



**SECOND QUARTER 2011 MONITORING REPORT  
UIC PERMIT AZ396000001 AND APP PERMIT 101704  
FLORENCE COPPER PROJECT, FLORENCE, ARIZONA**

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**Curis Resources (Arizona) Inc.  
1575 W. Hunt Highway  
Florence, AZ 85132**

**July 28, 2011**



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Ms. Nancy Rumrill  
U.S. Environmental Protection Agency  
Region 9, Ground Water Office, WTR-9  
75 Hawthorne Street  
San Francisco, California 94105-3901

Subject: Second Quarter 2011 Monitoring Report  
Underground Injection Control (UIC) Permit Number AZ396000001

Dear Ms. Rumrill:

As you are aware, in February 2010, Curis Resources (Arizona) Inc. (Curis Arizona) purchased all of the assets of Florence Copper and the right to apply for the transfer of its permits to Curis Arizona, including the Aquifer Protection Permit (APP) and the UIC Permit. Curis Arizona submitted a UIC Permit application in March 2011 and, although the permit transfer is not complete, Curis Arizona is assuming the compliance obligations of those permits and is submitting this report in accordance with the reporting requirements of Parts II.G.2.(a) through (j) of the UIC Permit No. AZ396000001 issued by the United States Environmental Protection Agency (USEPA) on May 1, 1997. The Florence Copper Project is also subject to the requirements of APP No. 101704 issued by the Arizona Department of Environmental Quality (ADEQ) on June 9, 1997, and last amended on July 16, 2004.

This report pertains to monitoring activities conducted at the Florence Copper Project from April 1 through June 30, 2011. Copies of records required by Part II.G.1 are maintained at the mine site along with other information that is summarized below.

As you are aware, Florence Copper discontinued hydraulic control on September 1, 2004 in order to conduct groundwater quality tests in accordance with Part II.H.2 of the APP and Part II.I.2 of the UIC Permit. A report of the results has been provided to ADEQ and USEPA for review. The recovery wells have remained off until a plan for further activity can be approved. As a result, no extraction flows are reported under Section (b) below, and the water level measurements that are reported in Section (b) reflect natural conditions, not hydraulic control.

**(a) A map showing the current status of the mine.**

Figure 1 shows the current monitoring area including the Point of Compliance (POC) wells and the wellfield. Figure 2 shows the approximate layout of the wellfield and denotes the four well observation well/recovery well pairs.



There are four injection/recovery wells and nine original recovery wells. The four injection wells were later used as recovery wells during the rising of the mine block. Five observation wells were installed to demonstrate net inward hydraulic gradient for the 90 days required by the permit. Solution injection began on October 31, 1997 and ceased on February 8, 1998.

**(b) A table and graph showing daily cumulative injection flows and extraction flows in each active mine block over the reporting period.**

Hydraulic control was discontinued on September 1, 2004 for purposes of collecting groundwater samples following a 90-day period of no hydraulic control, and remains discontinued for evaluation of results. Accordingly there are no injection or extraction flows to report.

**(c) A table and graph comparing average daily head in the four observation wells.**

Although hydraulic control was not required during this reporting period, water level measurements were continued by manual measurements in the four observation wells and their nearest inward recovery well. Figure 1 of Attachment 1 and the supporting data show the groundwater elevations in the four well pairs.

**(d) A table showing POC monitoring wells analytical results and alert levels.**

The attached report, *Florence Project Quarterly Compliance Monitoring Report – Second Quarter 2011*, by Brown and Caldwell and sealed by Ms. Barbara Sylvester, Professional Engineer (Attachment 2), contains the POC monitoring records and results. Brown and Caldwell, along with Project personnel, conducted compliance sampling May 22 through May 25, and June 7, 2011.

Quarterly parameters were analyzed for 29 of the 31 POC monitoring wells. POC monitoring wells M32-UBF and M33-UBF were dry and could not be sampled. One result exceeded an Alert Level (AL) for sulfate in M1-GL; however, the well was resampled and the exceedance was not verified. No further action is required. There were no other exceedances of ALs or Aquifer Quality Limits (AQLs).

