

US EPA ARCHIVE DOCUMENT

APPENDIX A – Project Maps, Aquifer Exemption Delineation, and Well Locations

FLORENCE COPPER, INC.
UIC PERMIT APPLICATION
FLORENCE COPPER PROJECT – PRODUCTION TEST FACILITY
ATTACHMENT S – AQUIFER EXEMPTION

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.

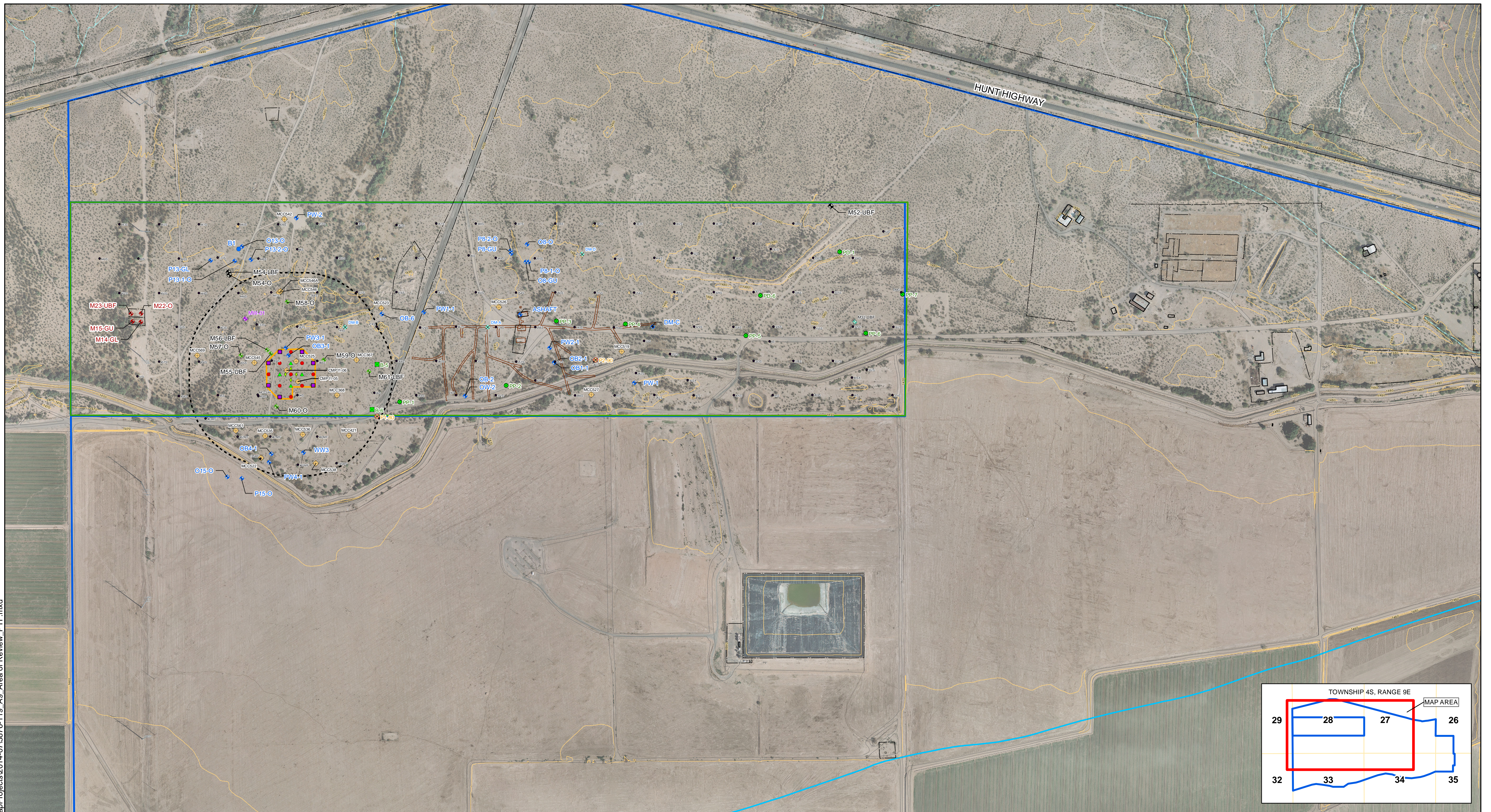
This aquifer exemption has no expiration date.

