FLORENCE COPPER INC.

FLORENCE COPPER INC.
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florencecopper.com

September 11, 2014

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

Re: Response to Request for Information dated September 9, 2014
Class III Underground Injection Control (UIC) Well Permit Application
Curis Resources (Arizona) Inc.

Dear Ms. Rumrill:

Florence Copper, Inc. (Florence Copper) is pleased to submit the following in response to Mr. David Albright's September 9, 2014 letter to Mr. David Copeland, and to the Request for Information (RFI) included as an attachment to Mr. Albright's letter. Florence Copper's responses to each of the comments identified in the RFI are provided below. Each comment is listed in italics and is followed by our response.

Rather than submit a complete revised Application, we are submitting replacement pages and sections for items in the Application that have been revised in response to the RFI dated September 9, 2014 (Appendices 1 through 10). We have also provided a table listing all pages/sections being replaced and/or inserted. The revised pages/sections being provided contain changes made throughout the Application in response to the RFI dated September 9, 2014, and incorporates all changes made in response to earlier RFIs. A complete, revised electronic copy of the Application has also been provided on CD.

We believe the following is responsive to the September 9, 2014 RFI and we are available to answer any questions you might have.

Thank you for your assistance.

Sincerely,
Florence Copper Inc.

Daniel Johnson
Vice President – General Manager

cc: Richard Mendolia, Arizona Department of Environmental Quality
David Albright, U.S. Environmental Protection Agency

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Appendix	UIC Application Section	Comment Reference
Appendix 1	Table C-1	Comment 1
Appendix 2	Exhibit C-1	Comment 2
Appendix 3	Attachment H Text	Comment 4
Appendix 4	Table H-1	Comment 5
Appendix 5	Figure M1-1 (Attachment M, Exhibit M-1; also Attachment P, Exhibit P-2)	Comment 7
Appendix 6	Table 5.2 (Attachment R, Exhibit R-1)	Comment 8
Appendix 7	Attachment R Text	Comment 8
Appendix 8	Exhibit R-2	Comment 8
Appendix 9	Exhibit Q-4 (PTF AOR Wells only)	Comment 9
Appendix 10	Attachment S Text	Comment 10

Comment 1

In Attachment C of the UIC Permit application, the two core holes drilled in 2011 were added to Table C-1. The status of these core holes should note they are abandoned. Also, the driller's logs provided for these core holes did not include a record for cementing of the intermediate casing. Further, the CMP11-06 core hole was reported as plugged with cement from the surface to 352 feet inside the casing; however, the casing was set to a depth of 429 feet, which is below the Lower Basin Fill Unit (LBFU). Please provide a more detailed description and schematics of the construction and plugging records, so that we may determine the necessity of any potential corrective action.

Response to Comment 1

Table C-1 has been revised to show that core holes CMP11-06 and CMP11-05 have been plugged and abandoned. A revised version of Table C-1 is provided in Appendix 1 of this response. Please remove and discard Table C-1 from your copy of the UIC Application submitted in August 2014, and replace it with the Table C-1 provided in Appendix 1.

FCI has conducted an additional search for cementing records associated with core holes CMP11-05 and CMP 11-06. The search resulted in the identification of additional perforation records for core hole CMP11-05. The perforation records are included with the cementing records in a revised version of Exhibit C-1 provided in Appendix 2. Please remove and discard the entire Exhibit C-1 from your copy of the UIC Application submitted in August 2014, and replace it with the Exhibit C-1 provided in Appendix 2 of this response.

Schematic diagrams showing the plugging and abandonment details of core holes CMP11-05 and CMP11-06 are included with the revised plugging and abandonment forms provided in Appendix 9 of this response. The revised plugging and abandonment forms for the PTF AOR Wells (including CMP11-06 and CMP11-05) are provided in Appendix 9 to replace the versions in our August 2014 submittal. Please remove and discard the PTF AOR Wells Section of Exhibit Q-4 of your copy of the UIC Application submitted in August 2014, and replace it with the revised PTF AOR Well forms provided in Appendix 9. Note: the BHP Wells section of Exhibit Q-4 remains unchanged.

Comment 2

Four other core holes, MCC367, MCC368, MCC535, and MCC561, have no record of a cemented annulus. Please provide a more detailed description and schematics of the cementing and plugging history of these core holes if that information is available. As discussed with Dan, these core holes may require some corrective action (i.e., placing cement at the base of the USDW) if there is not a clear record of a cement seal behind the casing.

Response to Comment 2

FCI has conducted an additional search for cementing records for core holes MCC367, MCC368, MCC535, and MCC561. The search resulted in the identification of one additional page of cementing records for core hole MCC367. No additional cementing records were identified for core holes MCC368, MCC535, or MCC561. The additional record has been inserted into Exhibit C-1 adjacent to the records previously provided for core hole MCC367.