**(e) Results of the monthly analyses of organic in the injectate**

Organic analyses are not required because no solution was injected during the reporting period.

**(f) Results of monitoring required by 40 CFR 146.33 (b)(1)**

No solution was injected.

**(g) Results of the mechanical integrity tests**

No mechanical integrity test was conducted.

**(h) Results of the annular conductivity monitoring**

Although injection ceased in early 1998, annular conductivity measurements have continued to the present time. A graph showing measurement results for this reporting period is presented in Attachment 1, Figure 2. No unusual conditions were noted.

**(i) Well and core hole plugging and abandonment.**

None of the existing wells or coreholes were abandoned during the report period.

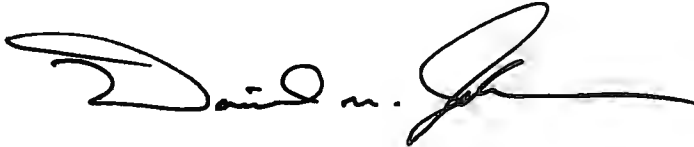
**(j) A summary of closure operations during the reporting period.**

There were no closure operations during the reporting period.

Curis Arizona believes that you will find this report complete and in compliance with all permit conditions. Please contact me at (520) 374-3984 should you have any questions regarding this report.

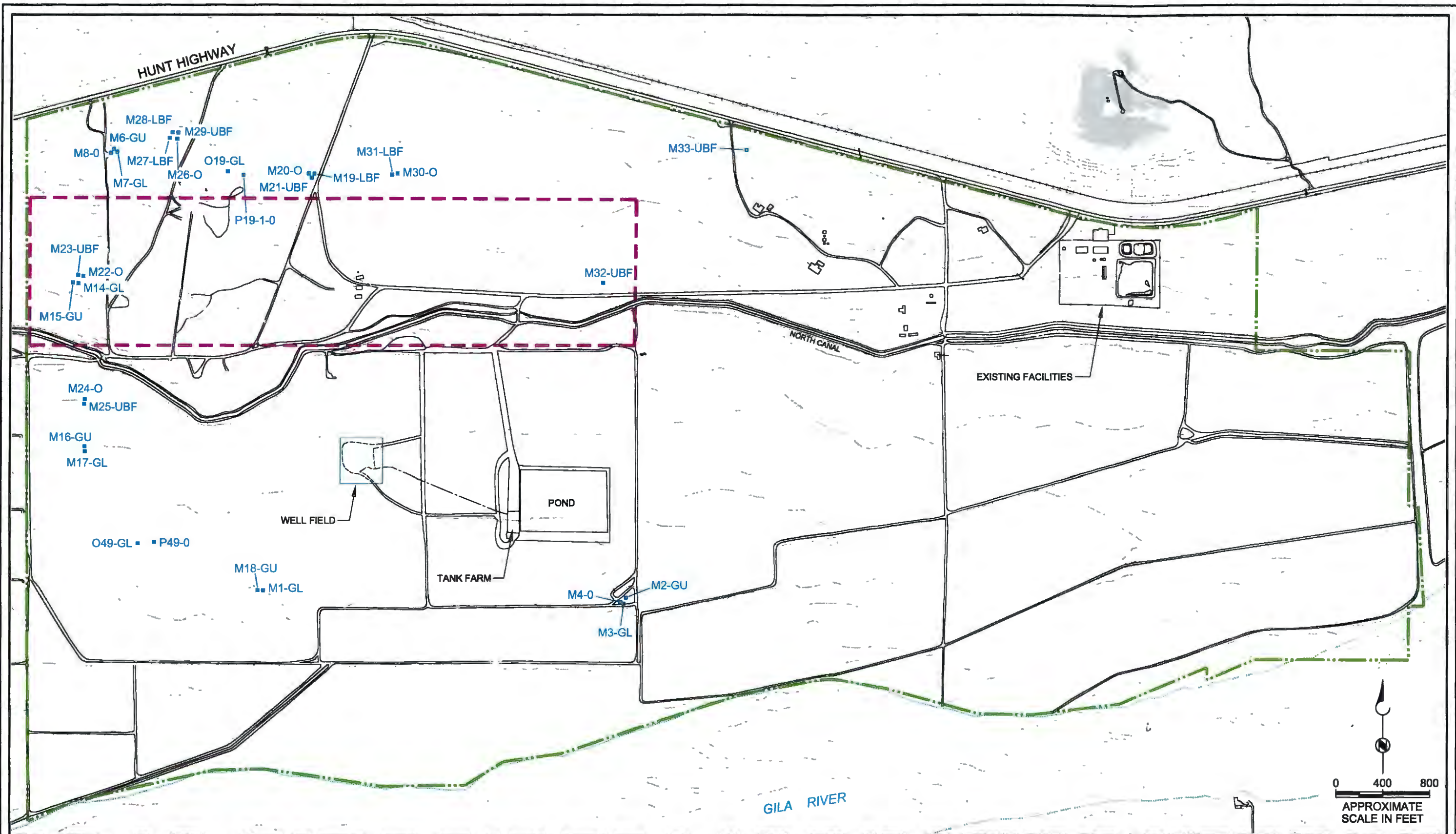
Sincerely,

CURIS RESOURCES (ARIZONA) INC.

A handwritten signature in black ink, appearing to read "Daniel Johnson", with a stylized flourish at the end.