Signed this 1st day of May, 1997.



Alexis Strauss, Acting Director
Water Division, EPA Region 9

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LEGEND

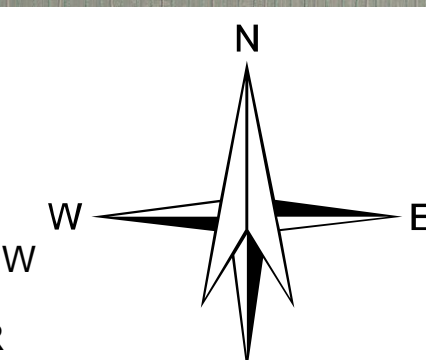
- MW-01 OPERATIONAL MONITORING WELL (APPROXIMATE LOCATION BASED ON REQUIREMENTS OF APP 106360)
- EXISTING POC WELL
- APPROVED POC WELL - NOT DRILLED YET
- NON-POC WELL
- DRY POC WELL TO BE PLUGGED AND ABANDONED

- NON-POC WELL TO BE PLUGGED AND ABANDONED
- ABANDONED VADOSE ZONE CHARACTERIZATION PIEZOMETER
- ABANDONED VADOSE ZONE CHARACTERIZATION BORING
- PROPOSED SUPPLEMENTAL MONITORING WELL
- EXPLORATION CORE HOLE

- CORE HOLE-ABANDONED
- PROPOSED TEST WELLS**
- INJECTION
- OBSERVATION
- RECOVERY
- MULTI-LEVEL SAMPLING WELL

- ABANDONED GEOTECHNICAL BORINGS**
- KNIGHT PIESOLD, OCTOBER 2011
- TERRACON, 1995-1996
- CONOCO UNDERGROUND MINE WORKINGS
- STATE MINERAL LEASE BOUNDARY

