OMB No. 2040-0042 Approval Expires 11/30/2014

EPA

United States Environmental Protection Agency

Underground Injection Control Permit Application

(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number

	T/A	C
U		

Read Attached Instructions Before Starting

For Official Use Only

Application approved (mo day year)	Date received (mo day year)	Permit Number	Well ID	FINDS Number

II. Owner Name and Address

Owner Name		
Florence Copper, Inc.		
Street Address		**Phone Number**
1575 W. Hunt Highway		(520) 374-3984
City	**State**	**ZIP CODE**
Florence	AZ	85132

III. Operator Name and Address

Owner Name		
Same		
Street Address		**Phone Number**
Same		
City	**State**	**ZIP CODE**
Same		

IV. Commercial Facility

- [x] Yes
- [ ] No

V. Ownership

- [x] Private
- [ ] Federal
- [ ] Other

VI. Legal Contact

- [x] Owner
- [ ] Operator

VII. SIC Codes

SIC-1021
SIC-3331

VIII. Well Status *(Mark "x")*

- [ ] A Operating — Date Started (mo day year):
- [ ] B. Modification/Conversion
- [x] C. Proposed

IX. Type of Permit Requested *(Mark "x" and specify if required)*

- [ ] A. Individual
- [x] B. Area

Number of Existing Wells	Number of Proposed Wells	Name(s) of field(s) or project(s)
0	24	Florence Copper Project

X. Class and Type of Well *(see reverse)*

A. Class(es) (enter code(s))	B. Type(s) (enter code(s))	C. If class is "other" or type is code 'x,' explain	D. Number of wells per type (if area permit)
III	G		24

XI. Location of Well(s) or Approximate Center of Field or Project

Latitude Deg	Latitude Min	Latitude Sec	Longitude Deg	Longitude Min	Longitude Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line
33	03	1.4	111	26	4.7	28	4S	9E					

XII. Indian Lands (Mark 'x')

- [ ] Yes
- [x] No

XIII. Attachments

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)

For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A--U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

XIV. Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

A. Name and Title *(Type or Print)*	B. Phone No. *(Area Code and No.)*
Dan Johnson, General Manager and Vice President	(520) 374-3984
C. Signature	**D. Date Signed**
[signature]	08/07/2014

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ATTACHMENT M – WELL CONSTRUCTION DETAILS

ATTACHMENT N – CHANGES IN INJECTED FLUID

ATTACHMENT O – PLANS FOR WELL FAILURES (CONTINGENCY PLAN)

ATTACHMENT P – MONITORING PROGRAM

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FLORENCE COPPER, INC.

UIC PERMIT APPLICATION

FLORENCE COPPER PROJECT – PRODUCTION TEST FACILITY

ATTACHMENT A – AREA OF REVIEW

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Table A-1. Groundwater Model Results of Selected Injection Scenarios

	Simulation Time	Number of Wells Injecting	Injection Rate (GPM)	Number of Wells Pumping	Pumping Rate	Porosity of Oxide Layers (%)	Fault Zone Porosity (%)	Fault Zone Hydraulic Conductivity (ft/day)	MFGU Hydraulic Conductivity
Scenario 6	30 days	1	60	0	0	13	Base Model	Base Model	Base Model
Scenario 7	30 days	1	60	0	0	13	Base Model	Base Model	Set Equal to LBFU Value

A description of the model results that includes consideration of both the north-south and east-west cross sections shown in Figures A-1 through A-8 and A-1a through A-8a is included below.

<u>Scenario 1: Sidewinder Fault hydraulic conductivity set at 40 feet/day and porosity at 10 percent.</u>

Figure A-1 provides a cross-sectional view (north-south transect) of vertical and horizontal migration of sulfate from a single well within the PTF well field after operating without hydraulic control for a period of 30 days, and using the fault hydrologic parameters described above. Under these simulated conditions, lixiviant migrates northward approximately 201 feet horizontally from the PTF injection well, and approximately 40 feet vertically into the exclusion zone. Figure A-1a (east-west transect) shows that injected solution migrated approximately 150 feet to the west in model layer 10. Injected solution did not reach the LBFU in significant concentrations after 30 days without hydraulic control. The estimated horizontal migration distance of 201 feet was the maximum observed from all model scenarios and associated simulations involving 30-day lixiviant injection without hydraulic control.

Figure A-2 is a cross-sectional view (north-south transect) of vertical and horizontal migration of sulfate from a single well within the PTF well field after operating without hydraulic control for a period of 48 hours, and using a fault hydraulic conductivity of 40 feet per day and porosity of 10 percent. Figure A-2 shows that under these conditions, after 48 hours, sulfate migrates northward approximately 67 feet horizontally from the PTF injection well along the Sidewinder fault in layer 10, and approximately 40 feet vertically into the exclusion zone. Figure A-2a (east-west transect) shows that injected solution migrated approximately 63 feet to the west in model layer 10. No significant migration of injected solution into the LBFU occurred after 48 hours without hydraulic control. This simulation scenario reflects the greatest estimated extent of lateral migration during a 48-hour period for all scenarios without hydraulic control. Given this fact, only the conservative 30-day simulation results are presented below as measures of maximum lateral and vertical lixiviant migration distances after injecting for 30-days without hydraulic control.

<u>Scenario 2: Sidewinder Fault hydraulic conductivity set at 40 feet/day and fault porosity at 13 percent.</u>

Given the assumed hydraulic parameters described above, the simulated results shown on Figure A-3 (north-south transect) show that lixiviant migrates northward approximately 163 feet horizontally from the PTF injection well along the Sidewinder fault in model layer 10, and approximately 40 feet vertically into the exclusion zone within a very limited lateral extent. Figure A-3a (east-west transect) shows that injected solution migrated approximately 125 feet to the west in model layer 10. Injected solution was not estimated to reach the LBFU in significant concentrations after 30 days without hydraulic control.

<u>Scenario 3: Sidewinder Fault hydraulic conductivity set at 40 feet/day and fault porosity at 20 percent.</u>

Given the assumed hydraulic parameters described above, the simulated results shown on Figure A-4 (north-south transect) show that lixiviant migrates northward approximately 125 feet horizontally from the PTF injection well along the Sidewinder fault in model layer 10, and approximately 40 feet vertically into the exclusion zone within a very limited lateral extent. Figure A-4a (east-west transect) shows that injected solution migrated approximately 100 feet to the east and west in model layer 10. Injected solution did not reach the LBFU in significant concentrations after 30 days without hydraulic control.

Scenario 4: Oxide porosity set at 2 percent. Fault zone hydraulic parameters at base FCP model values.

Given the assumed hydraulic parameters noted above for the oxide unit, the simulated results shown on Figure A-5 (north-south transect) shows that lixiviant migrates northward approximately 125 feet horizontally from the PTF injection well along the Sidewinder fault in model layer 10, and approximately 40 feet vertically into the exclusion zone. The lateral extent of the lixiviant migration is limited to an area within the footprint of the PTF well field. Figure A-5a (east-west transect) shows that injected solution migrated approximately 125 feet to the west in model layer 8. Dilute concentrations of injected solution also migrate vertically upwards approximately 55 feet into the LBFU.

Scenario 5: Oxide porosity set at 8 percent. Fault zone hydraulic parameters at base FCP model values.

Given the assumed hydraulic parameters noted above for the oxide unit, the simulated results shown on Figure A-6 (north-south transect) show that lixiviant migrates northward approximately 125 feet horizontally from the PTF injection well along the Sidewinder fault in model layer 10, approximately 40 feet vertically into the exclusion zone, and approximately 54 feet vertically into the LBFU. The lateral extent of the lixiviant migration is limited to an area within the footprint of the PTF well field. Figure A-6a (east-west transect) shows that injected solution migrated approximately 125 feet to the east and west in model layer 10. The estimated horizontal migration distance is identical to the previous scenarios because the maximum migration distance occurs along the Sidewinder fault zone and the hydraulic parameters for the fault zone are the same in Scenarios 4 through 7.

Scenario 6: Oxide porosity set at 13 percent. Fault zone hydraulic parameters at base FCP model values.

Given the assumed hydraulic parameters noted above for the oxide unit, the simulated results shown on Figure A-7 (north-south transect) show that lixiviant migrates northward approximately 125 feet horizontally from the PTF injection well along the Sidewinder fault in model layer 10, approximately 40 feet vertically into the exclusion zone, and approximately 54 feet vertically into the LBFU. The lateral extent of the lixiviant migration is limited to an area within the footprint of the PTF well field. Figure A-7a (east-west transect) shows that injected solution migrated approximately 125 feet to the east and west in model layer 10. The estimated horizontal migration distance is identical to the previous scenarios because the maximum migration distance occurs along the Sidewinder fault zone, and the hydraulic parameters for the fault zone are the same in Scenarios 4 through 7.

Scenario 7: No MFGU – MFGU given hydraulic parameters of LBFU. Fault zone hydraulic parameters at base FCP model values.

Given the assumed hydraulic parameters noted above for the MFGU, the simulated results shown on Figure A-8 (north-south transect) show that lixiviant migrates north and south approximately 125 feet horizontally from the PTF injection well along the Sidewinder fault in model layer 10, approximately 40 feet vertically into the exclusion zone, and approximately 54 feet vertically into the LBFU. The lateral extent of the lixiviant migration is limited to an area within the footprint of the PTF well field. Figure A-7a (east-west transect) shows that injected solution migrated approximately 125 feet to the east and west in model layer 10. The estimated horizontal migration distance is identical to the previous scenarios because the maximum migration distance occurs along the Sidewinder fault zone and the hydraulic parameters for the fault zone are the same in Scenarios 4 through 7.

A.3.4 Summary

The maximum horizontal migration distance estimated with the FCP model, given the specified variations in hydraulic and transport parameters and loss of hydraulic control for 30 days, was approximately 201 feet horizontally within the fault zone of model layer 10 (deepest model layer) and 55 feet vertically into the LBFU. Minimum transport distances for the 30-day scenarios were approximately 125 feet horizontally and 0 feet vertically above the exclusion zone. No significant sulfate mass was estimated to penetrate into the MFGU nor the upper portion of the LBFU. When considering loss of hydraulic control for 48 hours, the maximum estimated horizontal migration distance of lixiviant was only approximately 67 feet along the deepest model layer (layer 10 within the fault zone). Increasing hydraulic conductivities and porosities within the Sidewinder fault zone, decreased porosity values within the oxide unit, and the lack of a confining unit demonstrated no adverse sensitivity effect or undue impact upon vertical or horizontal migration of injected solutions without hydraulic control.

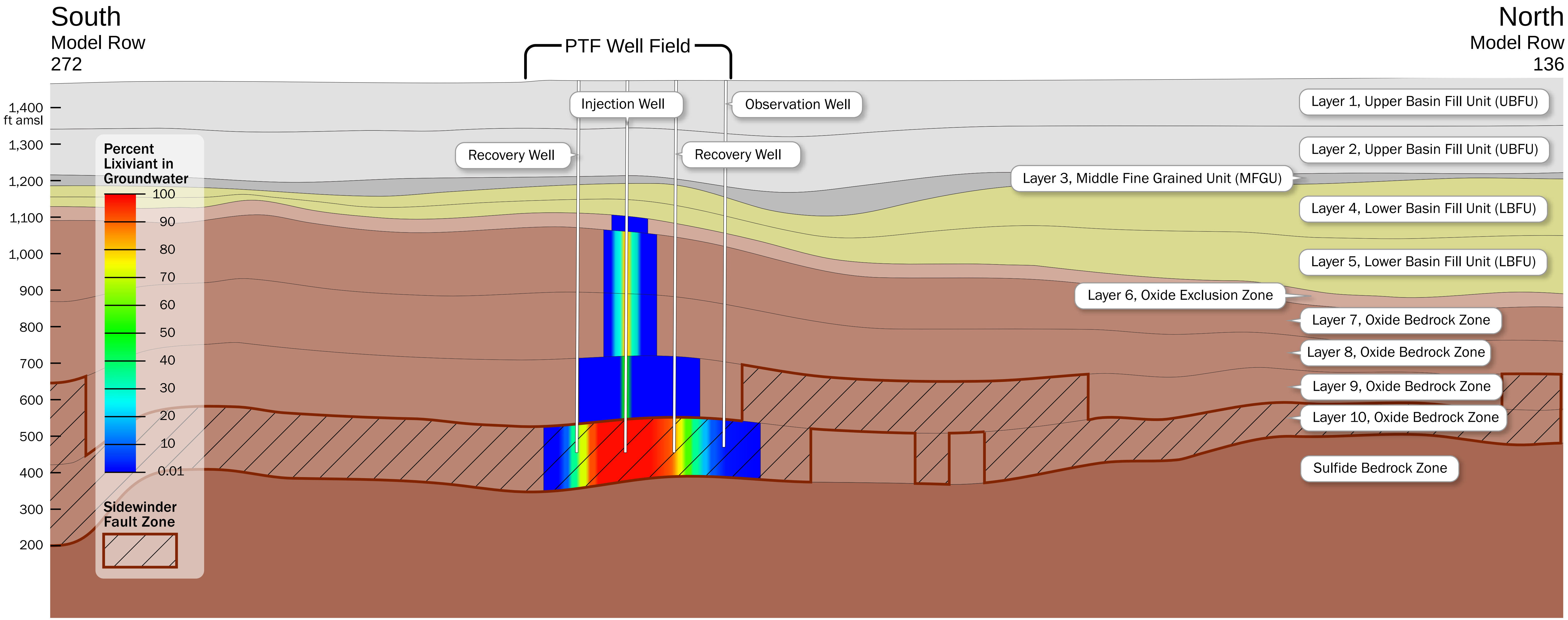
It should be noted that under no circumstances will Florence Copper continue to inject lixiviant after determination of loss of hydraulic control. If hydraulic control is lost, Florence Copper will cease injection upon determination of loss of hydraulic control and will not resume injection until hydraulic control has been reestablished. Model scenarios simulating injection without hydraulic control extending from initiation of injection through 48 hours to a total of 30 days were developed at the request of USEPA; however, they do not represent planned PTF operations. Model runs conducted in response to USEPA comments assumed injection would continue for periods of up to 30 days without hydraulic control. Injection without hydraulic control for such extended periods is not realistic. Attachment K of this Application specifies that hydraulic control will be monitored daily, and Table K-1 of that Attachment summarizes the responses Florence Copper will take to the loss of hydraulic control.

