sep 9, 2014
Well ID:	Power 639	Weather:	Sunny, 80s
ADWR No:	222639	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	480			Casing Capacity	
Casing Diameter (in):	6			Nominal Size (inches)	Gallons per Linear Foot
				2	0.16
Static Water Level (ft bmp):	294.47			4	0.65
				5	1.02
				6	1.47
Casing Volume (gal):	273	x3 =	818	8	2.61
				10	4.08
Total Volume Purged (gal):	900			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
11:15 AM	Pump On						
11:30 AM	15m	12	180	7.56	22.2	516.0	
11:45 AM	30m	12	360	7.57	21.9	702.4	
12:00 PM	45m	12	540	7.51	21.8	793.3	
12:15 PM	60m	12	720	7.51	21.7	830.7	
12:30 PM	75m	12	900	7.49	21.7	850.4	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Wellhead spigot

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Power 639	12:34:11	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 10, 2014
Well ID:	Ramirez	Weather:	Partly cloudy, 80s
ADWR No:	216425	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	300	Casing Capacity	
Casing Diameter (in):	6	Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Static Water Level (ft bmp):	Use 164.85 from 4/14/14	4	0.65
		5	1.02
Casing Volume (gal):	199      x3 =      597	6	1.47
		8	2.61
		10	4.08
Total Volume Purged (gal):	600	Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
2:45 PM	Pump On						
3:00 PM	15m	10	150	7.59	23.6	411.3	
3:15 PM	30m	10	300	7.54	23.1	413.5	
3:30 PM	45m	10	450	7.56	23.6	412.8	
3:45 PM	60m	10	600	7.58	23.2	413.5	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Wellhead spigot

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Ramirez	15:50:11	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 8, 2014
Well ID:	Ray	Weather:	Sunny, 80s
ADWR No:	803772	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	100			Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot		
		2	0.16		
Casing Diameter (in):	8			4	0.65
		5	1.02		
Static Water Level (ft bmp):	43.38			6	1.47
		8	2.61		
Casing Volume (gal):	148	x3 =	444	10	4.08
Total Volume Purged (gal):	455			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
11:17 AM	Pump On						
11:30 AM	13m	7	91	7.11	21.3	1398	
11:43 AM	26m	7	182	7.14	21.1	1391	
11:56 AM	39m	7	273	7.13	21.0	1402	
12:09 PM	52m	7	364	7.13	21.1	1407	
12:22 PM	65m	7	455	7.14	21.4	1409	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Wellhead spigot

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Ray	12:27:40	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 18, 2014
Well ID:	Rogers 596	Weather:	Sunny, 80s
ADWR No:	573596	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	290			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	6			2	0.16
			4	0.65	
			5	1.02	
Static Water Level (ft bmp):	140.64			6	1.47
			8	2.61	
Casing Volume (gal):	x3 =	0	10	4.08	
Total Volume Purged (gal):				Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

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

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

## SAMPLE INFORMATION

Sample Collection Point:

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

## WATER LEVEL MEASUREMENT COLLECTION

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

## WELL PURGING INFORMATION

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

Additional Comments:	WLO



# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 18, 2014
Well ID:	Rogers 803	Weather:	Sunny, 80s
ADWR No:	641803	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	140	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in):	6	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):	~45	Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
10:50 AM	Pump On						
10:55 AM	5m	3	15	7.46	25.2	710.9	
11:00 AM	10m	3	30	7.50	24.7	711.7	
11:05 AM	15m	3	45	7.48	24.9	709.2	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Spigot in well shed					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Rogers 803	11:08:23	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: SWL from Rogers 596 is below Total Depth of Rogers 803.

# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 10, 2014
Well ID:	Rogers, E	Weather:	Sunny, 80s
ADWR No:	216018	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	285			Casing Capacity		
Casing Diameter (in):	6			Nominal Size (inches)	Gallons per Linear Foot	
				2	0.16	
				4	0.65	
				5	1.02	
				6	1.47	
				8	2.61	
Static Water Level (ft bmp):	Use 155.97 from April 14, 2014			10	4.08	
Casing Volume (gal):	190	x3 =	570	Casing Volume = gallons/foot * water column (feet)		
Total Volume Purged (gal):	600					