The additional cementing record identified for core hole MCC367 indicates that the core hole was cemented form the total depth to the bottom of casing, and that cement was then circulated around the casing with a total volume of 700 gallons of type V cement used.

Cementing records previously provided for core hole MCC368 similarly indicate that the core hole was cemented from the total depth to the bottom of casing, and then cement was circulated around the casing with a total volume of 800 gallons of Type V cement used.

Cementing records previously provided for core hole MCC535 indicate that the core hole was cemented from the total depth to the top of casing with a total volume of 650 gallons of Type V cement used. The record indicates that casing was left in the hole between 220 and 360 feet depth. No further information is provided in the record regarding cement circulation around the casing.

Cementing records previously provided for core hole MCC516 indicate that the core hole was cemented from the total depth to the top of casing with a total volume of 800 gallons of Type V cement used. The record indicates that casing was left in the hole between 50 and 450 feet depth. No further information is provided in the record regarding cement circulation around the casing.

All of the cementing records described above are provided in a revised version of Exhibit C-1 provided in Appendix 2 of this response. The revised Exhibit C-1 includes one additional page for MCC367, and re-categorizes core holes CMP11-05 and CMP11-06 as abandoned on the Table of Contents provided at the beginning of Exhibit C-1.

Please remove and discard the entire Exhibit C-1 from your copy of the UIC Application submitted in August 2014, and replace it with the Exhibit C-1 provided in Appendix 2 of this response.

Comment 3

Please provide a more complete description and a schematic of the construction and plugging record for the DM-B well, if that information is available.

Response to Comment 3

FCI has conducted an additional search for cementing records for well DM-B. FCI has also been in contact with a former BHP employee that witnessed the plugging and abandonment of well DM-B and that former employee has provided an anecdotal account of the abandonment. However no additional cementing records have been located for well DM-B.

The DM-B well location is known and FCI plans to excavate the site to confirm the abandonment once the necessary clearance to excavate is obtained in accordance with Section 106 of the National Historic Preservation Act.

Comment 4

In Attachment H, Section H.3, Rate and Volume of Fluid to be Injected, please clarify discussion of the proposed total injection rate of 240 gallons per minute (gpm) and recovery rate of 300 gpm, and how those rates relate to the proposed average injection rate of 0.15 gpm/ft of injection interval and maximum injection rate of 0.20 gpm/ft and the initial minimum extraction to injection volume ratio of 110 percent. Also, please confirm the discussion aligns with the description of these rates and volumes in Attachment K and the Operations Plan in Exhibit K-2 and Table H-1 as discussed below.

Response to Comment 4

The text of Section H.3 of Attachment H has been revised to clarify that the maximum injection rate is limited to 240 gpm, and that the maximum extraction rate is limited to 300 gpm. Text has also been added to clarify that the proposed injection interval length may vary based on final well construction and packer configuration, which will in turn affect the injection rate per foot of injection interval. The final injection interval length and packer configuration will not be determined until the proposed wells have been drilled and constructed. However, regardless of well configuration or the length of the packer interval in each well, the total injection limit of 240 gpm will apply as will the extraction limit of 300 gpm.

Revised Attachment H text is provided in Appendix 3 to replace the version in our August 2014 submittal. Please remove and discard the text portion of Attachment H of your copy of the UIC Application submitted in August 2014, and replace it with the revised pages provided in Appendix 3.

Comment 5

Table H-1, Injection Rates and Volumes: The typical length injection interval of 580 feet and typical injection rate of 0.15 gpm/ft yield a total rate of 348 gpm in four injection wells in the PTF, however Table H-1 notes a planned total injection rate of 240 gpm. Please clarify and note that the initial minimum extraction:injection volume ratio is 110 percent, subject to change with prior EPA approval.

Response to Comment 5

Table H-1 of Attachment H has been modified to reflect “typical” injection interval of 400 feet, and an average injection rate of 0.15 gpm/ft to achieve an injection rate of 60 gpm per injection well. This configuration results in an aggregate injection rate of 240 gpm for the well field, which is the maximum proposed injection rate. A note has been added to Table H-1 to clarify that in all cases, the aggregate well field injection rate is limited to 240 gpm.

As noted in response to Comment 4 above, individual injection wells may have longer or shorter injection intervals depending on final well construction and packer configuration. Although injection intervals may be longer than 400 feet, the maximum injection rate is limited to 240 gpm for the entire well field. Consequently, longer injection intervals may result in lower injection rates per foot of injection interval, and shorter injection intervals may result in injection rates that are higher than the proposed average per foot of injection interval. However, in all cases, the aggregate well field injection rate is limited to 240 gpm regardless of injection interval length and well configuration.