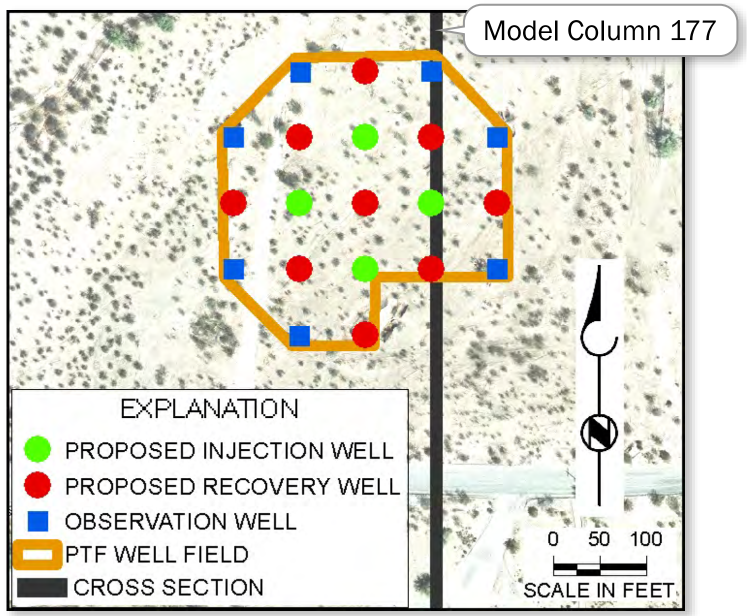
A.4. Proposed AOR

Florence Copper proposes an AOR that is equivalent to the PTF well field area and a circumscribing width of 500 feet. This AOR is conservative with respect to protecting USDWs because it provides a factor of safety of between 2.5 and 4 times the actual distance that lixiviant may migrate under worst-case conditions (30-day excursion) that significantly exceeds the maximum permissible excursion (48-hour excursion) described in the Operations Plan at the average injection rate proposed by Florence Copper for the PTF. The proposed AOR provides a safety factor of 7.5 times the actual distance (67 feet) that lixiviant might travel during the maximum permissible excursion of 48 hours.

The proposed AOR is shown on Figure A-9 together with the planned PTF well field area, Florence Copper's property boundary, and other pertinent features.

Cross-Section along Model Column 177





Scenario 1 Simulation Details and Variations from Base FCP Model:

- 30 days simulation time
- One well injecting at 60 gpm, no recovery pumping
- Hydraulic conductivity of Sidewinder Fault Zone = 40 feet/day
- Porosity of Sidewinder Fault Zone = 10% (same as Base FCP Model)
- Other hydrologic parameters same as base FCP Model (Table 10-1)

Brown AND Caldwell

HORIZONTAL SCALE
(feet)
25
12.5
0 50 100 250

Figure A-1
Model Predicted Migration of Lixiviant – Scenario 1
Florence Copper Project Groundwater Model

EXHIBIT A-1

Hydrologic Study Part A, Groundwater Flow Model
(Temporary APP Application Attachment 14A)

CURIS RESOURCES (ARIZONA) INC.

APPLICATION FOR TEMPORARY INDIVIDUAL AQUIFER PROTECTION PERMIT

ATTACHMENT 14A – HYDROLOGIC STUDY PART A, GROUNDWATER FLOW MODEL (ITEM 25.H)

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The aquifer parameters and hydrostratigraphic unit descriptions developed from data collected in support of Brown and Caldwell (1996a) were used to support the creation of a sub-regional groundwater flow model described in Brown and Caldwell (1996b). These data remain the best available data describing hydrogeologic characteristics at the PTF site and surrounding vicinity. No significant additional hydrogeologic characterization activities have been conducted at the PTF site and surrounding vicinity since the Brown and Caldwell (1996a) study was completed. Data developed in support of Brown and Caldwell (1996a) were used as direct input into the current PTF groundwater flow model described in this report. Hydrostratigraphic unit descriptions presented in Brown and Caldwell (1996a) serve as the conceptual basis for hydrostratigraphic units represented in the PTF groundwater flow model described herein.

Brown and Caldwell (1996b)

Following the hydrogeologic characterization of the PTF site and surrounding vicinity described in Brown and Caldwell (1996a), Brown and Caldwell prepared a sub-regional numerical groundwater flow model for the purpose of simulating the potential effects of ISCR activities on the regional alluvial aquifer. The flow field represented in the 1996 groundwater model was developed using the MODFLOW (McDonald and Harbaugh, 1988) computer code, and particle tracking simulations were performed using PATH 3D (Zheng, 1989).

The 1996 groundwater flow model included a domain that covered approximately 100 square miles, centered roughly on the PTF site and surrounding vicinity. The model grid used a 1,000-foot by 1,000-foot cell size at the periphery of the domain and reduced to a cell size of 50 feet by 50 feet at the center of the domain at the PTF site, and was divided into eight layers corresponding to the various hydrostratigraphic units.

Model inputs included temporal head, recharge, and pumping inputs, and used a one year calibration period. The groundwater flow model drew heavily from the site-specific hydrogeologic data reported in Brown and Caldwell (1996a) and data available from ADWR.

Advances in groundwater modeling software, modeling techniques, and changing groundwater conditions at the PTF site have necessitated the development of the current PTF groundwater model described herein as a replacement for the groundwater model described in Brown and Caldwell (1996b). However, the Brown and Caldwell (1996b) groundwater model provided the basic framework for the current model with minor adjustments to the PTF model domain and a revision of the model layering to reflect the full body of geologic data currently available.

Hydraulic parameters used as inputs to the Brown and Caldwell (1996b) groundwater flow model were developed and reported in the Brown and Caldwell (1996a) Site Characterization Report, which also serves as the primary source for hydrologic properties used in the current groundwater flow model. Other inputs used in the 1996 groundwater model such as General Head Boundaries (GHBs), temporal head distributions, recharge values, and groundwater pumping were not carried forward to the current model because a greater temporal range of detailed data are now available from ADWR.

ADWR, 1990

In 1990, ADWR released a numerical groundwater flow model for the Pinal Active Management Area (AMA) which covers an area of approximately 4,100 square miles located within portions of Pinal, Pima, and Maricopa Counties and includes the PTF site. The Pinal AMA groundwater model was developed using the MODFLOW (McDonald and Harbaugh, 1988) computer code and had a model domain equivalent to the approximate 4,100 square mile AMA area. ADWR developed this model for the purpose of developing a groundwater management tool that would be useful in predicting future groundwater conditions within the AMA. The Brown and Caldwell (1996b) and the current PTF groundwater flow models cover a domain that is less than 2 percent of the 1990 Pinal AMA groundwater flow model.

The original Pinal AMA model used two layers to represent the three hydrogeologic units generally recognized to extend throughout the AMA. The hydrogeologic units are the Upper Alluvial Unit (UAU), the Middle Silt and Clay Unit (MSCU), and the Lower Conglomerate Unit (LCU). The layer thicknesses were defined using more than 2,000 driller's logs; however, the actual thicknesses of the MSCU and LCU are not represented in the model. The 1990 Pinal AMA model grid used a uniform cell size of one square mile roughly oriented to correspond with the Township-Range-Section grid.

The hydrogeologic units used in the 1990 Pinal AMA model and their associated properties roughly correspond to the hydrogeologic units used in the 1996 groundwater model prepared by Brown and Caldwell (1996b). The Brown and Caldwell model used hydrogeologic unit names and descriptions reported in Brown and Caldwell (1996a), namely; the Upper Basin Fill Unit (UBFU), Middle Fine Grained Unit (MFGU), and Lower Basin Fill Unit (LBFU). However, the UBFU corresponds with the UAU, the MFGU corresponds with the MSCU and the LBFU corresponds with the LCU. The hydrogeologic unit names and descriptions used in Brown and Caldwell (1996b) are used in the current PTF groundwater flow model.

Although the 1990 Pinal AMA model grid discretization and layering are too coarse to provide the localized high resolution required for the present modeling effort, the extensive published datasets associated with the model have been a valuable resource in constructing and calibrating the current PTF groundwater flow model.

ADWR is currently in the process of redeveloping and refining the Pinal AMA groundwater flow model to represent expanded pumping and recharge datasets, a refined understanding of the basin and sub-basin morphology, and more refined hydrographic boundaries at the downstream edge of the model. The revised model was planned to be completed in 2010, however it had not yet been made available at the time of this publication. However, ADWR graciously made several of the updated Pinal AMA model input datasets available to Brown and Caldwell on a provisional basis in support of development of the current PTF groundwater flow model. Provisional updated Pinal AMA groundwater model datasets made available by ADWR for use in the current model are described in Section 14A.4.7.

ADWR, 1994

In 1994, ADWR released a computer model that represented the groundwater flow regime of the Salt River Valley (SRV). The SRV is an extensive and complex groundwater basin that includes seven sub-basins and the confluence of four rivers that together drain more than 50 percent of the State. The domain of the 1994 SRV model covers only about 2,500 square miles and does not include the entire SRV, but focuses on the most significant hydrologic features of the valley for the purpose of developing a groundwater management tool. ADWR is currently in the process of updating the SRV model and expanding the model domain, however the results of that effort are not yet available.

Similar to the 1990 Pinal AMA model, the 1994 SRV model used a cell size of one square mile, but differed in that it used three layers to represent the three principal hydrogeologic units within the basin. The layers were designed to discretely represent the three principal hydrogeologic units occurring within the SRV, which units generally correspond to those described in the 1990 Pinal AMA groundwater flow model. The SRV layers include the UAU, Middle Alluvial Unit (MAU), and Lower Alluvial Unit (LAU).

The domain of the 1996 (Brown and Caldwell, 1996b) and the current (2010) PTF sub-regional groundwater flow model lies primarily within the domain of the Pinal AMA groundwater model. However, because the PTF site location is very near the boundary between the Pinal AMA and the Phoenix AMA, a small portion of the PTF model domain lies within the domain of the SRV model. Approximately 20 percent of the PTF model domain lies within the domain of the 1994 SRV model, an area located at the extreme southeast corner of the SRV model domain that represents less than one percent of the entire SRV model domain.

Recognizing that the current PTF groundwater flow model has less than 20 percent of its domain in common with the SRV model, the SRV model construction details such as grid discretization, layering, and boundary conditions were not incorporated in the current modeling effort. However, datasets from the SRV model that were useful in construction and calibration of the current (2010) PTF groundwater model included updated geology and temporal head distributions. Input datasets for the current PTF groundwater model are described in Section 14A.4.

14A.3.2 Regional Geology and Hydrostratigraphy

14A.3.2.1 Structural Geology

The PTF site is located within the Sonoran Desert portion of the Basin and Range Physiographic Province. The Basin and Range Province is defined by the residual effects of extensional forces that stretched the earth's crust throughout western North America, resulting in a series of pull-apart physiographic features that include alternating elongated mountain ranges separated by alluvial basins bounded by normal faults. The basins and ranges are the surface expression of alternating down-thrown blocks of crust (grabens) lying between crustal blocks that remain elevated (horsts) relative to the surrounding terrain.

The Basin and Range Orogeny, an extensional event, was the last major orogenic event to affect the Western United States and occurred from the early Miocene to the Pleistocene (17-5 Ma). Tectonic processes associated with the Basin and Range Orogeny exposed metamorphic core complexes and resulted in igneous activity that included batholith, stock and dike emplacement, and volcanism (Nason and others, 1982).