Daniel Johnson  
Environment and Technical Services Manager

BAS:ld  
Attachments  
cc: Florence Copper File



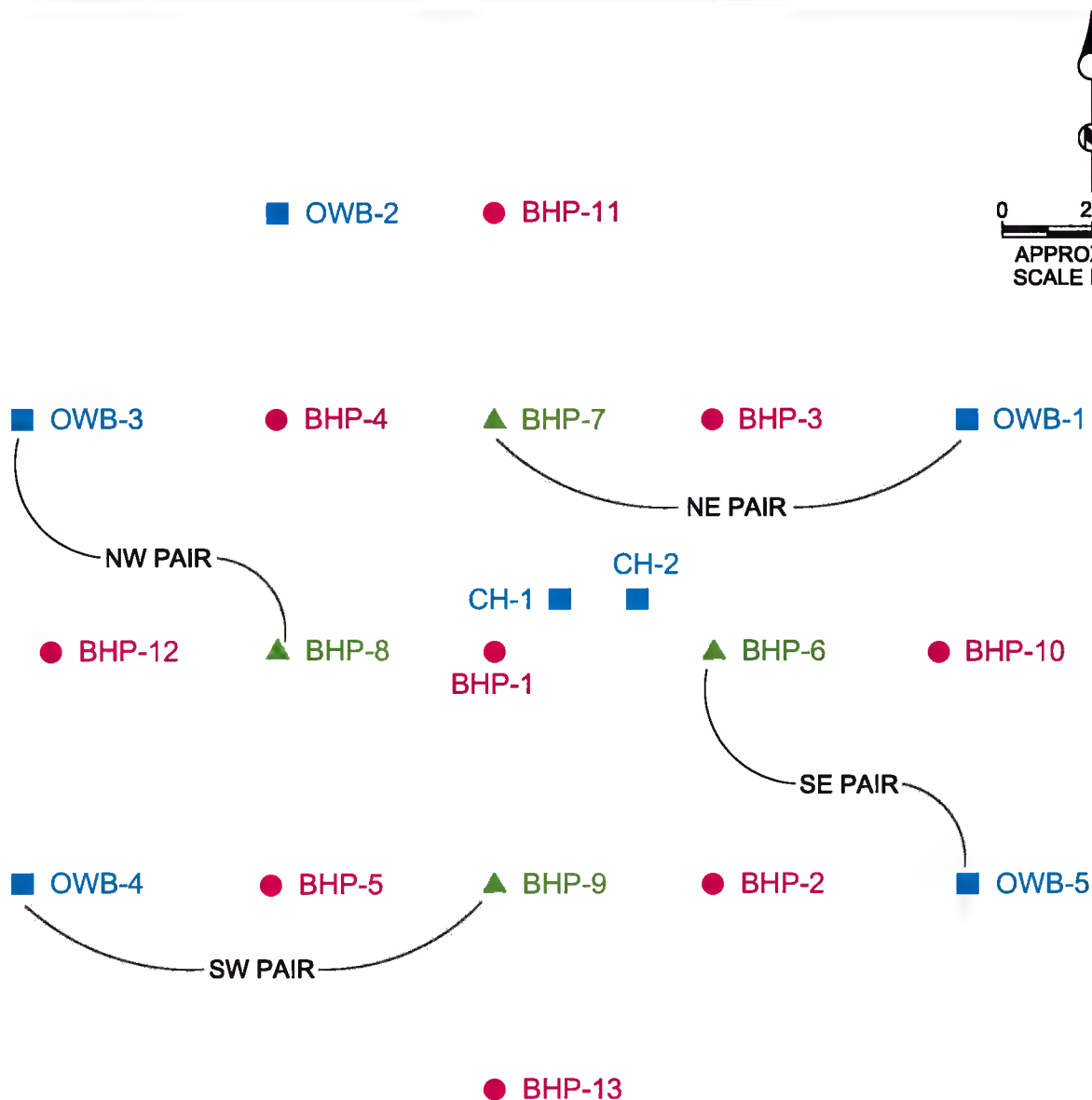
#### EXPLANATION

- APPROXIMATE PROPERTY BOUNDARY
- STATE LEASE LAND BOUNDARY
- M3-GL POC MONITORING WELL
- WELL FIELD DETAIL, FIGURE 2

**Brown** AND  
**Caldwell**

**Figure 1**  
**MONITORING AREA**  
FLORENCE COPPER PROJECT  
FLORENCE, ARIZONA





### EXPLANATION

- BHP-10 RECOVERY WELL (CURRENTLY INACTIVE)
- OWB-2 OBSERVATION WELL
- ▲ BHP-8 INJECTION / RECOVERY WELL  
(RECOVERY MODE SINCE 1998)

**Brown** AND  
**Caldwell**

Figure 2  
**WELL FIELD LAYOUT**  
FLORENCE COPPER PROJECT  
FLORENCE, ARIZONA

## ATTACHMENT 1

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### **Mine Operations Monitoring**

Well Field Water Level Elevations Second Quarter 2011								
Date	BHP-6	BHP-7	BHP-8	BHP-9	OWB-1	OWB-3	OWB-4	OWB-5