A revised version of Table H-1 is provided in Appendix 4 to replace the version in our August 2014 submittal. Please remove and discard Table H-1 from Attachment H of your copy of the UIC Application submitted in August 2014, and replace it with the revised Table H-1 provided in Appendix 4.

Comment 6

Please clarify the type of casing to be installed in the operational, multi-level sampling, operational monitoring, and supplemental monitoring wells. Your response to RFI comment 10 states that those wells "will not have steel casing installed to bedrock, unless the well extends to the top of bedrock or deeper." However, proposed well designs depicted in figures M-3, M-4, 9A-3, and 9A-4 (in Attachments 0 and P) indicate these wells will be drilled and screened into the bedrock and have fiberglass reinforced casing.

Response to Comment 6

The observation, multi-level sampling, operational monitoring, and supplemental monitoring wells will not have steel casing installed to bedrock. The well construction details shown in Figures M-3, M-4, 9A-3, and 9A-4 correctly depict that these wells will be constructed with fiberglass reinforced casing.

Steel collars extending from ground surface to 40 feet below the top of bedrock will only be installed on injection and recovery wells.
Given that the misstatement identified in this comment occurred in the response document and not in the text of the Application, and that the Figures referenced in the comment correctly depict the proposed well construction, no replacement pages or replacement figures are provided for this response.

Comment 7

Attachment P, Exhibit P-2, Figure M1-1, Operational Monitoring MW-01 Proposed Well Design: The casing design requires clarification because steel casing is specified through the upper portion and PVC casing is specified in the lower segment of the deeper well through the LBFU but a steel to PVC adapter is shown connecting to the PVC screen in the Oxide unit. Please clarify or correct that depiction. Please also add a LBFU label and Oxide label to the upper and lower screened intervals, respectively in this figure.

Response to Comment 7

The proposed construction of Operational Monitoring Well MW-01 includes mild steel casing and PVC well screen. Both casings shown on Figure M1-1, Exhibit P-2 of Attachment P, will be steel from the surface to the interface with the PVC well screen. Figure M1-1 has been revised to reflect construction that includes steel casing from the surface to the top of the well screen, where an adapter will be installed to join the PVC screen to the steel well casing.

A revised version of Figure M1-1 is provided in Appendix 5 to replace the version in our August 2014 submittal. Figure M1-1 also occurs in Attachment M, Exhibit M-1 of our August 2014 submittal. Please remove and discard Figure M1-1 from Attachment P, Exhibit P-2 and Attachment M, Exhibit M-1 of your copy of the UIC Application submitted in August 2014, and replace it with the revised Figure M1-1 provided in Appendix 5 (two copies of Figure M1-1 are provided).

Comment 8

Attachment R, Exhibit R-1, Closure and Post-Closure Cost Estimates: As discussed with Dan Johnson, the total cost estimates presented in Table 5-2 do not include the BHP test wells and facilities presented in Table 5-2a. Please update Attachment R accordingly, and also include documentation of any other existing financial assurance.

Response to Comment 8

A revised version of Table 5.2 (Attachment R, Exhibit R-1) is provided in Appendix 6. The revised Table 5.2 incorporates Table 5.2a which describes the costs associated with closure of the BHP well field and an additional 10-percent administrative cost. The revised Table 5.2 is sealed by an Arizona Professional Engineer, and is dated September 4, 2014.

A revised version of Table 5.2 of Exhibit R-1 is provided in Appendix 6 to replace the version in our August 2014 submittal. Please remove and discard Table 5.2 from Attachment R, Exhibit R-1 of your copy of the UIC Application submitted in August 2014, and replace it with the revised Table 5.2 provided in Appendix 6.

FCI has provided a financial assurance instrument for closure of the PTF facilities in the amount of $3,487,743, provided in Exhibit R-2 of our August 2014 submittal. This instrument reflects the amount of financial assurance required by the Arizona Department of Environmental Quality to cover closure costs of the PTF infrastructure and facilities under APP No. 106360.

In addition to this financial assurance instrument, FCI has secured an additional instrument in the form of a Surety Bond issued by the Lexon Insurance Company in the amount of $1,066,000 for the closure of discharging facilities constructed by BHP under Aquifer Protection Permit (APP) No. 101704. The discharging facilities listed under APP No. 101704 inlcude process solution ponds and runoff ponds which were never constructed, one evaporation pond, and the Class III wells constructed for the BHP pilot test. As noted in Table 5.2, the cost to close the BHP test wells is $194,018, and administrative and contingency costs totaling an additional 25 percent. At a minimum, the instrument is sufficient to cover closure costs of the BHP test wells, with additional funds remaining to close other discharging facilities.

The text of Attachment R, Section R.4 has been revised to include a description of the financial assurance instrument associated with APP No. 101704. A copy of the instrument has also been added to Exhibit R-2.