Basin and Range faulting resulted in partial to complete erosion of older Oligocene to Miocene sediments. Consequently, as much as 4,000 feet of basin-fill has been deposited in the resulting Tertiary alluvial fan and lake bed environments. Figure 14A-7 shows a bedrock surface of the PTF site and limited surrounding vicinity based on well log and corehole data.

Basin and Range faulting and tilting in the vicinity of the PTF resulted in north-northwest trending horst and graben structures bounded by normal faults with large displacements to the west (Nason and others, 1982). The ore body associated with the PTF occurs on a complex horst block which is bounded on the east and west by grabens. The Party Line Fault, a major normal fault on the east side of the ore body, strikes north 35 degrees west and dips 45 to 55 degrees southwest. This fault is reported to have a vertical displacement of over 1,000 feet (Conoco, 1976; Nason and others, 1982). Field studies (Brown and Caldwell, 1996a) have shown that intense fracturing in the vicinity of the fault zone has resulted in elevated hydraulic conductivity parallel to the fault. A series of en-echelon normal faults striking north-south to northwest occur west of the Party Line Fault, which form the transition to the graben structure west of the proposed PTF well field.

The Sidewinder Fault occurs near the west side of the proposed PTF well field and has a displacement of more than 1,200 feet (Conoco, 1976), and represents a continuation of a complex of northwest-southeast trending normal faults east of the PTF site. Field studies (Brown and Caldwell, 1996a) have shown that intense fracturing in the vicinity of the fault zone has resulted in elevated hydraulic conductivity. Additionally, an east-west trending fault system has truncated the south end of the horst, causing bedrock elevations south of the Gila River to drop away by more than 1,500 feet (Conoco, 1976). Additional en-echelon, north to northwest trending normal faults located east of the Sidewinder Fault form the transition to another graben structure east of the PTF site, which strikes north to northwest.

Following the Basin and Range Orogeny, alluvial basin-fill sediments were deposited over the Precambrian bedrock surface in the vicinity of the PTF site. The sediments consist of unconsolidated to moderately well-consolidated interbedded clay, silt, sand, and gravel in variable proportions and thicknesses. Interbedded basalt flows were emplaced during basin fill deposition to the west and northwest of the proposed PTF well field. Total thickness of basin-fill materials in the vicinity of the property ranges from 300 to over 900 feet, and exceeds 2,000 feet at a distance of 1.5 miles southwest of the proposed PTF well field.

14A.3.2.2 Hydrostratigraphy

The saturated geologic formations underlying the PTF site have been divided into three distinct water bearing hydrostratigraphic units referred to as the UBFU, LBFU, and the Bedrock Oxide Unit. Although locally productive, the Bedrock Oxide Unit is considered to be hydrologic bedrock by the ADWR (1989). The UBFU and LBFU are separated by a thin regionally extensive aquitard referred to as the MFGU. Each of these units generally corresponds to regionally extensive hydrostratigraphic units described by ADWR (1989). Generalized cross sections depicting the distribution and thickness of the hydrostratigraphic units are shown on Figures 14A-8 and 14A-9. Recent water levels (2008) within the PTF model domain are shown on Figure 14A-10.

The geologic and hydrologic characteristics of these units have been defined by a series of studies conducted by previous companies associated with the PTF site including Conoco, Magma, and BHP Copper.

Conoco began hydrologic characterization of the ore body in 1971 in order to determine the dewatering requirements for a planned underground mine, and later an open pit mine to be developed at the PTF site. Between 1973 and 1976, Conoco conducted a total of 34 aquifer (pumping) tests that included tests conducted in individual water bearing units and various combinations of the LBFU and Bedrock Oxide Units. No aquifer tests were conducted in the period between 1976 and 1992, when Magma began hydrologic characterization for the purpose of completing a pre-feasibility study.

Magma purchased the PTF site and surrounding vicinity from Conoco in 1992, and initiated an intensive hydrologic characterization program that included a series of 49 pumping tests conducted at 17 locations at the PTF site and surrounding vicinity. The tests, conducted by Brown and Caldwell, included 17 pumping wells and 46 monitoring wells screened within the various water bearing units. Eight wells were completed within the UBFU, 17 within the LBFU, and 38 wells within the Bedrock Oxide Unit including the hanging wall and footwall zones of the major faults. Each of the pumping tests was conducted at pumping rates of at least 0.25 gpm per foot of screen. After completion of the pumping tests, Golder Associates (Golder, 1995) analyzed the pump test data to derive hydrologic parameter values describing each of the water bearing units. The values derived by Golder Associates for each of the water bearing units confirmed, and expanded on, those derived by Conoco. A copy of the 1995 Golder Associates report is submitted as Exhibit 14A-1.

In January 1996, BHP Copper acquired Magma and the PTF site and surrounding vicinity, and continued hydrologic characterization of the associated ore body. BHP Copper did not conduct any additional aquifer tests. However, in order to further characterize hydrologic properties of the ore body, BHP Copper installed a pilot five-spot ISCR well pattern with adjacent, perimeter, and observation wells for the purpose of conducting a commercial-scale pilot test to demonstrate the feasibility of establishing and maintaining hydraulic control. No additional hydrologic characterization activities were completed between the conclusion of the BHP Copper pilot test in 1998 and the purchase of the PTF site and surrounding vicinity by Curis Arizona.

Curis Arizona acquired the PTF site and surrounding vicinity in the first quarter of 2010. The only hydrologic characterization activities conducted by Curis Arizona since their acquisition of the site have been laboratory testing of two samples of MFGU sediments to determine hydraulic conductivity. The results of those tests are described below. The laboratory reports for those analyses are included as Exhibit 14A-2.

The range of hydraulic conductivity values measured for each of the water bearing units are shown on Figure 14A-11. Hydraulic conductivity values plotted on Figure 14A-11 include values derived from tests of individual water bearing units conducted by Conoco and Magma. Hydraulic conductivity values derived from tests that included multiple water bearing units were excluded from Figure 14A-11.

No vadose zone characterization activities have been conducted since 1995 when BHP completed site characterization. Vadose zone characterization activities performed in support of the BHP site characterization are described in Section 2.3.1, Volume II, of that application. A copy of Section 2.3.1, Volume II of the 1996 APP application is included as Exhibit 14A-3.

EXHIBIT A-3

Hydrologic Study Part C, Supplemental Data
(Temporary APP Application Attachment 14C)

CURIS RESOURCES (ARIZONA) INC.

APPLICATION FOR TEMPORARY INDIVIDUAL AQUIFER PROTECTION PERMIT

ATTACHMENT 14C – HYDROLOGIC STUDY PART C

SUPPLEMENTAL DATA (ITEM 25.H)

REGISTERED GEOLOGIST
CERTIFICATE NO.
38869
MARK D.
NICHOLLS
Date Signed 3/11/14
ARIZONA, U.S.A.
Exp. 9/30/2012

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To avoid confusion, if projection of a POC well to the cross section resulted in a conflict between the actual and apparent geologic unit in which the well was constructed, the well was not shown on the cross section. Because of lateral changes in lithology across the site, projection of wells M4-O, M7-GL, M22-O, and M28-LBF onto cross sections shown in Figures 14C-48 through 14C-51 would result in the depiction of well screens and completion depths in incorrect geologic units for these existing POC wells. Consequently wells M4-O, M7-GL, M22-O, and M28-LBF are not shown on these cross sections.

As described above, groundwater mounding and cones of depression observed in the vicinity of the PTF site are transient in nature and Curis Arizona does not have access to data describing the magnitude or frequency of their recurrence. Consequently, any depiction of these features would require greater interpolation than is suitable for detailed cross sections.

No subsidence zones are shown on Figures 14C-48 through 14C-51 because none are known to exist within the area represented by the cross sections.

Figure 14C-52 is a detailed geologic cross section depicting BHP Copper test wells (past injection/ recovery/observation wells) showing the screened interval and other details relative to key geologic features. This cross section was created because projection of these wells onto cross sections shown on Figures 14C-48 through 14C-52 would result in depiction of well screens and completion depths in incorrect geologic units due to lateral changes in lithology across the site.

14C.7 Earth Fissures and Subsidence

The Arizona Geological Survey (AZGS) has responsibility for mapping earth fissures and ground surface subsidence throughout the State of Arizona. In March 2011, AZGS published a map of earth fissures within Pinal County, Arizona (AZGS, 2011). The map shows that the nearest known earth fissures are located approximately 7 miles to the south of the PTF site, in the vicinity of Coolidge Municipal Airport, Coolidge, Arizona. The next nearest earth fissures are located approximately 15 miles to the northwest of the PTF site, in the vicinity of Chandler Heights, Chandler, Arizona. Earth fissure locations near the Coolidge Airport and Chandler Heights area, as published by AZGS (2011), are shown on Figure 14C-53. A copy of the AZGS map is included as Exhibit 14C-7. No earth fissures or measurable subsidence has been reported in the vicinity of the PTF site.

Groundwater withdrawal induced subsidence occurs primarily in unconsolidated fine grained sediments that lose buoyancy as they are dewatered. The groundwater flow model described in Attachment 14A of the this Application has demonstrated that the LBFU and MFGU remain fully saturated throughout the planned duration of the proposed PTF operations. The model also demonstrates that the UBFU, which is presently partially saturated, will remain partially saturated at near present levels for the duration of the proposed PTF operations.

14C.7.1 Estimates of Subsidence

A theoretical subsidence estimate was prepared for the PTF site and surrounding vicinity in conjunction with an APP application submitted in January 1996. That estimate was prepared based on work performed by Ahlness and Triplett (1994), two researchers employed by the U.S. Bureau of Mines to study the potential for subsidence at the Santa Cruz In-Situ Copper Project. The method developed by Ahlness and Triplett (1994) was derived from a series of triaxial compression tests on leached and unleached core samples of ore from the Santa Cruz In-situ Copper Mine project. Curis Arizona has been unable to locate a copy of the publication detailing the method and assumptions used by Ahlness and Triplett (1994).

Ahlness and Triplett were employed by the U.S. Bureau of Mines when they produced their research in 1994. The Bureau of Mines was disbanded in early 1995, and responsibility for publications in progress was transferred to several federal government entities including the United States Geological Survey (USGS).

Curis Arizona has searched Arizona State University, University of Arizona, and an Arizona State library, has contacted the AZGS and USGS, and has attempted to contact the author directly.

Based on the description included in the 1996 APP application, work performed by Ahlness and Triplett (1994) suggests that, in theory, full commercial scale ISCR operations may result in minor subsidence at the ground surface. The theoretical subsidence values derived by Ahlness and Triplett (1994) were based on laboratory examination of unleached and laboratory leached core samples. No follow-up studies were performed to validate their methods or assumptions in the field.

Although the theoretical subsidence calculated by Ahlness and Triplett (1994) for the Santa Cruz project was very minor, several factors suggest that the potential for ISCR-induced subsidence at the PTF site is negligible. The minerals that are targeted for dissolution by the injected lixiviant at the PTF site are non-load bearing fracture filling minerals. These minerals are oxidation byproducts formed during the decomposition of sulfide copper-bearing minerals. The targeted minerals only exist within naturally occurring fractures that are open to groundwater flow. Fractures that are not open to groundwater flow are not open to the injected lixiviant, and consequently will not be dissolved. There will be no corresponding loss of rock strength as the targeted fracture lining minerals are dissolved because the open fractures and the fracture lining minerals do not have significant compressive strength. After dissolution of the fracture lining copper oxide minerals, the fractures will remain open and fully saturated. No loss of buoyancy will occur within the Bedrock Oxide Unit because the fractures will remain fully saturated.

Given that no subsequent studies were conducted to validate the assumptions made by Ahlness and Triplett (1994) regarding subsidence predicted and observed at the Santa Cruz site, and no formal comparison of geologic structure and geochemical differences between the Santa Cruz and PTF sites has been conducted, it is not clear that their study has any application to the PTF site.

Using the assumptions developed by Ahlness and Triplett (1994), a subsidence value of 0.1 to 0.3 inches was reported for the PTF site in the 1996 APP application. Review of the text description of the calculations included in the 1996 APP application seems to indicate that there may have been a unit conversion error in the calculation and that the actual value calculated should have been between 1.2 and 3.6 inches of subsidence. However, without access to the publication produced by Ahlness and Triplett (1994), it is not possible to verify either the calculations or the potential conversion error reported in the 1996 APP application.

14C.7.2 Subsidence Monitoring

Although ISCR-induced subsidence is anticipated to be immeasurable, Curis Arizona proposes to survey a series of fixed control points located in the vicinity of the proposed PTF well field prior to the commencement of PTF operations as a precaution. Curis Arizona will monitor changes in elevation at those control points annually. The cumulative results of the annual surveys, and a description of the reasons for any changes in elevation, will be reported to ADEQ at completion of the proposed PTF operations.

FLORENCE COPPER, INC.