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
10:53 AM	Pump On						
11:08 AM	14m	10	150	7.46	23.0	425.5	
11:23 AM	29m	10	300	7.52	22.4	428.2	
11:38 AM	44m	10	450	7.53	22.3	429.8	
11:53 AM	59m	10	600	7.54	22.4	428.5	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Wellhead spigot

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Rogers, E	11:55:26	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Aug 11, 2014
Well ID:	Ruiz	Weather:	Sunny, 70s
ADWR No:	531770	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	312			Casing Capacity	
Casing Diameter (in):	6			Nominal Size (inches)	Gallons per Linear Foot
				2	0.16
Static Water Level (ft bmp):	Unable to get water level, use 300.31 from April 15, 2014			4	0.65
				5	1.02
				6	1.47
				8	2.61
Casing Volume (gal):	17	x3 =	51	10	4.08
Total Volume Purged (gal):	60			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
11:08 AM	Pump On						
11:13 AM	5m	4	20	7.30	21.0	866.2	
11:18 AM	10m	4	40	7.33	21.1	871.3	
11:23 AM	15m	4	60	7.32	21.2	869.2	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Wellhead spigot					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Ruiz	11:25:08	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 18, 2014
Well ID:	Schwartz	Weather:	Sunny, 80s
ADWR No:	210865	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	305			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
		2		0.16	
Casing Diameter (in):	6			4	0.65
		5		1.02	
Static Water Level (ft bmp):	129.81			6	1.47
		8		2.61	
Casing Volume (gal):	257	x3 =	772	10	4.08
Total Volume Purged (gal):	800			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
8:22 AM	Pump On						
8:42 AM	20m	10	200	7.55	21.8	790.6	
9:02 AM	40m	10	400	7.46	21.9	791.3	
9:22 AM	60m	10	600	7.50	21.7	792.1	
9:42 AM	80m	10	800	7.45	21.8	790.5	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Wellhead spigot					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Schwartz	9:47:11	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: Sounder still gets a bit stuck at ~26 ft, keep trying,

# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 8, 2014
Well ID:	Stephens	Weather:	Sunny, 90s
ADWR No:	808560	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Casing Diameter (in):		4	0.65
		5	1.02
Static Water Level (ft bmp):	45.39	6	1.47
		8	2.61
Casing Volume (gal):	x3 = 0	10	4.08
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

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

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

## SAMPLE INFORMATION

Sample Collection Point: Wellhead spigot

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

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 8, 2014
Well ID:	Sunbelt	Weather:	Sunny, 70s
ADWR No:	201531	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	380	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Casing Diameter (in):	6	4	0.65
		5	1.02
Static Water Level (ft bmp):	DRY	6	1.47
		8	2.61
Casing Volume (gal):	x3 =	10	4.08
Total Volume Purged (gal):		Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

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

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

## SAMPLE INFORMATION

Sample Collection Point:

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

## WATER LEVEL MEASUREMENT COLLECTION

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

## WELL PURGING INFORMATION

- Purged 3 well volumes and field parameters stabilized.
- Purged 3 well volumes based on previous water level and field parameters stabilized.
- Purged well until field parameters stabilized.
- Other: Pumped dry, stable parameters

Additional Comments: **WLO- Unable to get SWL, well is DRY**

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 7, 2014
Well ID:	Swan	Weather:	Overcast, 70s
ADWR No:	NR	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	98			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	4			2	0.16
			4	0.65	
			5	1.02	
Static Water Level (ft bmp):	33.68			6	1.47
			8	2.61	
Casing Volume (gal):	42	x3 =	126	10	4.08
Total Volume Purged (gal):	135			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
2:33 PM	Pump On						
2:38 PM	5m	9	45	7.41	22.7	467.9	
2:43 PM	10m	9	90	7.42	22.1	468.8	
2:48 PM	15m	9	135	7.44	21.8	464.7	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Spigot on storage tank.