04/04/11	1265.3	1264.8	1264.5	1264.4	1265.4	1263.8	1264.2	1265.1
04/14/11	1261.5	1261.3	1260.7	1260.6	1261.8	1260.3	1260.2	1261.7
04/18/11	1252.0	1251.4	1251.3	1251.5	1252.1	1249.7	1250.9	1253.2
04/25/11	1248.2	1247.6	1247.4	1247.5	1248.3	1245.7	1246.9	1249.4
05/02/11	1253.3	1252.9	1252.5	1252.5	1253.6	1251.4	1251.9	1254.0
05/09/11	1254.7	1254.1	1254.0	1254.0	1254.7	1252.6	1253.5	1255.7
05/16/11	1259.3	1259.1	1258.3	1258.4	1259.5	1258.1	1258.1	1259.5
05/23/11	1264.8	1264.5	1264.5	1264.5	1264.8	1263.9	1264.3	1265.2
05/30/11	1260.1	1259.7	1259.2	1259.1	1260.3	1258.4	1258.5	1260.5
06/06/11	1259.6	1259.2	1259.0	1258.5	1259.7	1257.9	1258.1	1260.0
06/13/11	1258.5	1258.1	1257.8	1257.7	1258.6	1257.0	1257.2	1258.7
06/20/11	1251.5	1250.9	1250.7	1250.8	1251.5	1249.0	1250.2	1252.6
06/27/11	1244.3	1243.7	1243.4	1243.5	1244.5	1241.8	1242.9	1245.4