UIC PERMIT APPLICATION

FLORENCE COPPER PROJECT – PRODUCTION TEST FACILITY

ATTACHMENT D – MAPS & CROSS SECTIONS OF USDWs

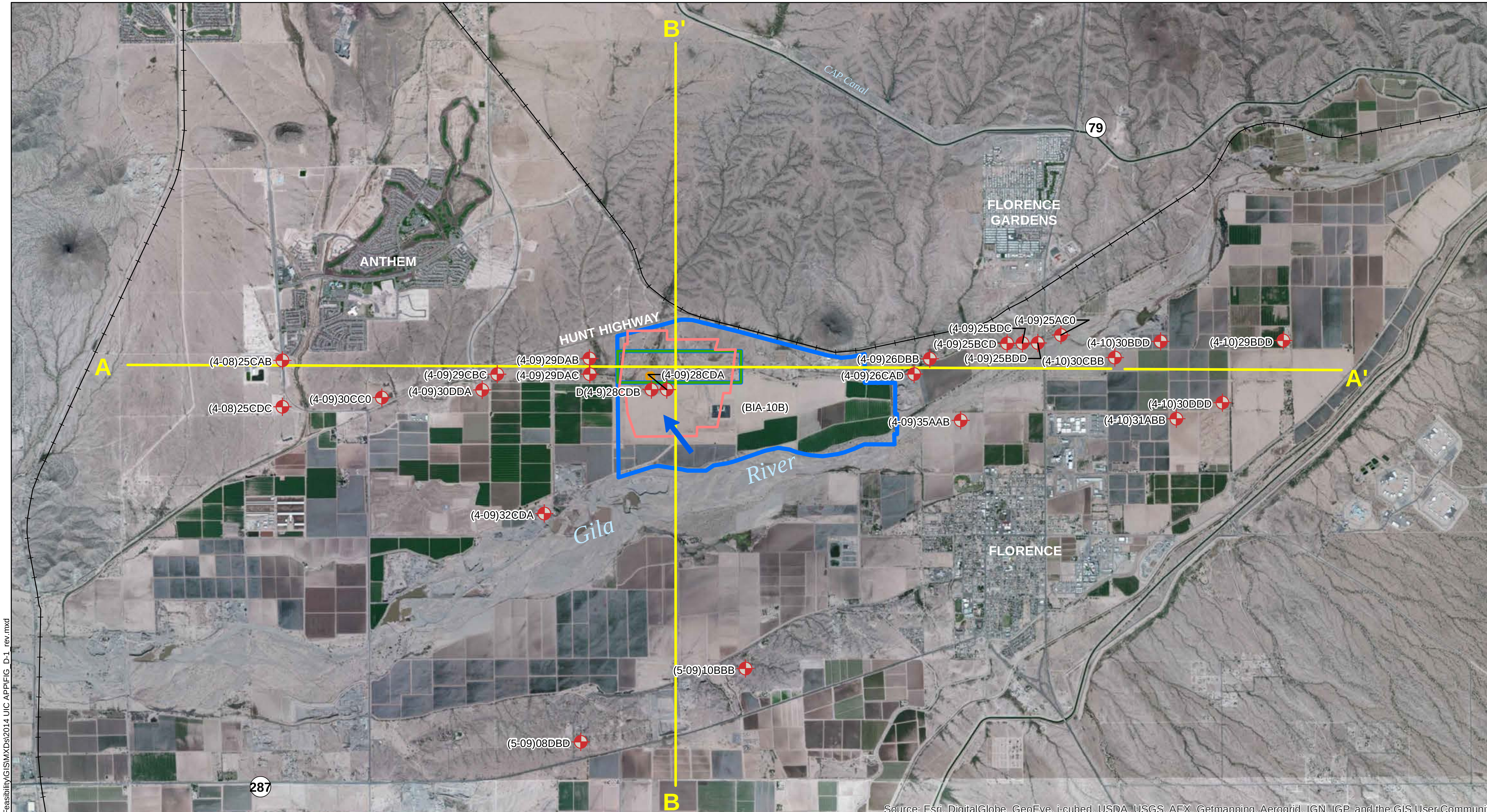
Table of Contents

List of Figures

D.1 Introduction

This Attachment D has been prepared in support of an Application by Florence Copper, Inc. (Florence Copper) to the United States Environmental Protection Agency (USEPA) for issuance of an Underground Injection Control Class III (Area) Permit (UIC Permit) for the planned Production Test Facility, to be located at the Florence Copper Project property in Pinal County, Arizona. As required for Attachment D of USEPA Form 7520-6, this Attachment includes maps and cross sections that depict the vertical limits of all underground sources of drinking water (USDWs) within the Area of Review (AOR) defined in Attachment A of this Application. Figures D-1 and D-2 show the location of regional and site scale cross sections, respectively. Figures D-3 and D-4 are regional scale cross sections. Figures D-5, D-6, D-7, D-8 and D-9 are site scale cross sections depicting the FCP property. Pink shading depicted on cross sections D-3 through D-9 indicates the extent of USDWs outside of the AOR and Aquifer Exemption boundary.

Figure D-10 is a map showing the location of cross sections through the PTF well field. Figures D-11 and D-12 are cross sections through the PTF well field. Blue shading in Figures D-11 and D-12 indicates the extent of USDWs outside of the AOR and Aquifer Exemption boundary.



G:\Projects\Curis Resources\38706-Curis Feasibility\GIS\MXDs\2014 UIC APP\FIG_D-1_rev.mxd

Legend

- AQUIFER EXEMPTION BOUNDARY
- PTF WELL FIELD
- CURIS PROPERTY BOUNDARY
- STATE MINERAL LEASE BOUNDARY
- A A' REGIONAL CROSS SECTION LOCATION LINE
- LOCATION OF WELL REPRESENTED IN CROSS SECTIONS A-A' AND B-B'
- TYPICAL GROUNDWATER FLOW DIRECTION IN USDWs WITHIN THE AREA OF REVIEW

N
W E
S

0 1,000 2,000 4,000
SCALE IN FEET

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

REGIONAL CROSS SECTION LOCATION MAP

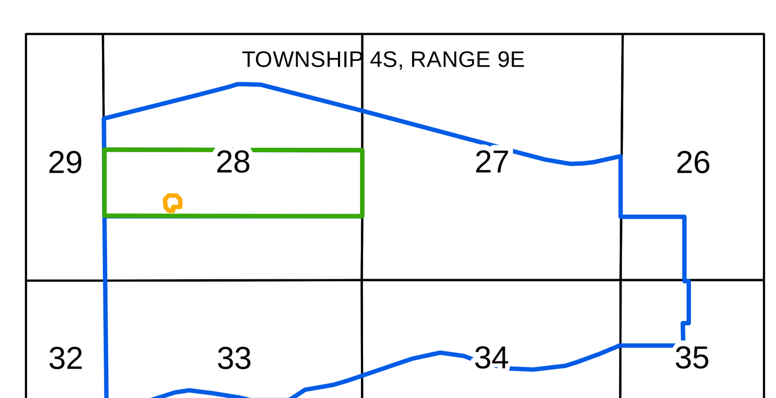
FLORENCE COPPER INC.

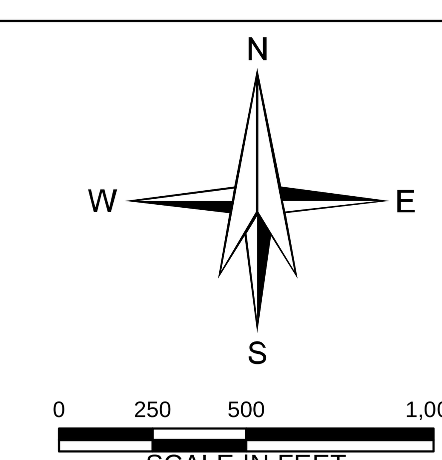
MAY 2014

FIGURE D-1

Legend

- POC WELL
- NON POC WELL
- PTF WELL FIELD
- STATE MINERAL LEASE BOUNDARY
- CURIS PROPERTY BOUNDARY
- AQUIFER EXEMPTION BOUNDARY
- REGIONAL CROSS SECTION LOCATION LINES A-A' AND B-B'
- SITE CROSS SECTION LOCATION LINES B''-B''', C-C', D-D' AND E-E'
- TYPICAL GROUNDWATER FLOW DIRECTION IN USDW's WITHIN THE AREA OF REVIEW





HALEY & ALDRICH

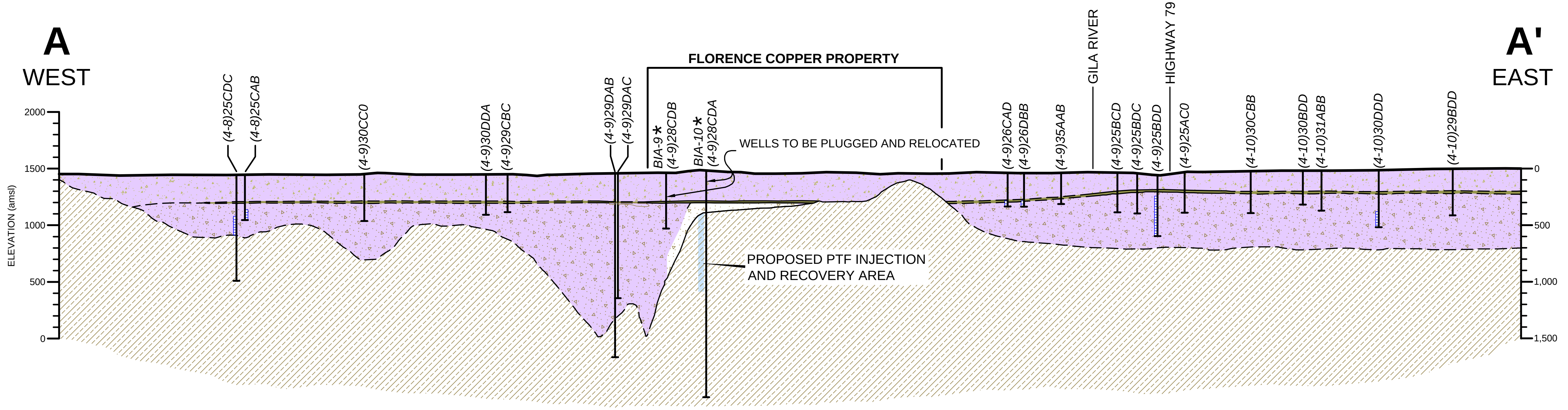
FLORENCE COPPER, INC.
FLORENCE, ARIZONA

FLORENCE COPPER SITE CROSS SECTION LOCATION MAP

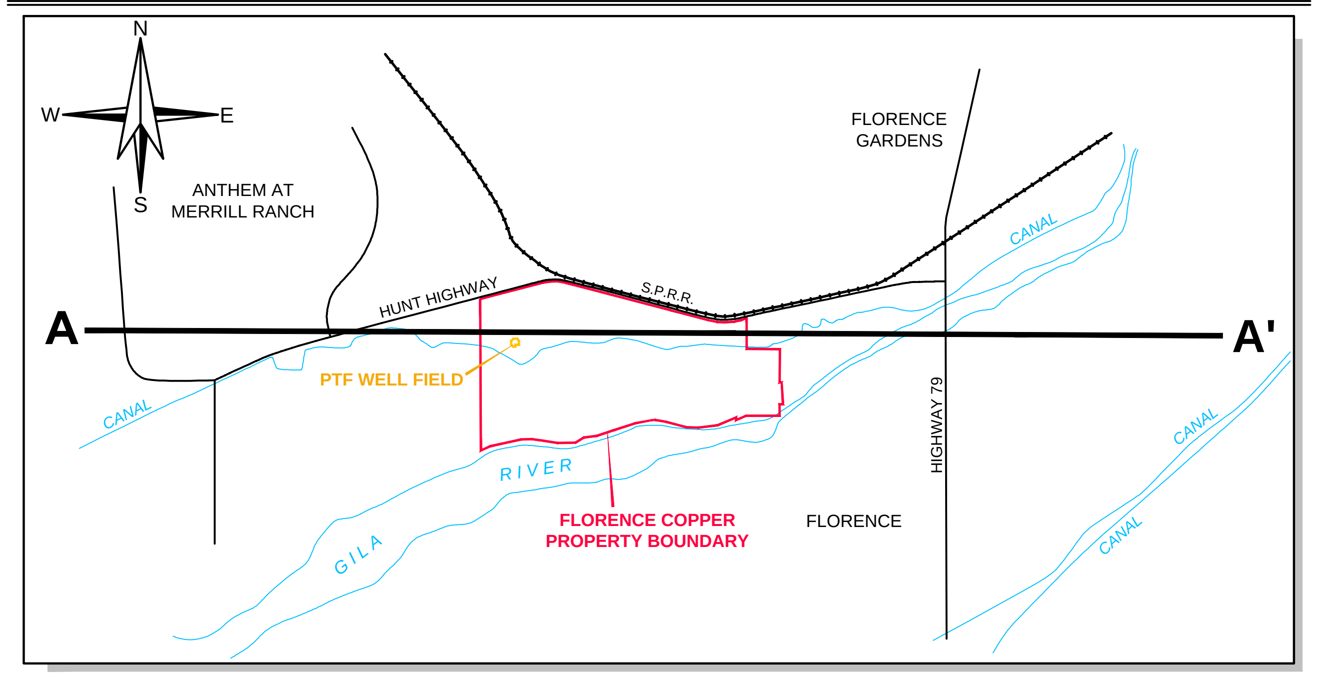
FLORENCE COPPER INC. JULY 2014

FIGURE D-2

G:\Projects\Curis Resources\38706-Curis Feasibility\GIS\MXDs\2014 UIC APP\FIG_D-2_rev080114.mxd



KEYMAP



LEGEND

- UPPER BASIN FILL ALLUVIAL UNIT
- MIDDLE FINE-GRAINED UNIT
- LOWER BASIN FILL ALLUVIAL UNIT
- BEDROCK
- VERTICAL LIMITS OF USDWs
- INFERRED EXTENT OF MIDDLE FINE-GRAINED UNIT

APPROXIMATE WELL LOCATION
(GENERALLY PROJECTED ONTO CROSS SECTION)

- SCREENED INTERVAL (WHERE DATA IS AVAILABLE)
- TOTAL DEPTH OF BOREHOLE

NOTES: BEDROCK SURFACE TOPOGRAPHY COMPILED BY BROWN AND CALDWELL FROM EXISTING WATER WELL LOGS, EXPLORATORY COREHOLE LOGS AND REGIONAL GRAVITY SURVEYS (BHP COPPER INC. APP APPLICATION, VOLUME II FIGURES 3.4-2 (II) AND 3.4-3 (II), 1996).