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Swan	14:51:46	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 21, 2014
Well ID:	Thompson 151	Weather:	Partly cloudy, 80s
ADWR No:	612151	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	210			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
		2		0.16	
Casing Diameter (in):	7			4	0.65
		5		1.02	
Static Water Level (ft bmp):	167.78			6	1.47
		8		2.61	
Casing Volume (gal):	x3 =	0	10	4.08	
Total Volume Purged (gal):				Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

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

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

## SAMPLE INFORMATION

Sample Collection Point:

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

## WATER LEVEL MEASUREMENT COLLECTION

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

## WELL PURGING INFORMATION

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

Additional Comments: **WLO**

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 21, 2014
Well ID:	Thompson 341	Weather:	Partly cloudy, 80s
ADWR No:	218341	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	285			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	7			2	0.16
			4	0.65	
			5	1.02	
Static Water Level (ft bmp):	Use 167.78 from Thompson 151			6	1.47
			8	2.61	
Casing Volume (gal):	234	x3 =	702	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						
10:30 AM				7.43	24.6	423.6	
10:35 AM				7.49	22.5	422.5	
10:40 AM				7.47	22.1	423.3	
10:45 AM				7.48	22.3	414.2	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Wellhead spigot, hand-filter

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Thompson 341	10:55:29	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: Intermittent purge as tank is very full

Additional Comments: Owner requested we don't overfill tank during purge: intermittent pumping.

# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 8-12-14  
 Well ID: TM-2A Weather: Partly Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L Sherman

WELL DATA		Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
Well Depth (ft bls): <u>925</u>		2	0.16
Casing Diameter (in): <u>4"</u>		4	0.65
Static Water Level (ft bmp): <u>338.50</u>		5	1.02
Casing Volume (gal): <u>381.2 x3 = 1143.6</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>0830</u>	<u>Pump On</u>						
<u>0835</u>	<u>5</u>	<u>7.5</u>	<u>32</u>	<u>7.25</u>	<u>24.9</u>	<u>370</u>	
<u>0930</u>	<u>60</u>	<u>5.5</u>	<u>450</u>	<u>7.31</u>	<u>25.0</u>	<u>376</u>	
<u>1010</u>	<u>100</u>	<u>3.2</u>	<u>120</u>	<u>7.71</u>	<u>25.1</u>	<u>378</u>	
<u>1110</u>	<u>160</u>	<u>1.86</u>		<u>7.70</u>	<u>25.1</u>	<u>377</u>	
<u>1150</u>	<u>200</u>	<u>1.25</u>	<u>912</u>	<u>7.25</u>	<u>25.2</u>	<u>379</u>	
<u>1250</u>	<u>260</u>	<u>1.25</u>	<u>987</u>	<u>7.71</u>	<u>24.9</u>	<u>379</u>	<u>BS 1300</u>
<u>1010</u>				<u>7.68</u>	<u>24.8</u>	<u>370</u>	<u>479.66 8-14-14 -</u>
<u>1030</u>				<u>7.65</u>	<u>24.7</u>	<u>392</u>	
<u>1050</u>				<u>7.62</u>	<u>24.7</u>	<u>395</u>	<u>Pump Off Sampled</u>

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

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>TM-2A</u>	<u>1050</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ic</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: 596.6

8-14-14 = 0950 pump on



# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 7-21-14  
 Well ID: JM-6 Weather: Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L Shuman

WELL DATA		Casing Capacity	
Well Depth (ft bls): <u>200</u>		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>4"</u>		2	0.16
Static Water Level (ft bmp): <u>112.60</u>		4	0.65
Casing Volume (gal): <u>24.3</u> x3 = <u>73</u>		5	1.02
		6	1.47
		8	2.61
		10	4.08
Total Volume Purged (gal): <u>172</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>1500</u>	<b>Pump On</b>						
<u>1505</u>	<u>5</u>	<u>11.5</u>	<u>57</u>	<u>7.15</u>	<u>20.1</u>	<u>551</u>	
<u>1510</u>	<u>10</u>	<u>11.5</u>	<u>115</u>	<u>7.15</u>	<u>19.8</u>	<u>553</u>	
<u>1515</u>	<u>15</u>	<u>11.5</u>	<u>172</u>	<u>7.17</u>	<u>19.9</u>	<u>551</u>	
							<b>Pump Off</b>

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

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>JM-6</u>	<u>1515</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ja</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:  
97.4



# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 8-21-14  
 Well ID: TM-7 Weather: Partly Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher R. Stevens