- PROPERTY BOUNDARY
- PTF WELL FIELD AREA
- 500-FOOT AREA OF REVIEW
- TOPOGRAPHIC CONTOUR



SCALE IN FEET

HALEY & ALDRICH

FLORENCE COPPER INC.
FLORENCE, ARIZONA

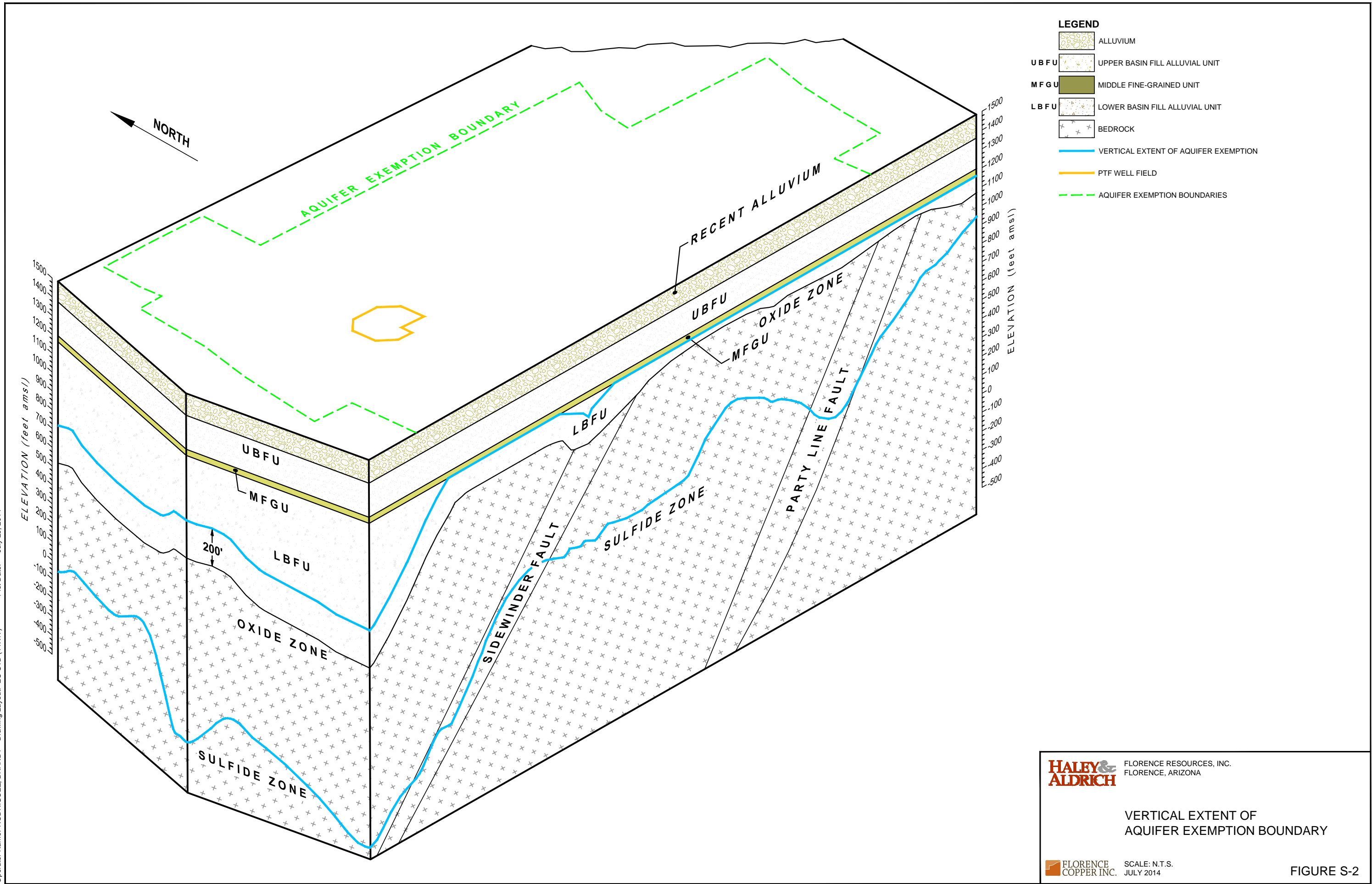
**AREA OF REVIEW
PRODUCTION TEST FACILITY (PTF)**