* WELLS BIA-9 AND BIA-10B WILL BE PLUGGED AND RELOCATED PRIOR TO COMMERCIAL OPERATIONS.

UNIT CONTACTS DASHED WHERE INFERRED.

ADAPTED FROM BROWN AND CALDWELL 2012.

0 4,000 8,000
HORIZONTAL SCALE: 1" = 4,000'
VERTICAL SCALE: 1" = 1,000'
4X VERTICAL EXAGGERATION

HALEY& ALDRICH

FLORENCE COPPER, INC.
FLORENCE, AZ

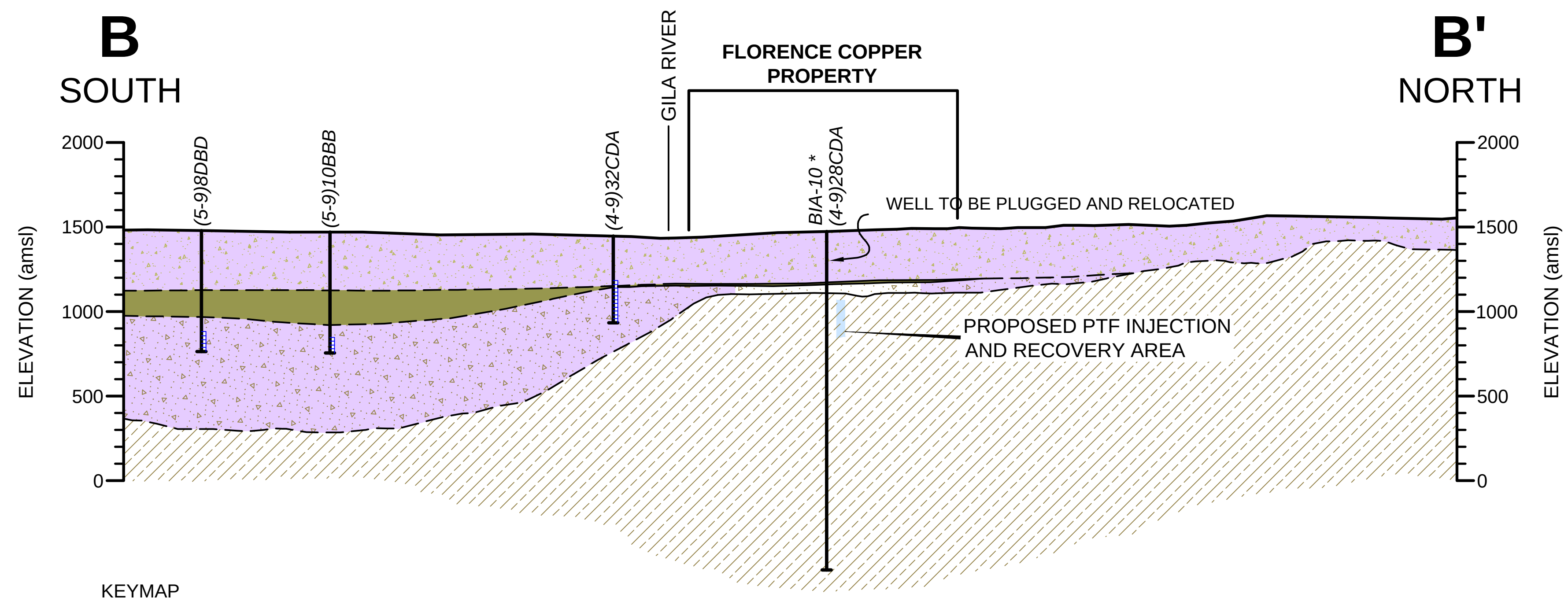
GENERALIZED REGIONAL GEOLOGIC CROSS SECTION A-A'

FLORENCE COPPER INC.

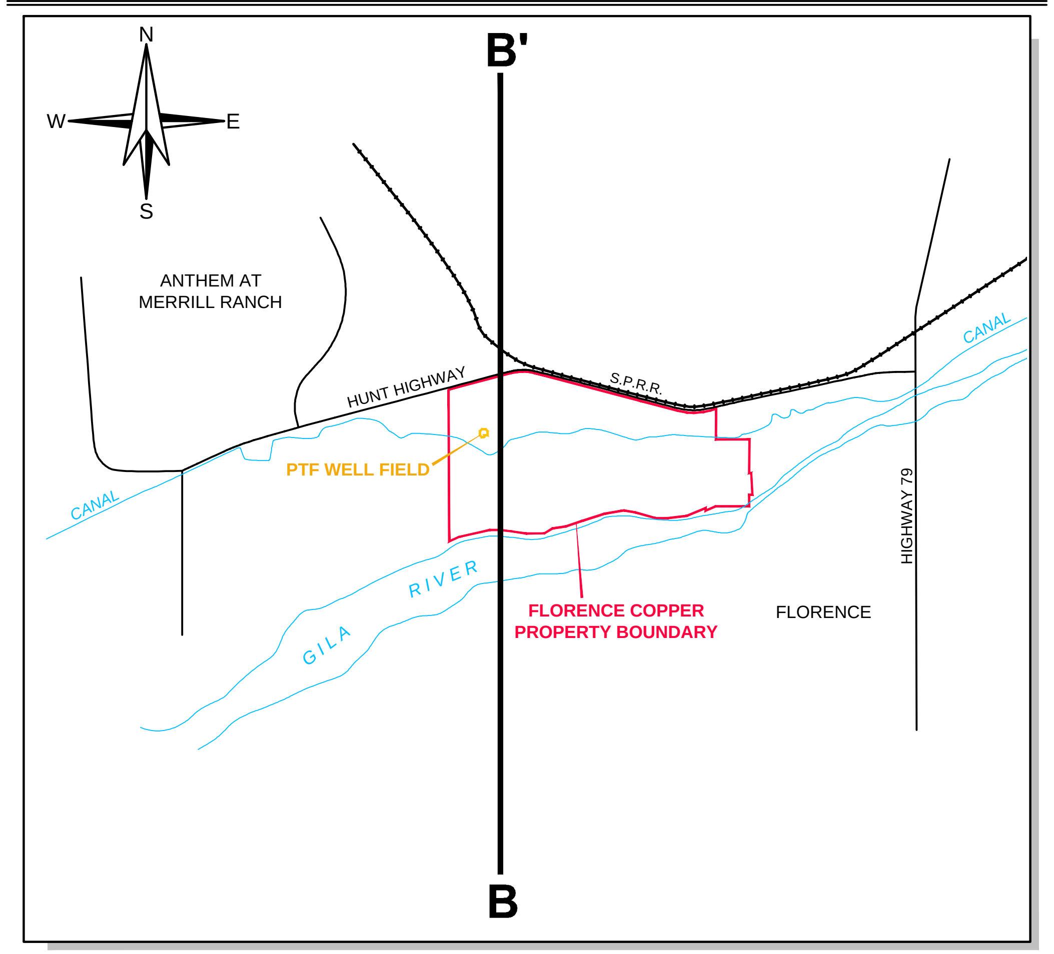
SCALE: AS SHOWN

FIGURE D-3

Drawing Name: G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\JULY 2014 UIC APP\D-3_UPD080114.DWG
Plot Date: August 1, 2014
Operator Name: CANDREVA, LAUREN Drawing Layout: (11X17)



KEYMAP



LEGEND

- UPPER BASIN FILL ALLUVIAL UNIT
- MIDDLE FINE-GRAINED UNIT
- LOWER BASIN FILL ALLUVIAL UNIT
- BEDROCK
- VERTICAL LIMITS OF USDWs
- INFERRED EXTENT OF MIDDLE FINE-GRAINED UNIT

APPROXIMATE WELL LOCATION
(GENERALLY PROJECTED ONTO CROSS SECTION)

- SCREENED INTERVAL (WHERE DATA IS AVAILABLE)
- TOTAL DEPTH OF BOREHOLE

NOTES: BEDROCK SURFACE TOPOGRAPHY COMPILED BY BROWN AND CALDWELL FROM EXISTING WATER WELL LOGS, EXPLORATORY COREHOLE LOGS AND REGIONAL GRAVITY SURVEYS (BHP COPPER INC. APP APPLICATION, VOLUME II FIGURES 3.4-2 (II) AND 3.4-3 (II), 1996).

*WELL BIA-10B WILL BE PLUGGED AND RELOCATED PRIOR TO COMMERCIAL OPERATIONS.

MIDDLE FINE-GRAINED UNIT SHOWN AT WELLS (5-9)8DBD, (5-9)10BBB AND (4-9)32CDA ESTIMATED FROM ADWR WELL REPORTS.

UNIT CONTACTS DASHED WHERE INFERRED.

ADAPTED FROM BROWN AND CALDWELL 2012.

0 4,000 8,000
HORIZONTAL SCALE: 1" = 4,000'
VERTICAL SCALE: 1" = 1,000'

HALEY& ALDRICH

FLORENCE COPPER, INC.
FLORENCE, AZ

GENERALIZED REGIONAL GEOLOGIC CROSS SECTION B-B'

FLORENCE COPPER INC.

SCALE: AS SHOWN

FIGURE D-4

Drawing Name: G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\JULY 2014 UIC APP\D-4_UPD080114.DWG
Operator Name: CANDREVA, LAUREN Drawing Layout: ES-STD (11X17) Plot Date: August 1, 2014

FLORENCE COPPER, INC.

UIC PERMIT APPLICATION

FLORENCE COPPER PROJECT – PRODUCTION TEST FACILITY

ATTACHMENT Q – PLUGGING AND ABANDONMENT PLAN

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List of Exhibits

Exhibit Q-1

Copy of Aquifer Protection Permit No. 106360
Issued by ADEQ, dated July 3, 2013

STATE OF ARIZONA
TEMPORARY AQUIFER PROTECTION PERMIT NO. P- 106360
PLACE ID 1579, LTF 58398
OTHER AMENDMENT

1.0 AUTHORIZATION

In compliance with the provisions of Arizona Revised Statutes (A.R.S.) Title 49, Chapter 2, Articles 1, 2 and 3, Arizona Administrative Code (A.A.C.) Title 18, Chapter 9, Articles 1 and 2, A. A. C. Title 18, Chapter 11, Article 4 and amendments thereto, and the conditions set forth in this permit, the Arizona Department of Environmental Quality (ADEQ) hereby authorizes Curis Resources (Arizona) Inc. to operate the Florence Copper Project- Pilot Test Facility Florence, Pinal County, Arizona, over groundwater of the Pinal Active Management Area, in Section 28, Range 9E, Township 4S Gila and Salt River Base Line and Meridian.

For purposes of A.A.C. R18-9-A210(E), this permit becomes effective on the later of the following: 1) If no timely appeal is filed, upon completion of the public participation requirements under A.A.C. R-18-9-109; 2) If a timely appeal is filed, upon final decision of the water quality appeals board; or 3) upon the date specified by the permittee in a written notification to ADEQ that the permittee can use the authorization to operate the PTF granted by this permit.

1. Following all the conditions of this permit including the design and operational information documented or referenced below, and

2. Such that Aquifer Water Quality Standards (AWQS) are not violated at the applicable point of compliance (POC) set forth below, or if an AWQS for a pollutant has been exceeded in an aquifer at the time of permit issuance, that no additional degradation of the aquifer relative to that pollutant, and as determined at the applicable POC, occurs as a result of the discharge from the facility.