### WELL DATA

Well Depth (ft bls): _____	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): _____	2	0.16
Static Water Level (ft bmp): _____	4	0.65
Casing Volume (gal): _____ x3 = _____	5	1.02
	6	1.47
	8	2.61
	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
1330	Pump On						
1332	2	10	20	6.76	20.7	651	
1342	-			7.25	20.5	352	
1344	4	10	40				
1354	-			7.30	20.6	346	
1356	6	10	60				
1406	-			7.35	20.6	358	
1408	8	10	80				
							Pump Off
FIELD PARAMETER STABILIZATION: Three consecutive readings within 0.3 su pH, 2 degrees C, and 100 µS/cm							

### SAMPLE INFORMATION

Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TM-7	1408	PL	250	1	300	Ice	X

### WATER LEVEL MEASUREMENT COLLECTION

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

### WELL PURGING INFORMATION

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

Additional Comments: TM-7 sampled per Clear Creek method



# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 15, 2014
Well ID:	TM-10	Weather:	Partly Cloudy, 70s
ADWR No:	522696	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	290			Casing Capacity	
Casing Diameter (in):	4			Nominal Size (inches)	Gallons per Linear Foot
				2	0.16
Static Water Level (ft bmp):	271.03			4	0.65
				5	1.02
Casing Volume (gal):	12	x3 =	37	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
3:24 PM	Pump On						
3:32 PM				7.82	21.6	422.7	
3:42 PM				7.95	21.4	422.8	
3:52 PM				7.86	21.4	421.9	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Spigot near pressure tanks in shed					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TM-10	15:57:31	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:	Wait 10min between readings for recharge
	Hand-Filter

# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 7-22-14  
 Well ID: TM-15 Weather: Partly Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L. Shorman

### WELL DATA

Well Depth (ft bbs): <u>325</u> Casing Diameter (in): <u>4"</u> Static Water Level (ft bmp): <u>N/A</u> Casing Volume (gal): <u>x3 =</u> Total Volume Purged (gal): <u>420</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
	2	0.16
	4	0.65
	5	1.02
	6	1.47
	8	2.61
	10	4.08
Casing Volume = gallons/foot * water column (feet)		

### FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1200</u>	<b>Pump On</b>						
<u>1220</u>	<u>20</u>	<u>7</u>	<u>140</u>	<u>7.11</u>	<u>23.6</u>	<u>408</u>	
<u>1240</u>	<u>40</u>	<u>7</u>	<u>280</u>	<u>7.15</u>	<u>23.8</u>	<u>407</u>	
<u>1300</u>	<u>60</u>	<u>7</u>	<u>420</u>	<u>7.18</u>	<u>23.2</u>	<u>407</u>	
							<b>Pump Off</b>

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

### SAMPLE INFORMATION

**Sample Collection Point:**

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>TM-15</u>	<u>1300</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>DL</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:**

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# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 8-4-14  
 Well ID: TM-16 Weather: Partly Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L. Gove

### WELL DATA

Well Depth (ft bbs): <u>115</u> Casing Diameter (in): <u>4"</u> Static Water Level (ft bmp): <u>62.55</u> Casing Volume (gal): <u>34 x 3 = 102</u> Total Volume Purged (gal): _____	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
	2	0.16
	4	0.65
	5	1.02
	6	1.47
	8	2.61
	10	4.08
Casing Volume = gallons/foot * water column (feet)		

### FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1940</u>	<b>Pump On</b>						
<u>1945</u>	<u>5</u>	<u>21</u>	<u>105</u>	<u>6.74</u>	<u>20.8</u>	<u>1369</u>	
<u>1950</u>	<u>10</u>	<u>21</u>	<u>210</u>	<u>6.78</u>	<u>20.6</u>	<u>1367</u>	
<u>1955</u>	<u>15</u>	<u>21</u>	<u>315</u>	<u>6.79</u>	<u>20.6</u>	<u>1368</u>	
							<b>Pump Off</b>

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

### SAMPLE INFORMATION

Sample Collection Point: \_\_\_\_\_

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>TM-16</u>	<u>1955</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>PC</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: 92.4

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# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 7-27-14  
 Well ID: TM-19A Weather: Sunny  
 ADWR No: \_\_\_\_\_ Sampler: Christopher L. Sherris

### WELL DATA

Well Depth (ft bls): <u>700</u> Casing Diameter (in): <u>4"</u> Static Water Level (ft bmp): <u>210.56</u> Casing Volume (gal): <u>318.1 x3 = 955</u> Total Volume Purged (gal): <u>1000</u>	Casing Capacity	
	Nominal Size (inches)	Gallons per Linear Foot
	2	0.16
	4	0.65
	5	1.02
	6	1.47
	8	2.61
	10	4.08
Casing Volume = gallons/foot * water column (feet)		

### FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1115</u>	<u>Pump On</u>						
<u>1130</u>	<u>15</u>	<u>25</u>	<u>375</u>	<u>7.06</u>	<u>24.2</u>	<u>539</u>	
<u>1140</u>	<u>25</u>	<u>25</u>	<u>625</u>	<u>7.05</u>	<u>24.3</u>	<u>541</u>	
<u>1155</u>	<u>40</u>	<u>25</u>	<u>1000</u>	<u>7.06</u>	<u>24.2</u>	<u>542</u>	
							<u>Pump Off</u>

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

### SAMPLE INFORMATION

**Sample Collection Point:**

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>TM-19A</u>	<u>1155</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Ice</u>	<u>X</u>

### WATER LEVEL MEASUREMENT COLLECTION

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

### WELL PURGING INFORMATION

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

**Additional Comments:**

489.4



# Groundwater Sampling Form

Project No: 287030 Client: Freeport Copper Queen Branch  
 Task No: \_\_\_\_\_ Date: 7-21-14  
 Well ID: Tm-42 Weather: Partly Cloudy  
 ADWR No: \_\_\_\_\_ Sampler: Christopher J. Shuman

WELL DATA		Casing Capacity	
Well Depth (ft bls): <u>250</u>		Nominal Size (inches)	Gallons per Linear Foot
Casing Diameter (in): <u>54</u>		2	0.16
Static Water Level (ft bmp): <u>218.33</u>		4	0.65
Casing Volume (gal): <u>32.3 x 3 = 97</u>		5	1.02
		6	1.47
		8	2.61
		10	4.08
Total Volume Purged (gal): _____		Casing Volume = gallons/foot * water column (feet)	

FIELD SAMPLING DATA							
Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
<u>1245</u>							<b>Pump On</b>
<u>1255</u>	<u>10</u>	<u>5</u>	<u>50</u>	<u>6.86</u>	<u>21.8</u>	<u>1201</u>	
<u>1305</u>	<u>20</u>	<u>5</u>	<u>100</u>	<u>6.82</u>	<u>21.5</u>	<u>1202</u>	
<u>1315</u>	<u>30</u>	<u>5</u>	<u>150</u>	<u>6.85</u>	<u>21.4</u>	<u>1205</u>	
							<b>Pump Off</b>

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

SAMPLE INFORMATION							
Sample Collection Point:							
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
<u>Tm-42</u>	<u>1315</u>	<u>PL</u>	<u>250</u>	<u>1</u>	<u>300</u>	<u>Doc</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: 31.7

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 16, 2014
Well ID:	TVI 236	Weather:	Partly cloudy, 70s
ADWR No:	568875	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	222			Casing Capacity	
Casing Diameter (in):	12			Nominal Size (inches)	Gallons per Linear Foot
				2	0.16
Static Water Level (ft bmp):	129.24			4	0.65
				5	1.02
Casing Volume (gal):	545	x3 =	1635	6	1.47
				8	2.61
Total Volume Purged (gal):	1500			Casing Volume = gallons/foot * water column (feet)	
			10	4.08	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
3:55 PM	Pump On						
4:00 PM	5m	100	500	7.37	22.0	519.6	
4:05 PM	10m	100	1000	7.42	21.2	517.0	
4:10 PM	15m	100	1500	7.41	21.1	517.3	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Spigot under green box

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TVI 236	16:22:13	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: Hand-filter



# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 16, 2014
Well ID:	TVI 875	Weather:	Partly cloudy, 70s
ADWR No:	568875	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	330	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Casing Diameter (in):	8	4	0.65
		5	1.02
Static Water Level (ft bmp):		6	1.47
		8	2.61
Casing Volume (gal):	x3 =	10	4.08
Total Volume Purged (gal):	4500	Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
3:06 PM	Pump On						
3:09 PM	3m	500	1500	7.33	22.3	955.6	
3:12 PM	6m	500	3000	7.28	21.6	948.3	
3:15 PM	9m	500	4500	7.30	21.6	940.2	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Spigot under green box					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
TVI 875	15:21:58	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 18, 2014
Well ID:	Weed	Weather:	Sunny, 80s
ADWR No:	544535	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	320	Casing Capacity	
		Nominal Size (inches)	Gallons per Linear Foot
		2	0.16
Casing Diameter (in):	6	4	0.65
		5	1.02
Static Water Level (ft bmp):		6	1.47
		8	2.61
Casing Volume (gal):	x3 = 0	10	4.08
Total Volume Purged (gal):	225	Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
5:02 PM	Pump On						
5:07 PM	5m	15	75	7.72	21.7	387.3	
5:12 PM	10m	15	150	7.77	21.3	386.5	
5:17 PM	15m	15	225	7.79	21.4	386.7	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Yard spigot under fake rock