*All Water Level Elevations in Feet Above Mean Sea Level*



**Figure 1 - Well Field Water Level Elevations  
Second Quarter 2011**

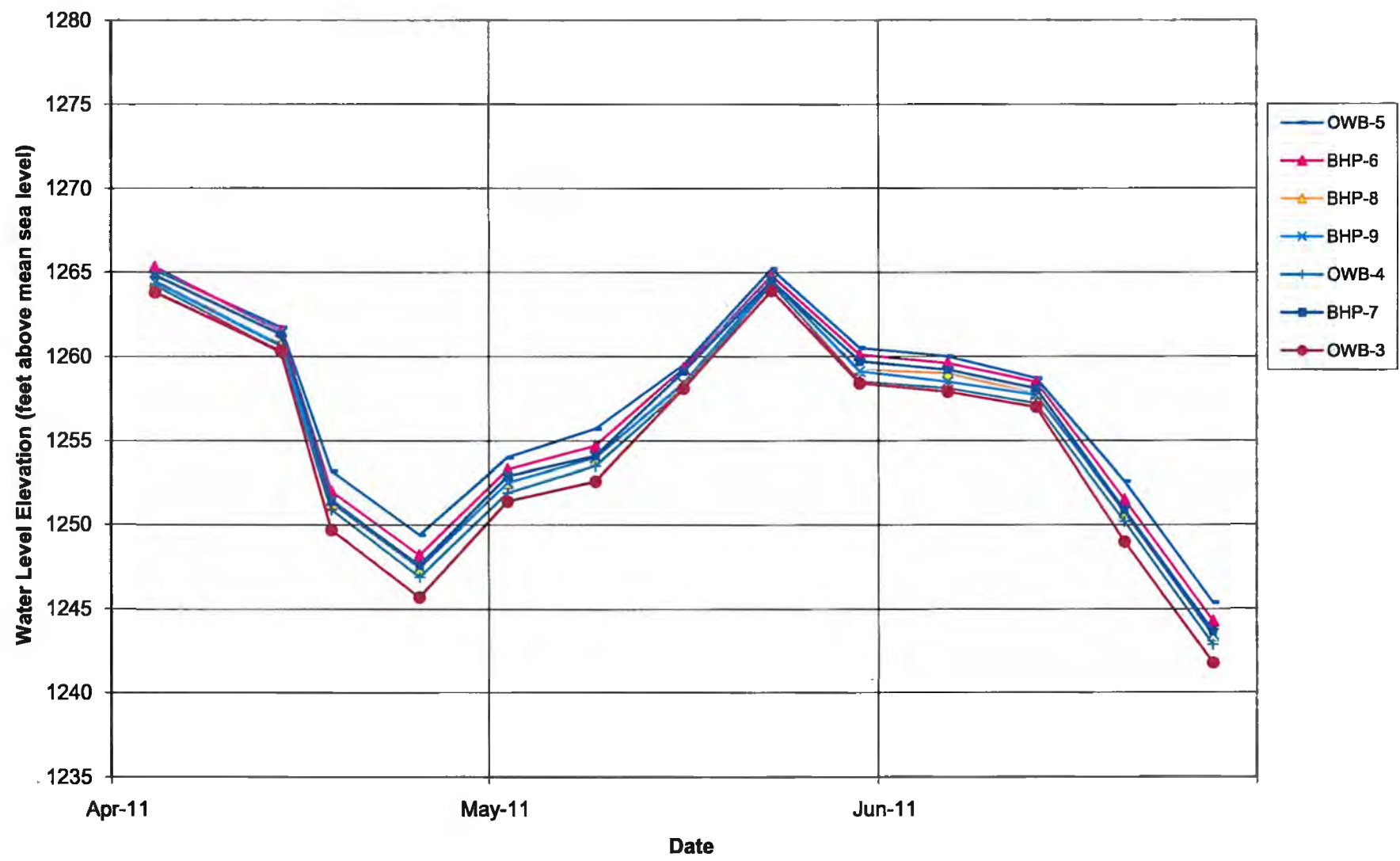
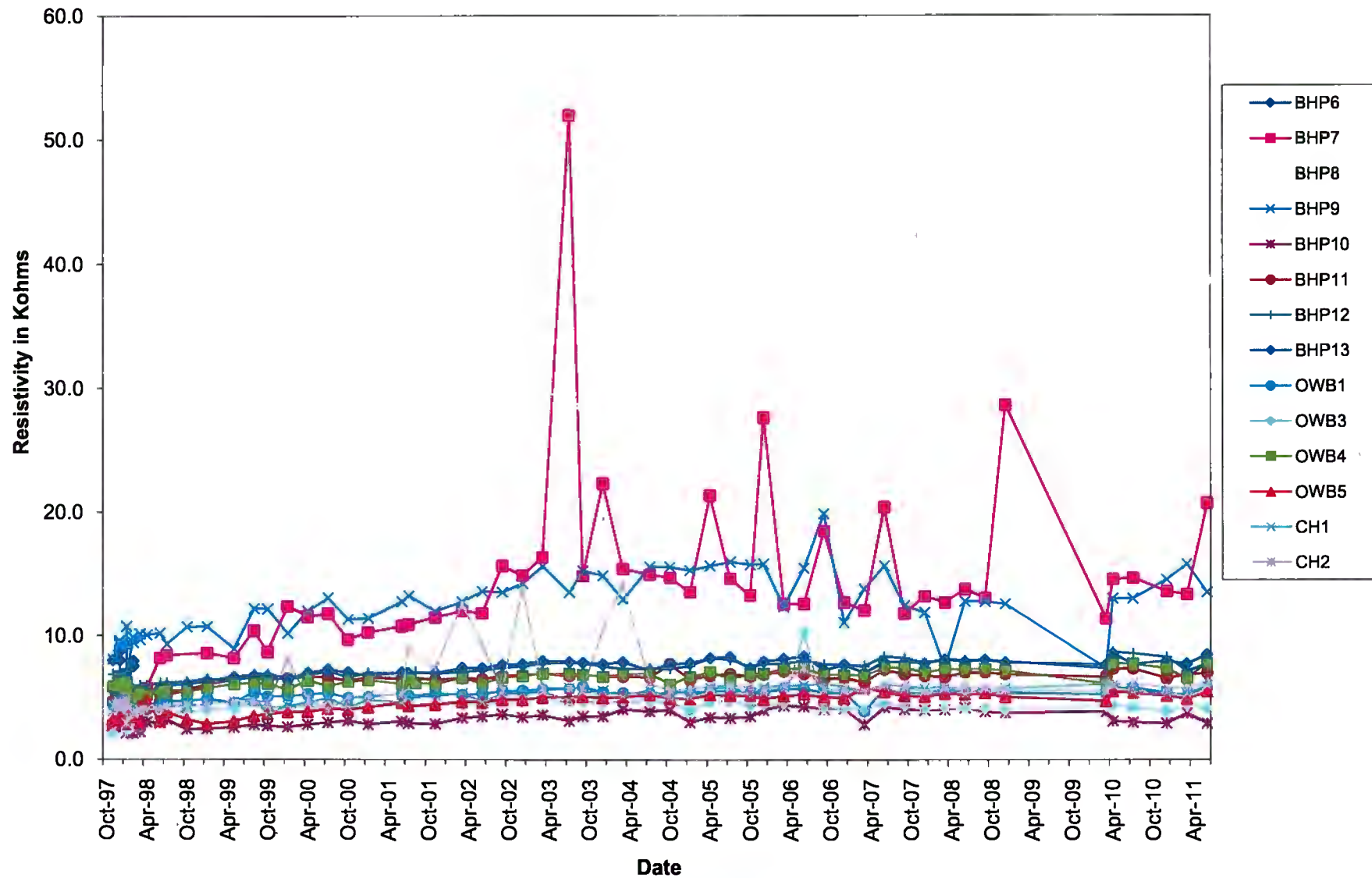