1.1 PERMITTEE INFORMATION

Facility Name:	Florence Copper Project Production Test Facility
Facility Address:	Curis Resources (Arizona) Inc. 1575 W. Hunt Highway Florence, AZ 85132
Permittee:	Curis Resources (Arizona) Inc.
Permittee Address:	1575 W. Hunt Highway Florence, AZ 85132
Facility Contact:	Dan Johnson, Vice President, Environmental
Emergency Phone No.:	(520) 374-3984
Latitude/Longitude:	33° 03' 1.4" N / 111° 26' 4.7" W
Legal Description:	Township 4S, Range 9E, Section 28 Gila and Salt River Base Line and Meridian

1.2 AUTHORIZING SIGNATURE

Michael Fulton, Director
Water Quality Division
Arizona Department of Environmental Quality
Signed this 3rd day of July, 2013

THIS AMENDED PERMIT SUPERCEDES ALL PREVIOUS PERMITS

2.0 SPECIFIC CONDITIONS [A.R.S. §§ 49-203(4), 49-241(A)]

2.1 Facility / Site Description [A.R.S. § 49-243(K)(8)]

The Temporary Individual Aquifer Protection Permit (APP) is for a Production Test Facility (PTF), a pilot scale test facility located on approximately 160 acres of the Arizona State Land (Mineral Lease 11-26500). The Temporary APP is to construct and operate a production test facility which shall provide sufficient data to assess and develop a full-scale in-situ mining operation.

The PTF will occupy approximately 13.8 contiguous acres and the PTF well field will occupy approximately 2.2 acres. Curis Resources (Arizona) Inc. proposes to construct and operate the PTF over a two-year period, estimated to include an approximate 14 month leaching phase and a 9 month mine block rinsing phase. The PTF will contain a total of 24 wells and consist of 4 Underground Injection Control (UIC) Class III injection wells, 9 recovery wells, 7 observation wells and 4 multilevel sampling wells. The proposed In-Situ Copper Recovery (ISCR) process involves injecting a lixiviant (99.5% water mixed with 0.5% sulfuric acid) through injection wells into the oxide zone of the bedrock beneath the site for the purposes of dissolving copper minerals from the ore body. The estimated injection zone is between approximately 500 feet below ground surface (ft bgs) to 1,185 ft bgs. The resulting copper-bearing solution will be pumped by recovery wells to the surface where copper will be removed from the solution in a solvent extraction electro winning (SX/EW) plant. The barren solution from the SX/EW plant will be re-acidified and re-injected back into the oxide zone. Other facilities proposed for the PTF will include the SX/EW Plant, Process Water Impoundment (PWI), Runoff Pond, tank farm and other ancillary facilities.

The site includes the following permitted discharging facilities:

Facility	Latitude	Longitude
In-Situ Area Injection and Recovery Well Block	33° 3' 1.39" N	111° 26' 4.69" W
Process Water Impoundment	33° 3' 8.67" N	111° 25' 22.18" W
Run-off Pond	33° 3' 4.66" N	111° 25' 22.6" W

Annual Registration Fee [A.R.S. § 49-242 and A.A.C. R18-14-104]
The annual registration fee for this permit is established by A.R.S. § 49-242 and is payable to ADEQ each year. The design flow is 432,000 gallons per day (gpd).

Financial Capability [A.R.S. § 49-243(N) and A.A.C. R18-9-A203]
The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee shall maintain financial capability throughout the life of this permit. The estimated closure cost is $3,487,743. The financial assurance mechanism was demonstrated through a performance surety bond (A.A.C. R18-9-A203 (C)(2)).

2.2 Best Available Demonstrated Control Technology [A.R.S. § 49-243(B) and A.A.C. R18-9-A202(A)(5)]

This permit authorizes the temporary operation of the discharging facilities listed below, pursuant to A.A.C. R18-9-A210(E). The intent of the pilot test is to demonstrate that hydraulic control of the in-situ solution can be maintained at the site in order to conduct a copper recovery process. The discharging facilities and their BADCT descriptions are also presented in Section 4.1, Table 4.1-1.

2.2.1 Engineering Design

2.2.1.1 In-Situ Area Injection and Recovery Well Block

Design, construction, testing (mechanical integrity), and operation of injection and recovery wells shall follow EPA Class III rules (40 CFR Part 146). The maximum fracture pressure

FLORENCE COPPER, INC.

UIC PERMIT APPLICATION

FLORENCE COPPER PROJECT – PRODUCTION TEST FACILITY

ATTACHMENT S – AQUIFER EXEMPTION

Table of Contents

List of Figures

List of Exhibits

S.1 Introduction

This Attachment has been prepared in support of an application (Application) by Florence Copper, Inc. (Florence Copper) to the United States Environmental Protection Agency (USEPA) for issuance of an Underground Injection Control Class III (Area) Permit (UIC Permit) for the planned Production Test Facility (PTF), to be located at the Florence Copper Project (FCP) in Pinal County, Arizona. This Attachment describes the aquifer exemption issued to BHP Copper, a previous site owner, in conjunction with UIC Permit No. AZ396000001. UIC Permit No. AZ396000001 was issued for operation of an in-situ copper recovery (ISCR) facility at the FCP property which is inclusive of the currently proposed PTF area and the broader mineralized area which is approximately 212 acres in size. The horizontal extent of the existing aquifer exemption coincides with the horizontal extent of the mineralized area permitted under UIC Permit No. AZ396000001 (212 acres), plus a 500-foot circumscribing area around that mineralized area. The vertical extent of the aquifer exemption conforms to criteria included in UIC Permit No. AZ396000001.

S.2 Historical Context

The USEPA originally issued UIC Permit No. AZ396000001 to BHP Copper Inc. (BHP Copper) on May 1, 1997. When the USEPA issued the UIC Permit, it also granted an "Underground Injection Control Aquifer Exemption for EPA Permit #AZ39600001" (Aquifer Exemption), designating the BHP Copper permitted area as exempt from provisions in the Safe Drinking Water Act as they pertain to protecting underground sources of drinking water (USDWs). The 1997 Aquifer Exemption is included for reference in Exhibit S-1.

UIC Permit No. AZ396000001 was amended on April 26, 2000 to establish permit limits for Alert Levels, Aquifer Quality Limits, and baseline water quality characteristics for Point of Compliance (POC) wells located around the Aquifer Exemption zone. The FCP property was subsequently sold and the permit was transferred from BHP Copper to the new owner in December 2001. None of the requirements of the UIC Permit were changed during the transfer process.

S.3 Required Criteria for Exempted Aquifers

Criteria for determining whether an aquifer qualifies as an "exempted aquifer" are listed under 40 Code of Federal Regulations (CFR) Sections 144.07 and 146.04. The criteria applicable to the Aquifer Exemption issued to BHP Copper are listed under 40 CFR 146.04(a) and (b). The criteria were evaluated during the USEPA review of BHP Copper's 1996 Application and resulted in the granting of the Aquifer Exemption in 1997.

Florence Copper is not aware of any change in aquifer conditions or planned operations that would require a change in the criteria used to determine the Aquifer Exemption area. Florence Copper has recently completed a report entitled "*NI 43-101 Florence Copper Project, Technical Report, Pre-Feasibility Study*". The report provides a broad range of information including the aquifer's potential for economic mineral development as per requirements in 40 CFR Sections 144.07(c)(1) and 146.04(b)(1), and as required for this Attachment. The report provides data regarding the delineation of the injection zone, general information on the mineralogy and geochemistry of the injection zone, the amenability of the in-situ process to recover copper, and a timetable for proposed development. An electronic copy of the Pre-Feasibility report is provided on a CD in Exhibit S-2 of this Attachment.

S.4 Original Aquifer Exemption

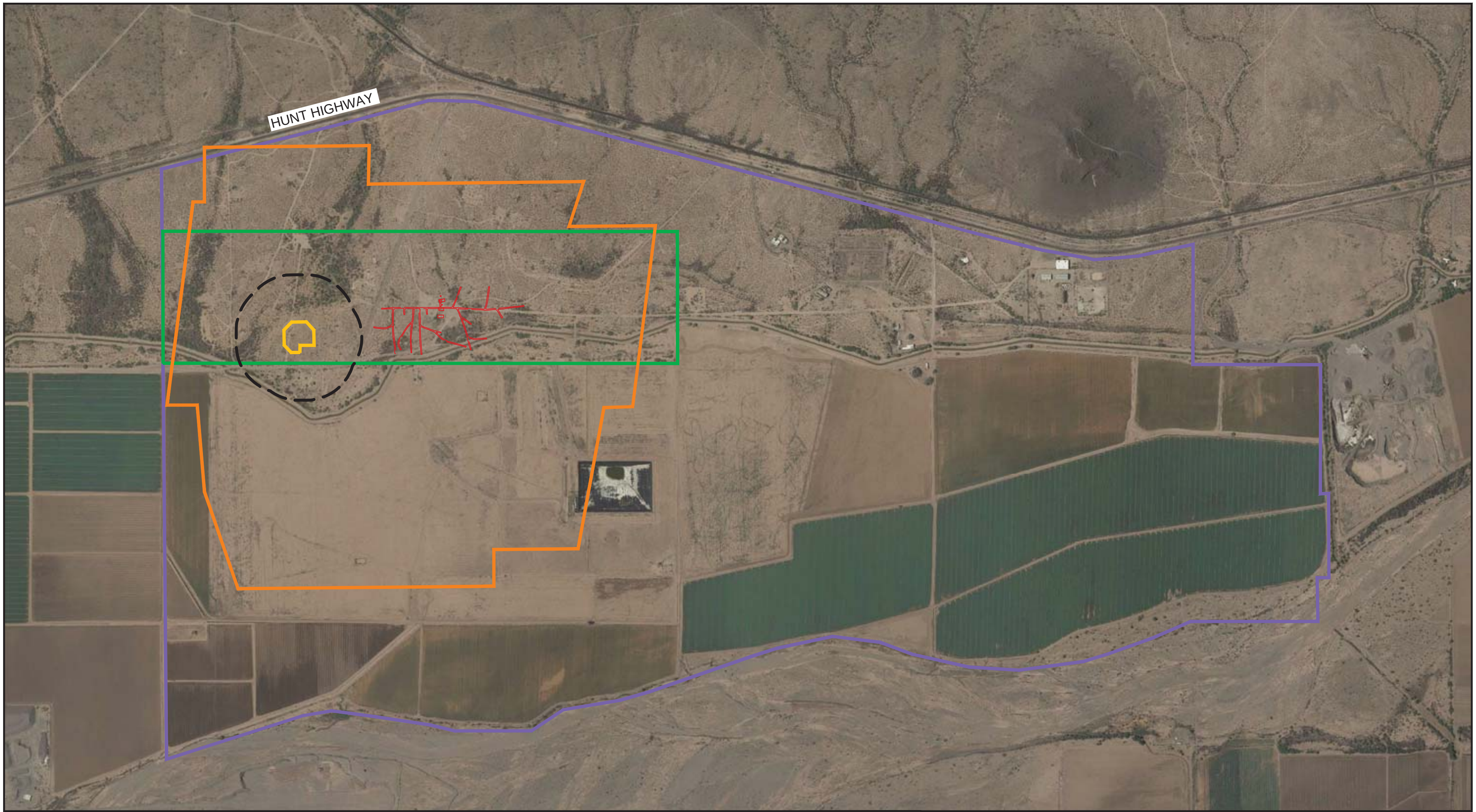
The horizontal limits of the proposed aquifer exemption coincide with the original Area of Review described in Attachment A and B of the original UIC Permit issued to BHP in 1997, and are shown on Figure S-1 of this Attachment. The vertical limits of the aquifer exemption are depicted in Figure S-2 and the lateral and vertical limit are described in Exhibit S-1.

S.5 References

M3 Engineering and Technology Corporation, 2013. NI 43-101 Technical Report Pre-Feasibility Study, Florence, Pinal County, Arizona. March 28.