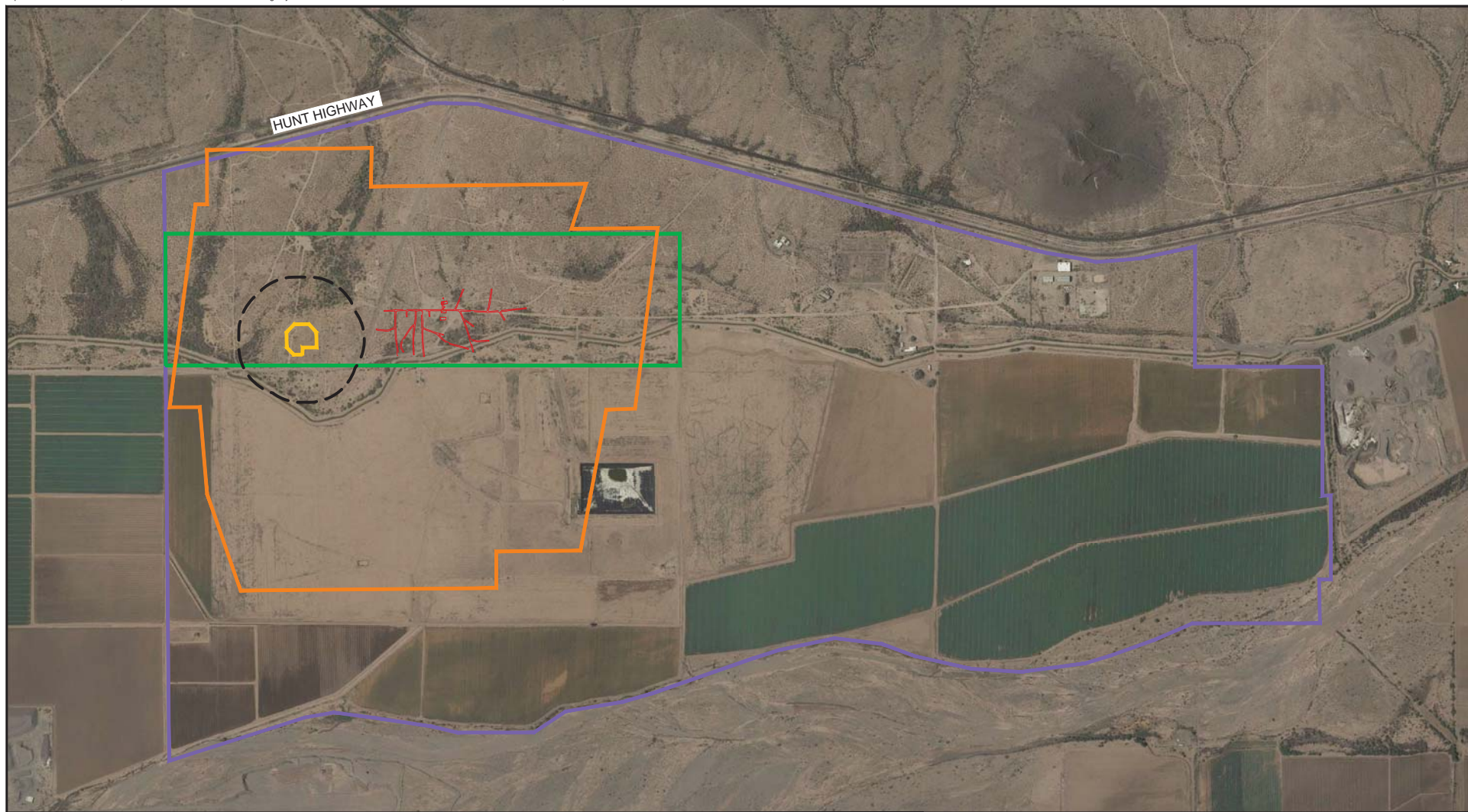
**FLORENCE
COPPER INC.**

SCALE: AS SHOWN
JULY 2014

FIGURE A-9

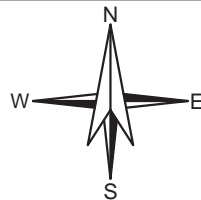
Drawing Name: G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\2014 UIC APP\FIGURES S\38706-300-S-2.DWG
Operator Name: RODRIGUEZ, BRANDY Plot Date: July 29, 2014





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



0 1,500 3,000
 HORIZONTAL SCALE: 1" = 1,500'