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Weed	17:20:07	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 18, 2014
Well ID:	Weiskopf 802	Weather:	Sunny, 80s
ADWR No:	641802	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	200			Casing Capacity	
			Nominal Size (inches)	Gallons per Linear Foot	
Casing Diameter (in):	6			2	0.16
				4	0.65
				5	1.02
Static Water Level (ft bmp):	150.85			6	1.47
				8	2.61
Casing Volume (gal):	72	x3 =	217	10	4.08
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
2:00 PM	Pump On						
2:15 PM	15m	4	60	7.49	28.8	583.9	
2:30 PM	30m	4	120	7.43	24.9	925.3	
2:45 PM	45m	4	180	7.25	24.0	1216	
3:00 PM	60m	4	240	7.24	23.7	1315	
3:15 PM	75m	4	300	7.20	23.5	1356	
3:30 PM	90m	4	360	7.17	23.3	1375	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point:		Spigot off garage, near wellhead					
Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Weiskopf 802	15:31:23	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:

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# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 18, 2014
Well ID:	Weiskopf 897	Weather:	Sunny, 80s
ADWR No:	221897	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	1030			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
Casing Diameter (in):	5			2	0.16
			4	0.65	
			5	1.02	
Static Water Level (ft bmp):	150.55			6	1.47
			8	2.61	
Casing Volume (gal):	897	x3 =	2691	10	4.08
Total Volume Purged (gal):	840			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
3:40 PM	Pump On						
3:55 PM	15m	14	210	7.85	23.4	387.9	
4:10 PM	30m	14	420	7.97	24.0	387.5	
4:25 PM	45m	14	630	7.92	23.9	387.2	
4:40 PM	60m	14	840	7.87	23.9	387.4	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Spigot near pressure tanks in shed

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Weiskopf 897	16:43:02	Poly	250mL	1	300.0	NA	Y

## WATER LEVEL MEASUREMENT COLLECTION

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

## WELL PURGING INFORMATION

- Purged 3 well volumes and field parameters stabilized.
- Purged 3 well volumes based on previous water level and field parameters stabilized.
- Purged well until field parameters stabilized.
- Other: Purge 1 well volume, stable parameters

Additional Comments:

# Groundwater Sampling Form

Project No:	287030	Client:	Freeport Copper Queen Branch
Task No:	1	Date:	Jul 17, 2014
Well ID:	Zander	Weather:	Overcast, 80s
ADWR No:	205126	Sampler:	VNH

## WELL DATA

Well Depth (ft bls):	280			Casing Capacity	
		Nominal Size (inches)		Gallons per Linear Foot	
		2		0.16	
Casing Diameter (in):	6			4	0.65
		5		1.02	
Static Water Level (ft bmp):	152.02			6	1.47
		8		2.61	
Casing Volume (gal):	188	x3 =	564	10	4.08
Total Volume Purged (gal):	600			Casing Volume = gallons/foot * water column (feet)	

## FIELD SAMPLING DATA

Time	Elapsed Time (min)	Discharge Rate (gpm)	Total Discharge (gallons)	pH (SU)	Temp (°C)	Specific Conductance (µS/cm)	Comments
10:45 AM	Pump On						
11:00 AM	15m	10	150	7.56	22.1	431.3	
11:15 AM	30m	10	300	7.59	21.6	431.5	
11:30 AM	45m	10	450	7.60	21.6	431.7	
11:45 AM	60m	10	600	7.61	21.5	432.0	
							Pump Off

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

## SAMPLE INFORMATION

Sample Collection Point: Wellhead spigot

Sample ID	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Filtered (y/n)
Zander	11:52:31	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:

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