Drawing Name: G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\2014 UIC APP\FIGURES S\S-1_AQUIFER EXEMP AREA.DWG

Operator Name: RODRIGUEZ, BRANDY   Drawing Layout: LAYOUT1   Plot Date: March 31, 2014



LEGEND

- AQUIFER EXEMPTION AREA
- PROPERTY BOUNDARY
- STATE MINE LEASE BOUNDARY
- PTF WELL FIELD
- AREA OF REVIEW
- CONOCO UNDERGROUND MINE WORKINGS

N W E S

0 1,500 3,000

HORIZONTAL SCALE: 1" = 1,500'

HALEY & ALDRICH

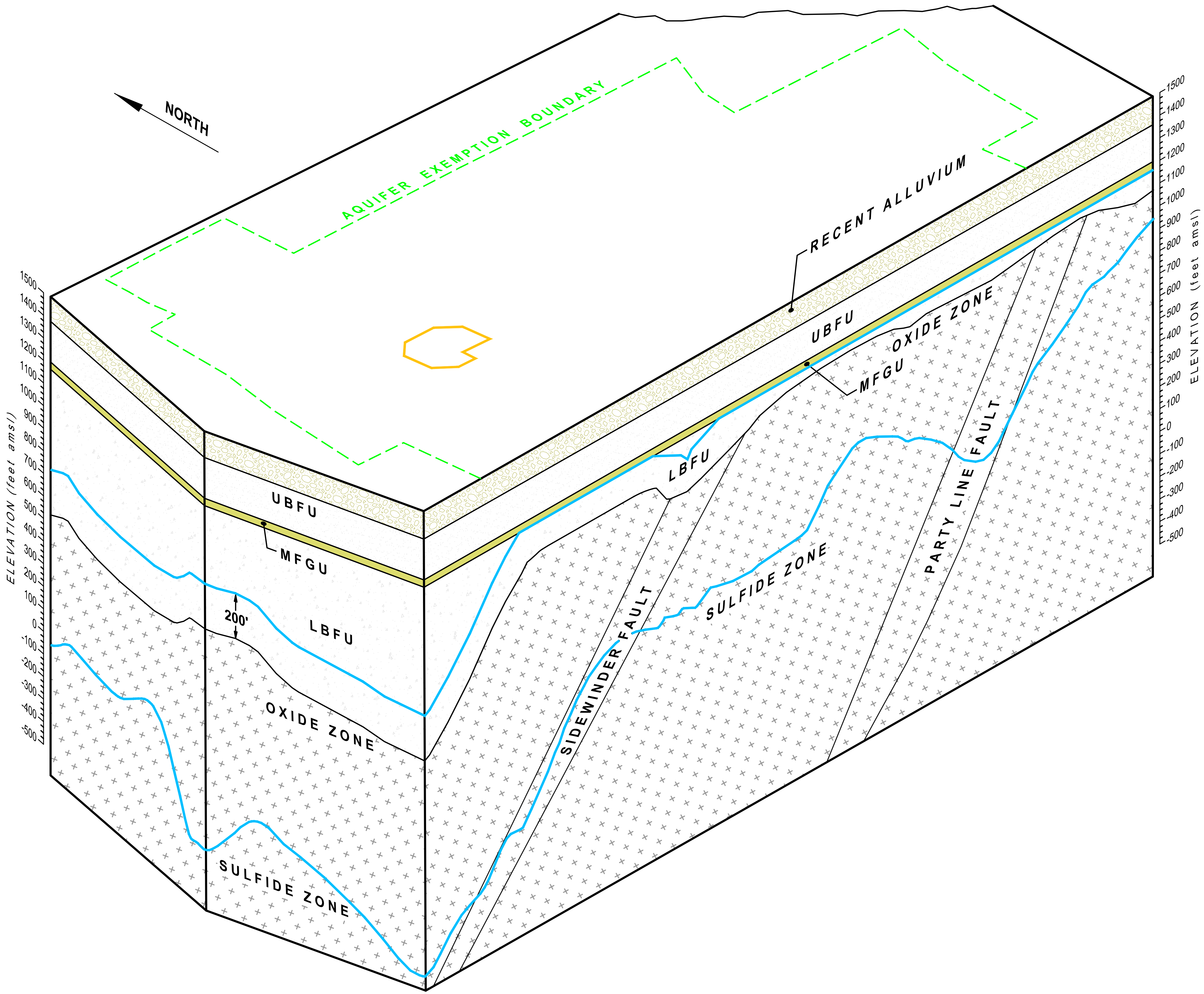
FLORENCE COPPER, INC.
FLORENCE, AZ

AQUIFER EXEMPTION AREA

FLORENCE COPPER INC.

SCALE: AS SHOWN
MAY 2014

FIGURE S-1



LEGEND

- ALLUVIUM
- U B F U — UPPER BASIN FILL ALLUVIAL UNIT
- M F G U — MIDDLE FINE-GRAINED UNIT
- L B F U — LOWER BASIN FILL ALLUVIAL UNIT
- BEDROCK
- VERTICAL EXTENT OF AQUIFER EXEMPTION
- PTF WELL FIELD
- AQUIFER EXEMPTION BOUNDARIES

HALEY & ALDRICH

FLORENCE RESOURCES, INC.
FLORENCE, ARIZONA

VERTICAL EXTENT OF
AQUIFER EXEMPTION BOUNDARY

FLORENCE COPPER INC.

SCALE: N.T.S.
JULY 2014

FIGURE S-2

Drawing Name: G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\2014 UIC APP\FIGURES S\38706-300-S-2.DWG
Operator Name: RODRIGUEZ, BRANDY Drawing Layout: ES-STD (11X17) Plot Date: July 29, 2014

EXHIBIT S-1

AQUIFER EXEMPTION
UIC PERMIT NO. AZ396000001 (MAY 1, 1997)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

UNDERGROUND INJECTION CONTROL AQUIFER EXEMPTION

FOR

EPA PERMIT #AZ396000001

In compliance with provisions of the Safe Drinking Water Act, as amended, (42 USC 300f-300j-9, commonly known as the SDWA) and attendant regulations incorporated by the U.S. Environmental Protection Agency under Title 40 of the Code of Federal Regulations (CFR), the zone located:

(1) in the subsurface interval of approximately 400 feet to 1600 feet below ground surface (bgs); and

(2) below the upper aquifer exemption boundary which is 200 feet above the oxide zone, or the base of the Middle Fine-Grained Unit (MFGU), whichever is further below ground surface; and

(3) above the lower aquifer exemption boundary which is the base of the reactive interval amenable to copper leach solutions, encompassing the oxide zone, which contains an economical amount of copper, and copper in the sulfide zone that is leachable; and

(4) laterally within 500 feet of the mine zone boundary delineated in Appendix A of EPA Permit #AZ396000001, and within the line connecting the following coordinate system points:

From a point (point 1) in the southwest of the northwest of Section 28, Range 9 East, Township 4 North of the GS & R meridian at Arizona Coordinate system Northing 748028.6 and easting 646937.7

To a point (point 2) in the southeast of the northwest of Section 28, Range 9 East, Township 4 North of the GS & R meridian at Arizona Coordinate system Northing 748042.1 and easting 648619.5

To a point (point 3) in the southeast of the northwest of Section 28, Range 9 East, Township 4 North of the GS & R meridian at Arizona

Coordinate system Northing 747656.9 and easting 648617.4

To a point (point 4) in the southeast of the northeast of Section 28, Range 9 East, Township 4 North of the GS & R meridian at Arizona Coordinate system Northing 747675.3 and easting 650811.6

To a point (point 5) in the southeast of the northeast of Section 28, Range 9 East, Township 4 North of the GS & R meridian at Arizona Coordinate system Northing 747216.3 easting 650662.8

To a point (point 6) in the southeast of the northeast of Section 28, Range 9 East, Township 4 North of the GS & R meridian at Arizona Coordinate system Northing 747230.7 and easting 651548.8

To a point (point 7) in the southeast of the southeast of Section 28, Range 9 East, Township 4 North of the GS & R meridian at Arizona Coordinate system Northing 745379.4 and easting 651309.7

To a point (point 8) in the southeast of the southeast of Section 28, Range 9 East, Township 4 North of the GS & R meridian at Arizona Coordinate system Northing 745369.4 and easting 651019.1

To a point (point 9) in the northeast of the northeast of Section 33, Range 9 East, Township 4 North of the GS & R meridian at Arizona Coordinate system Northing 743926.7 and easting 650758.8

To a point (point 10) in the northwest of the northeast of Section 33, Range 9 East, Township 4 North of the GS & R meridian at Arizona Coordinate system Northing 743922.9 and easting 649898.8

To a point (point 11) in the northwest of the northeast of Section 33, Range 9 East, Township 4 North of the GS & R meridian at Arizona Coordinate system Northing 743543.9 and easting 649897.6

To a point (point 12) in the northwest of the northwest of Section 33, Range 9 East, Township 4 North of the GS & R meridian at Arizona Coordinate system Northing 743520.7 and easting 647281.7

To a point (point 13) in the southwest of the southwest of Section 28, Range 9 East, Township 4 North of the GS & R meridian at Arizona Coordinate system Northing 744512.8 and easting 649939.6

To a point (point 14) in the southwest of the southwest of Section 28, Range 9 East, Township 4 North of the GS & R meridian at Arizona Coordinate system Northing 745392.3 and easting 646862.4

To a point (point 15) in the southwest of the southwest of Section 28, Range 9 East, Township 4 North of the GS & R meridian at Arizona Coordinate system Northing 745391.8 and easting 646552.4

To a point (point 16) in the southwest of the northwest of Section 28, Range 9 East, Township 4 North of the GS & R meridian at Arizona Coordinate system Northing 747466.7 and easting 646824.3

To a point (point 17) in the southwest of the northwest of Section 28, Range 9 East, Township 4 North of the GS & R meridian at Arizona Coordinate system Northing 747468.8 and easting 646938.8

is exempted as an underground source of drinking water (USDW).

This aquifer exemption is granted in conjunction with the Class III Underground Injection Control permit issued to BHP Copper, for the injection of an acidic solution for the purpose of copper production at the Florence In-Situ Project, Pinal County, Arizona.

This aquifer exemption has no expiration date.

Signed this 1st day of May, 1997.

Alexis Strauss

Alexis Strauss, Acting Director
Water Division, EPA Region 9

EXHIBIT S-2

NI 43-101 Technical Report Pre-Feasibility Study, Florence, Pinal County, Arizona (Provided on CD)

M3-PN100137

Florence Copper Project

NI 43-101 Technical Report
Pre-Feasibility Study

Florence, Pinal County, Arizona

REVISION 0

Prepared For:

HDI CURIS

Effective Date of Report: 28 March 2013

Report Issue Date: 28 March 2013

Qualified Persons:

Richard Zimmerman, R.G., SME-RM

Michael R. Young, SME-RM

Corolla Hoag, C.P.G., SME-RM

Terence P. McNulty, P.E., SME-RM

Dennis Tucker, P.E.

Richard Frechette, P.E.

DATE AND SIGNATURES PAGE

This report is current as of 28 March 2013. Certificates of Qualified Persons are included as Appendix A.

Signature	Date
"Richard Zimmerman, R.G., SME-RM"	28 March 2013
"Michael R. Young, SME-RM"	28 March 2013
"Corolla Hoag, C.P.G., SME-RM"	28 March 2013
"Terence P. McNulty, P.E., SME-RM"	28 March 2013
"Dennis Tucker, P.E."	28 March 2013
"Richard Frechette, P.E."	28 March 2013

FLORENCE COPPER PROJECT
FORM 43-101F1 TECHNICAL REPORT
PRE-FEASIBILITY STUDY

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1 EXECUTIVE SUMMARY

1.1 PROJECT OVERVIEW – KEY DATA AND RESULTS

The Florence Copper Project ("the FCP" or "the Project") is an advanced-stage oxide copper project located in central Arizona and controlled 100 percent by Curis Resources Ltd. ("Curis"). The Project is a shallowly buried porphyry copper deposit that is amenable to in-situ copper recovery ("ISCR") and solvent extraction-electrowinning ("SX/EW") copper production. The property, including surface and subsurface rights, consists of private patented land totaling approximately 1,182 acres and a leased parcel of Arizona State Land of approximately 159.5 acres in size. M3 Engineering & Technology Corporation ("M3") was commissioned by Curis Resources (Arizona) Inc. ("Curis Arizona"), a wholly owned subsidiary of Curis, with other specialist consultants to prepare a Pre-Feasibility Study of the Project and a technical report that is compliant with the Canadian Securities Administrators ("CSA") National Instrument 43-101F1 ("NI 43-101") (CSA, 2011). As primary author of this Pre-Feasibility Study, M3 was integral to development and engineering of copper extraction and processing facilities as well as capital and operating cost estimates for the Florence Copper Project. The key data and results of this Pre-Feasibility Study at a $2.75 long term copper price are described below. All currency is in US dollars.

- The economic analysis before taxes indicates an Internal Rate of Return (IRR) of 36% and a payback period of 2.6 years. The Net Present Value ("NPV") before taxes is $727 million at a 7.5% discount rate.

- The economic analysis after taxes indicates that the project has an IRR of 29% with a payback period of 3.0 years. The NPV after taxes is $503 million at a 7.5% discount rate.

- The estimated initial capital cost is $189 million (plus $19 million of pre-production costs). Sustaining capital items include construction of additional water impoundments and ISCR wells, expansion of the water treatment plant, and replacement of capital equipment, and are estimated to be $627 million for a total life of operation capital cost of $835 million.

- Direct operating costs are estimated at $0.80/lb-Cu.

- The table below shows a breakdown of the life of operation total, operating costs, and cash costs per lb of copper.