HALEY & ALDRICH

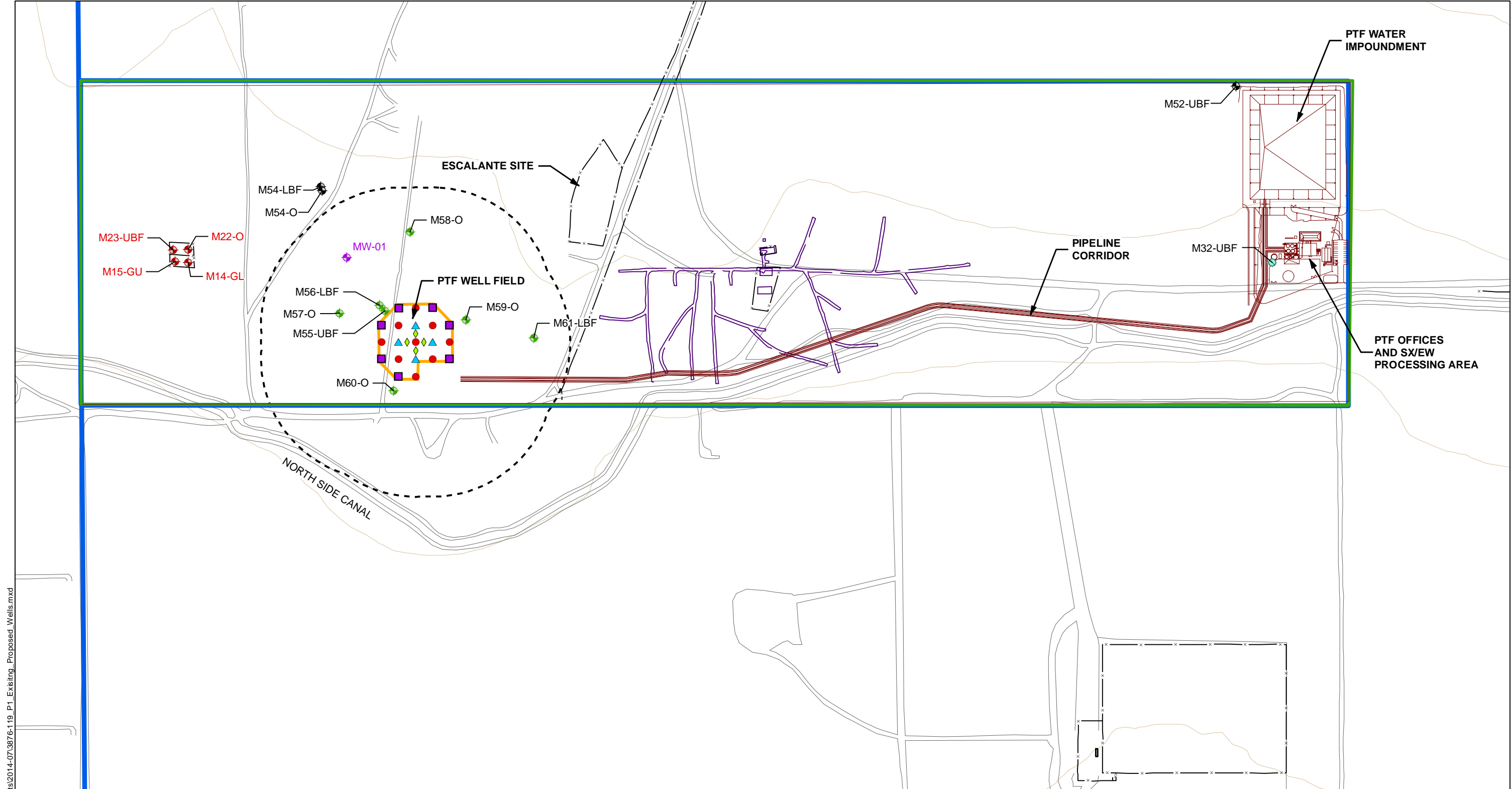
FLORENCE COPPER, INC.
 FLORENCE, AZ

AQUIFER EXEMPTION AREA

FLORENCE COPPER INC.

SCALE: AS SHOWN
 MAY 2014

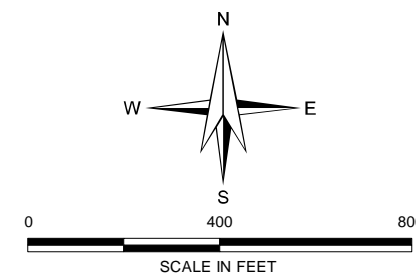
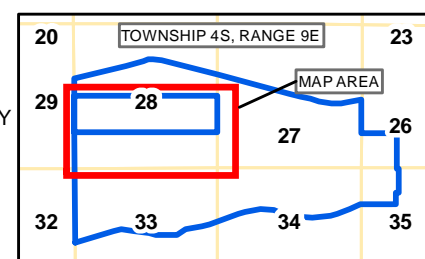
FIGURE S-1



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|--|--|--|
| <p> MW-01 OPERATIONAL MONITORING WELL (APPROXIMATE LOCATION BASED ON REQUIREMENTS OF APP 106360)
 EXISTING PTF POC WELL
 DRY POC WELL TO BE PLUGGED AND ABANDONED
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 INJECTION
 OBSERVATION
 RECOVERY
 MULTI-LEVEL SAMPLING WELL </p> | <p> CONOCO UNDERGROUND MINE WORKINGS
 PTF WELL FIELD
 STATE MINERAL LEASE BOUNDARY
 PROPERTY BOUNDARY
 500 FOOT AREA OF REVIEW
 CONTOUR (10 FT) </p> |
|--|--|--|