Figure 2 - Well Field Annular Resistivity



## ATTACHMENT 2

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### **POC Quarterly Compliance Monitoring Report**

# FLORENCE COPPER PROJECT QUARTERLY COMPLIANCE MONITORING REPORT SECOND QUARTER 2011

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## *Sampling Activities*

Quarterly compliance monitoring was conducted for the Florence Copper Project on May 22 through May 25, and June 7, 2011 (Second Quarter 2011). Groundwater sampling and analysis was conducted in accordance with the requirements of Aquifer Protection Permit (APP) No. 101704, Part II.E.3.d (Compliance Monitoring) and Underground Injection Control (UIC) Permit No. AZ396000001 Part II.F. Quarterly parameters, as listed in Part IV Table III.B of the APP, were analyzed from the designated Point of Compliance (POC) wells. The quarterly analytical parameters are magnesium, sulfate, fluoride, and total dissolved solids (TDS) in addition to field pH, temperature, and specific conductance.

During the Second Quarter 2011 sampling event, 29 POC wells were sampled. Two POC wells (M32-UBF and M33-UBF) were dry and could not be sampled. Analyses of the samples were conducted by TestAmerica Laboratories (TestAmerica). Analytical results for the POC wells for the quarterly parameters are provided in Table 1 and field parameters measured during sampling are indicated in Table 2.

For the Second Quarter 2011 quarterly parameters, one reported concentration exceeded an approved Alert Level (AL). Well M1-GL, located upgradient of the test site, had an initial sulfate concentration of 111 milligrams per liter (mg/L), which exceeded the AL of 109 mg/L. A verification sample was collected on June 7, 2011. The concentration of the verification sample was 107 mg/L, thus the exceedance was not verified. No other results exceeded established ALs.

A general increase in the sulfate concentrations in M1-GL has been observed from 2000 to 2010; however, since M1-GL is an upgradient background well, the increased concentrations are not related to permitted mining operations. Since the exceedance was not verified, no further action is required.

In the POC network, a downward trend for magnesium and an upward trend for fluoride were observed in the upper aquifer from 2000 to 2008, and stabilizing since 2008. Upward trends were also observed in upgradient wells M2-GU and M18-GU for magnesium, sulfate, and TDS from 2005 to 2007, and declining somewhat since 2008. Site-wide water levels have declined more than 50 feet in all three aquifer zones since the start of monitoring in 1996 to 2004, and have since been relatively stable or have recovered slightly.

## *Contingency Sampling Plans*

No contingency sampling plan was required during the Second Quarter 2011. No contingency sampling plan is required for the Third Quarter of 2011.

## *Issues*

There were no other issues to report during the Second Quarter 2011.



Table 1. Summary of Analytical Results, Quarterly Parameters

Well ID	Sample Date	Magnesium		Sulfate		Fluoride		Total Dissolved Solids	
		Concentration	Alert Level	Concentration	Alert Level	Concentration	Alert Level	Concentration	Alert Level
M1-GL	May 25 2011	19.0	31	111	109	0.75	1.3	680	1028
M1-GL	Jun 07 2011	21.0	31	107	109	0.72	1.3	660	1028
M2-GU	May 25 2011	21.0	39	175	275	0.9	1.4	860	1496
M3-GL	May 25 2011	20.0	36	149	187	0.75	1.3	730	1157
M4-O	May 25 2011	3.4	15	56	405	2.6	5.1	440	1072
M6-GU	May 24 2011	2.6	5.1	52	86	0.63	1.3	370	620
M7-GL	May 25 2011	<0.25	1	36	82	0.88	1.7	290	464
M8-O	May 24 2011	<0.25	1	72	122	2.0	3.6	370	609
M14-GL	May 24 2011	1.9	23	58	144	0.59	1.4	410	874
M14-GL (Dup)	May 24 2011	1.9	23	58	144	0.53	1.4	420	874
M15-GU	May 24 2011	25.0	44	82	126	0.5	1.2	840	1359
M16-GU	May 25 2011	28.0	52	183	248	0.62	1.1	980	1635
M17-GL	May 25 2011	5.1	9.3	111	209	0.78	1.6	460	831
M18-GU	May 25 2011	18.0	36	176	288	0.96	1.6	840	1323
M19-LBF	May 23 2011	12.0	21	56	89	0.42	1	480	794
M20-O	May 23 2011	8.8	14	68	112	0.76	1.7	490	809
M21-UBF	May 23 2011	24.0	87	156	487	0.76	1.1	850	2867
M22-O	May 24 2011	5.4	8.6	54	86	0.65	1.3	420	1094
M23-UBF	May 24 2011	38.0	69	267	411	0.63	1.3	1400	2392
M24-O	May 25 2011	10.0	19	776	1364	1.2	2.5	1300	2363
M24-O (Dup)	May 25 2011	9.5	19	762	1364	1.2	2.5	1300	2363
M25-UBF	May 25 2011	38.0	76	245	387	0.64	1.6	1400	2683
M26-O	May 23 2011	<0.25	1	64	105	1.6	3.4	340	556
M27-LBF	May 23 2011	34.0	51	158	179	<0.4	1	1100	1745
M28-LBF	May 23 2011	1.3	2.6	50	81	0.71	1.6	370	610
M29-UBF	May 23 2011	30.0	84	238	465	0.67	1.1	1100	2751
M30-O	May 23 2011	11.0	18	60	102	0.68	1.6	500	824
M31-LBF	May 23 2011	19.0	46	144	330	0.84	1.3	740	1665
O19-GL	May 24 2011	9.5	17	61	99	0.57	1.4	470	770
O49-GL	May 22 2011	9.4	18	70	159	0.5	1	510	849
P19-1-O	May 24 2011	5.8	12	65	107	1.4	2.8	440	767
P49-O	May 23 2011	3.4	6.2	113	181	0.93	2	450	801
P49-O (Dup)	May 23 2011	3.4	6.2	112	181	0.91	2	490	801
Arizona Aquifer Water Quality Standard		-		-		4		-	