17 RECOVERY METHODS

The FCP utilizes solvent extraction (SX) and electrowinning (EW) to recover copper from the solutions pumped from the in-situ copper recovery (ISCR) well field. The SX/EW plant is designed to handle a nominal flow of 7,400 gallons per minute ("gpm") with a copper concentration of 1.8 grams per liter ("g/L"). After five years, the SX/EW plant will be expanded to handle a flow of 11,000 gpm. The processing plant is in the northeast corner of the State Land parcel. The process fluids are piped to and from the process plant in lined trenches.

The process will consist of the following elements:

1. ISCR well field;
2. Lined pregnant leach solution (PLS) and raffinate ponds;
3. SX Plant with three mixer settlers, increasing to four in Year 5;
4. Tank Farm for handling process liquids;
5. EW Tankhouse;
6. Ancillary warehouse and maintenance facilities;
7. Water treatment plant and water impoundment facilities; and
8. Existing Administration office complex near the eastern side of the site.

17.1 IN-SITU COPPER RECOVERY WELL FIELD

The source of copper for this process is an oxidized copper mineralized body that is covered by 370 to 410 feet of alluvial sediments. The ISCR process involves injecting acidified leach solution in a series of wells and extracting PLS from the subsurface and pumping it to the PLS pond.

Rows of injection wells set on 100-foot centers are flanked on both sides by rows of extraction wells set on 100-foot centers with a 50-foot offset resulting in a 71-foot spacing between an injection well and adjacent extraction wells. Leach solution is delivered to the oxide zone at a nominal rate of 50 gpm at a maximum pressure of 0.65 pounds per square inch per foot (psi/ft) of depth below land surface. Leach solution is extracted from recovery wells at the nominal rate of 50 gpm by electric submersible pumps. Flows are balanced so that injection and recovery are balanced, producing an aggregate flow to and from the processing plant of approximately 7,400 gpm initially, increasing to 11,000 gpm in Year 5.

Leach solution is delivered to injection wells and extracted from recovery wells through a network of piping composed of high density polyethylene (HDPE) (Figure 17-1). The main lines to and from the well field are 30 inches in diameter, branching to 24-inch trunk lines and 10-inch arterials. Pairs of 6-inch header pipe form a corridor between every other row of injection and recovery wells. Individual wells are connected to either the leach solution line (injection) or PLS line (recovery) with 2-inch HDPE. Each wellhead is equipped with valves and a flow meter to control the flow in or out of the well. Approximately 10 wells are attached to each of the 6-inch header pipes. Alternate corridors between wells are used for vehicle traffic and access to the wells for sampling and maintenance.

Extraction and injection wells have the same design and are interchangeable so that the flow can be reversed by re-equipping and re-piping the wells. Wells penetrate the alluvial aquifer and are securely sealed off through this zone to prevent leakage of process solutions into the aquifer. In addition, the top 40 feet of the oxide mineralized body is sealed off, forming an exclusion zone. This exclusion zone is intended to mitigate potential leakage upward into the alluvial aquifer system. Sealing the well from the surface to the bottom of the exclusion zone is accomplished by installing 6-inch diameter fiberglass reinforced (FRP) well casing through this zone and filling the annular space from the outside of the pipe to the inside of the 12-inch diameter borehole with Type V neat cement grout. The grout is emplaced through a tremie pipe from the bottom to the surface to ensure that there are no gaps in the seal.

Slotted well screen is installed below the exclusion zone in three sections to enable zoned leaching of the oxide mineralized body. Casing below the exclusion zone is composed of 6-inch diameter Schedule 80 polyvinyl chloride (PVC) with a threaded adapter to connect with the FRP casing. The PVC casing consists of three approximately equal sections of factory-slotted well screen with 0.080-inch openings. Sections of screen are separated by approximately 20 feet of blank PVC casing. Annular space in the screened sections is filled with silica sand filter pack to remove particulates from the formation and promote flow from the formation to the well screen openings. The blank sections between screened intervals are sealed with at least 10 feet of Type V neat cement grout to prevent flow from one screened section to another.

Recovery wells are equipped with electric submersible pumps with packer assembly to enable pumping from a discrete depth interval in the well. Adjacent injection wells are also equipped with packers to inject the leaching solution into the depth interval that is complementary to the adjacent well's extraction interval. The zoned flow scheme is intended to maximize the horizontal flow in the mineralized body and provide the most efficient and rapid sweeping of the zone being leached.

Lines of injection wells alternate with lines of extraction wells to create a balanced flow into and out of the portion of the mineralized body being leached. Aggregate injected flow is balanced by aggregate extraction flow to create a flow balance that limits the migration of solutions out of the mineralized material body portion that is under leach. This flow balance also facilitates flow through the process plant with minimal need for adjustment. Extraction wells must be present on the periphery of the portion under leach to maintain control of the solutions. There will always be more extraction wells in operation than injection wells, requiring peripheral extraction wells to have somewhat lower flow to maintain the flow balance. Hydraulic control wells are located outside of the periphery of the portion under leach to ensure that the groundwater flow is inward in every location and maintain hydraulic control of the process solutions.

17.2 PROCESS PONDS

The PLS and raffinate ponds are on the west side of the plant site nearest to the well field (Figure 17-2). The raffinate pond has a double geomembrane liner system consisting of compacted subgrade soil, a 60 mil HDPE secondary liner, a geonet drainage layer and a primary liner of HDPE. It has a design capacity of 6,480,000 gallons, which provides a 14.6-hour residence time at 7,400 gpm and 9.8-hour residence time at the ultimate design flow rate of 11,000 gpm. The raffinate pond receives acidified discharge from the in-line static mixers south of the pond downstream from the coalescers and the SX Plant. The raffinate pond is equipped with two vertical turbine pumps and one spare with 360 feet of total dynamic head to deliver the 7,400 gpm flow rate to the well field with enough pressure to enable injection of leach solution to the injection well field. In Year 5, a third vertical turbine pump will be added to increase the capacity to 11,000 gpm to the well field.

The PLS pond is adjacent to the raffinate pond (west) and is constructed with the same design as the raffinate pond (Figure 17-2). The PLS pond has a double geomembrane liner system consisting of compacted subgrade soil, a 60 mil HDPE secondary liner, a geonet drainage layer, and a primary liner of HDPE. The design capacity of 6,480,000 gallons provides a 14.6-hour residence time at 7,400 gpm and 9.8-hour residence time at the ultimate design flow rate of 11,000 gpm. The pond is equipped with two vertical turbine pumps and one spare to deliver PLS to the SX Plant. In Year 5, a third vertical turbine pump will be added to increase the capacity to 11,000 gpm to the SX Plant.

17.3 SOLVENT EXTRACTION PLANT

The SX Plant is located east of the raffinate pond (Figure 17-2) and consists of three reverse-flow mixer-settlers in a parallel configuration. A fourth mixer settler is added in Year 5 with conversion to a series-parallel configuration, increasing the capacity of the plant. In the extraction stages, an organic solution with a copper-specific extractant is mixed with PLS to extract copper from the solution. The organic and aqueous solutions are allowed to separate in the settlers. In the stripping stage, copper is stripped from the organic solution and transferred to the electrolyte solution. Organic stripped of its copper load circulates back through the extraction mixer-settlers, progressively loading it with copper as it flows through the extraction train, removing 90% of the copper load.

The extraction units consist of primary, secondary, and tertiary mix tanks that thoroughly combine the organic and PLS. The contact time facilitates transfer from the PLS solution to the extractant in the organic. The settlers are 67 feet wide, 102 feet long and 4 feet deep. The reverse-flow settlers direct the mixed solutions along the side of the settlers and through turning vanes that direct the separating solutions to flow back toward the mixers where the solutions are separated.

In parallel configuration, the PLS flow stream is split between two extraction mixers, each receiving half of the flow. In series-parallel configuration half of the solution takes two passes through the organic solution (E1 and E2), and the other half of the solution taking one pass through the organic solution (E1-P). The stripped organic solution is progressively loaded passing through E-2, E1-P, and E-1 before returning to the strip settler (S-1) via the loaded organic tank.

Loaded organic is stripped of its copper by the strongly acidified lean electrolyte in the strip settler (S-1). There are two (primary and secondary) mix tanks that provide the contact between the lean electrolyte and loaded organic. The solutions are separated in the settler, configured the same as the extraction settlers, with the stripped organic solution routed to extraction mixer settler (E-2), and the rich electrolyte solution routed through the Tank Farm to EW filters in the Tank Farm.

17.4 TANK FARM

The Tank Farm is located south of the SX Plant (Figure 17-2) and at lower elevation to enable solutions to flow into the tanks by gravity. The Tank Farm holds process tanks, filters, pumps, and heat exchangers associated with the SX/EW process. Solutions are pumped from the Tank Farm to the respective process areas to maintain the process flow. The Tank Farm is located in secondary containment in accordance with BADCT standards.

Primary process equipment located in the Tank Farm includes filters and heat exchanger. Rich electrolyte is filtered to remove solids and organics. The rich electrolyte flows by gravity from the S1 settler to the electrolyte filter feed tank. The rich electrolyte is pumped through the electrolyte filters. Filtered electrolyte is then pumped through a heat exchanger to transfer heat from the lean electrolyte to the rich electrolyte, and then on to the electrolyte recirculating tank.

A system is installed in the Tank Farm to process crud from solvent extraction. Crud is the material which accumulates at the organic/aqueous interface in the SX settlers. This material is treated to recover the valuable organics. The crud is removed from the settlers via an air-operated pump and transferred to a crud decant tank. The crud is allowed to settle in the decant tank. If required, clay can be added to remove impurities in the organic. The upper organic in the decant tank is recovered and sent to the loaded organic tank. The sediment at the bottom of the tank is pumped thru a filter and the filter cake removed.

17.5 ELECTROWINNING PLANT

The EW Tankhouse is located south of the Tank Farm and the SX Plant (Figure 17-2). The EW plant will utilize permanent cathode technology initially with 74 cells, increasing to 100 cells in Year 5, each containing 67 lead anodes and 66 stainless steel "mother" cathodes. Located on the south end of the Tankhouse building is the cathode washing and stripping machine.

The EW Tankhouse cells are arranged in two parallel banks of 37 (50) cells each. In the hydraulic circuit, all cells are arranged in parallel allowing each cell to have the same feed solution and discharge solution. Electrically, the cells are connected in series.

Direct electrical current is supplied by two rectifiers. Current flows from the rectifiers through a bus bar to the bank of cells. Each cell is equipped with intracell bus bars, 66 cathode plates and 67 anode plates arranged in parallel. Within each bank, direct electrical current flows from a bus bar to the anode and then through the electrolyte to the cathode plates. An intercell bus bar provides current to the next cell successively and finally returns to the rectifiers.

Heated, filtered, rich electrolyte flows from the Tank Farm heat exchangers into the electrolyte recirculation tank where it mixes with overflow from the lean electrolyte tank. The solution from this tank is pumped to the Tankhouse cells where copper in solution is plated onto the cathode plates.

As a result of the electrochemical reaction at the anode, oxygen evolves from the EW cells creating a mist. The EW cells are covered to contain the mist and a surfactant is used to reduce the quantity of mist produced. Cobalt sulfate is also added to passivize the anode, and guar (a bean powder) is added as a surface modifier for the cathode.

Copper is plated onto stainless steel cathode blanks over a cycle of approximately 7 days. A portion (about one fifth) of the cathodes is harvested daily. A special lifting bale is used to lift every third cathode from a cell in a single lift of 22 cathodes. Three separate lifts will be required to harvest one complete cell. The cathodes are carried by the Tankhouse Crane to an automatic stripping machine and placed on the receiving conveyor. From there the cathodes pass through a wash chamber and are washed with hot, high pressure water to remove the copper bearing electrolyte and any particulates.

From the wash chamber, cathodes are moved to a stripping location where the copper sheets are removed mechanically from each side of the stainless steel blanks and the blanks are then placed on a discharge conveyor and carried back to a cell and put back into operation. To minimize the time that a particular cell is without one set of cathodes, a spare set of stripped cathode blanks needs to be available so that when plated cathodes are removed and placed on the receiving conveyor, a clean set of stripped cathodes can be immediately placed back into the cell. When the washed cathodes are then stripped, a new set of plated cathodes can be removed and replaced with stripped blanks and the process repeated. To maintain the 7 day plating cycle, twenty cells need to be stripped each day for 5 days leaving the weekend for maintenance and "catch up" if needed.

After stripping, the copper sheets are weighed, sampled, bundled, and strapped. Road access should be maintained for a forklift to assist with materials handling in this area, such as loading cathode for shipment. Space has been allocated for storage of at least 7 days of cathode production.

The major components of the electro-winning process are listed below and a graphical description of the process is shown in drawing 600-FS-001 (Figure 17-5).

- Electrolyte circulation tank
- Rectifiers
- EW cells
- Anodes and cathodes
- Cathode washing and stripping machine
- Overhead bridge crane
- EW cell ventilation system
- Utilities
- Shorting frame
- Anode/cathode refurbishment area