FLORENCE COPPER INC.
FLORENCE, ARIZONA

EXISTING AND PROPOSED POINT OF COMPLIANCE, OPERATIONAL MONITORING, AND SUPPLEMENTAL MONITORING WELLS

SCALE: AS SHOWN
JULY 2014

FIGURE P-1

FLORENCE COPPER, INC.
UIC PERMIT APPLICATION
FLORENCE COPPER PROJECT, PRODUCTION TEST FACILITY
ATTACHMENT P - MONITORING PROGRAM

Table P-1. Existing POC Wells Proposed for Use in Conjunction with the PTF

Well ID*	Screened Interval (feet) ^b	Screened Aquifer Unit	ADWR No.	Location Coordinates (Northing Easting)	Cadastral Coordinates	Total Depth (feet) ^b	Date Installed	Reference Point Elevation (feet) ^a	Land Elevation (feet) ^a
M14-GL	778-838	LBFU	55-549172	746461.52 N 846750.23 E	D(4-9)28cdc	859	6/2/95	1474.58	1473.2
M15-GU	554-594	LBFU	55-547813	746464.82 N 846697.174 E	D(4-9)28cbc	615	6/6/95	1474.01	1473.1
M22-O	932-1,130	Oxide	55-555831	746514.47 N 846751.26 E	D(4-9)28cbc	1,140	4/12/96	1476.06	1473.3
M23-UBF	210-250	UBFU	55-555824	746512.48 N 846688.13 E	D(4-9)28cbc	250	4/13/96	1475.16	1473.3

^a Feet above mean sea level (amsl)

^b Feet below ground surface (bgs)

FLORENCE COPPER, INC.
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ATTACHMENT P - MONITORING PROGRAM

Table P-2 . Proposed New POC, Operational' and Supplemental Monitor Wells for use in Conjunction with the PTF

Well ID	Screened Interval (feet) ^b	Screened Aquifer Unit	ADWR No.	Proposed Location Coordinates (Northing Easting)	Cadastral Coordinates	Total Depth (feet) ^b	Date Installed	Reference Point Elevation (feet) ^a	Land Elevation (feet) ^a
M52-UBF	200-275	UBFU	Not Drilled Yet	747189.88 N 851095.47 E	Not Drilled Yet	276	TBD	Not Drilled Yet	Not Drilled Yet
M54-LBF/M54-O	500-620 640-1200	LBF/O	Not Drilled Yet	746743.08 N 847316.08 E	Not Drilled Yet	1,200	TBD	Not Drilled Yet	Not Drilled Yet
M55-UBF	240-260	UBFU	Not Drilled Yet	746214.77 N 847566.24 E	Not Drilled Yet	260	TBD	Not Drilled Yet	Not Drilled Yet
M56-LBF	320-340	LBF	Not Drilled Yet	746237.06 N 847543.95 E	Not Drilled Yet	340	TBD	Not Drilled Yet	Not Drilled Yet
M57-O	525-1200	O	Not Drilled Yet	746132.66 N 847378.11 E	Not Drilled Yet	1,200	TBD	Not Drilled Yet	Not Drilled Yet
M58-O	595-1200	O	Not Drilled Yet	746540.33 N 847669.91 E	Not Drilled Yet	1,200	TBD	Not Drilled Yet	Not Drilled Yet
M59-O	535-1200	O	Not Drilled Yet	746245.57 N 847901.29 E	Not Drilled Yet	1,200	TBD	Not Drilled Yet	Not Drilled Yet
M60-O	445-1200	O	Not Drilled Yet	745890.19 N 847601.34 E	Not Drilled Yet	1,200	TBD	Not Drilled Yet	Not Drilled Yet
M61-LBF	400-600	LBF	Not Drilled Yet	745973.42 N 848184.46 E	Not Drilled Yet	600	TBD	Not Drilled Yet	Not Drilled Yet
MW-01	320-600 630-1200	LBF/O	Not Drilled Yet	746480-7050* 847407.0326	Not Drilled Yet	1,200	TBD	Not Drilled Yet	Not Drilled Yet

^a Feet above mean sea level (amsl)

^b Feet below ground surface (bgs)

* Proposed location, final location will be within 100 ft based on requirements of APP

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