All Results in Milligrams per Liter (mg/l)

&lt; = Less than the Laboratory Practical Quantitation Limit



Table 2. Summary of Quarterly Field Parameters

Well ID	Sample Date	Temperature (°C)	Temperature (°F)	pH	Conductivity (µmhos/cm)
M1-GL	May 25 2011	21.9	71.4	7.40	1146
M1-GL	Jun 07 2011	22.2	72.0	7.49	1150
M2-GU	May 25 2011	20.4	68.6	7.20	1381
M3-GL	May 25 2011	21.7	71.0	7.31	1179
M4-O	May 25 2011	23.2	73.8	7.30	675
M6-GU	May 24 2011	25.2	77.4	8.31	675
M7-GL	May 25 2011	24.6	76.3	9.08	490
M8-O	May 24 2011	29.2	84.6	8.48	612
M14-GL	May 24 2011	27.0	80.5	8.31	755
M15-GU	May 24 2011	24.7	76.4	7.29	1301
M16-GU	May 25 2011	23.8	74.8	7.26	1570
M17-GL	May 25 2011	27.7	81.8	8.18	807
M18-GU	May 25 2011	20.1	68.2	7.21	1372
M19-LBF	May 23 2011	23.4	74.1	7.64	798
M20-O	May 23 2011	24.6	76.3	7.46	770
M21-UBF	May 23 2011	22.4	72.3	7.32	1354
M22-O	May 24 2011	28.2	82.8	7.81	729
M23-UBF	May 24 2011	22.0	71.7	6.92	2178
M24-O	May 25 2011	29.9	85.7	7.67	1896
M25-UBF	May 25 2011	21.2	70.2	7.10	2230
M26-O	May 23 2011	29.0	84.3	8.40	546
M27-LBF	May 23 2011	23.4	74.2	7.45	1686
M28-LBF	May 23 2011	26.0	78.9	8.28	657
M29-UBF	May 23 2011	22.4	72.3	7.16	1647
M30-O	May 23 2011	24.3	75.8	7.33	801
M31-LBF	May 23 2011	22.6	72.7	7.45	1213
O19-GL	May 24 2011	23.7	74.7	7.53	777
O49-GL	May 22 2011	26.0	78.8	7.42	870
P19-1-O	May 24 2011	24.3	75.7	7.36	729
P49-O	May 23 2011	27.5	81.6	7.54	752

°C = Degrees Celcius

°F = Degrees Fahrenheit

µmhos/cm = Micromhos per Centimeter