The following replacement pages/sections are provided to replace, or be added to, the versions in our August 2014 submittal:

- A revised version of the Attachment R text is provided in Appendix 7; please remove and discard the Attachment R text portion of your copy of the UIC Application submitted in August 2014, and replace it with the revised Attachment R text provided in Appendix 7.
- A copy of the additional Surety Bond issued by the Lexon Insurance Company in the amount of $1,066,000 is provided in Appendix 8; please add this document to Attachment R, Exhibit R-2 of your copy of the UIC Application submitted in August 2014

Comment 9

Plugging and Abandonment Plans for Proposed PTF Wells and AOR Monitoring wells: The information presented on the EPA P&A Plan forms should not include cement volumes and estimated costs to construct the wells. The forms should only cite calculated cement volumes required to plug the wells and estimated abandonment costs.

<u>Response to Comment 9</u>

The plugging and abandonment forms for the PTF AOR Wells (Exhibit Q-4) have been revised to remove well construction information. The revised forms now include only the calculated cement volumes required to plug the wells and estimated abandonment costs.

The revised plugging and abandonment forms for the PTF AOR Wells are provided in Appendix 9 to replace the versions in our August 2014 submittal. Please remove and discard the PTF AOR Wells Section of Exhibit Q-4 of your copy of the UIC Application submitted in August 2014, and replace it with the revised PTF AOR Well forms provided in Appendix 9. Note: the BHP Wells section of Exhibit Q-4 remains unchanged.

Comment 10

Attachment S, Section S.4, Proposed Aquifer Exemption: Please delete "proposed" in the section header and the text and add "original" before "Area of Review" in the first sentence for clarity. Please delete reference to the figures in Attachment D in that sentence since the lower limit of the exempted zone is not depicted in those figures. Please include reference to the boundary limits as "The vertical limit of the aquifer exemption are depicted in Figure S-2 and the lateral and vertical limit are described in Exhibit S-1."

Response to Comment 10

The text of Attachment S has been revised to reflect the limits of the existing aquifer exemption established at the FCP site in conjunction with UIC Permit No. AZ396000001.

A revised version of the Attachment S text is provided in Appendix 10 to replace the version in our August 2014 submittal. Please remove and discard the Attachment S text portion of your copy of the UIC Application submitted in August 2014, and replace it with the revised Attachment S text provided in Appendix 10.

APPENDIX 1

Revised Table C-1

Table C-1 . Wells and Core Holes within 500 Feet of the PTF Well Field

General Information							Construction Details											Well Abandonment Details						
Location Name	ADWR Number	Type	Status	Easting	Northing	Surface Elevation (Feet)	Total Depth (Feet)	Diameter of Surface Borehole (Inches)	Diameter of Surface Casing (Inches)	Depth of Surface Casing (Feet)	Diameter of Intermediate Borehole (Inches)	Diameter of Intermediate Borehole Casing (Inches)	Depth of Intermediate Borehole (Feet)	Depth of Intermediate Borehole Casing (Feet)	Diameter of Inner Pipe (Inches)	Cement Seal (Feet)	Diameter of Core Hole	Abandonment Material	Bottom Depth (Feet)	Upper Depth (Feet)	Approximate Volume (Gallons)	Drilller's Log Available	Geologic Log Available	Comments
COREHOLES																								
133S	NA	Exploration Core Hole	Existing	847479.9895	746444.8163	1475.50	2217	6.25	5.5	45	5	3	560	560	-	0-560	NX (2.97")					Yes	Yes	
135MF	NA	Exploration Core Hole	Existing	847502.6923	745598.3783	1472.20	2095.5	6.25	5.5	65	5	3	376	376	-	0-376	NR					Yes	Yes	
145MF	NA	Exploration Core Hole	Existing	847981.8852	745570.0709	1473.00	2170	6.25	5	60	5	3	400	400	-	0-400	NX (2.97")					Yes	Yes	
149S	NA	Exploration Core Hole	Existing	847985.9324	746428.5092	1477.30	2142.5	6.25	5	40	5	3	601	601	-	0-601	NX (2.97")					Yes	Yes	
28S	NA	Exploration Core Hole	Existing	848220.5673	746014.3235	1475.20	2227	NR	NR	NR	5.74*	NR	NR	NR	-	NR	NX (2.97")					No	Yes	
356S	NA	Exploration Core Hole	Existing	847860.4898	746648.2579	1478.00	2094	6.5	5.6	45	5	NR	473	NR	-	NR	NX (2.97")					Yes	Yes	
357S	NA	Exploration Core Hole	Existing	847735.4921	746431.7566	1476.85	2280	6.5	5.6	45	5	NR	455	NR	-	NR	NX (2.97")					Yes	Yes	
366S	NA	Exploration Core Hole	Existing	847860.4974	746215.2575	1476.40	425	6.5	5.6	45	5	NR	425	NR	-	NR	NR					Yes	Yes	
414S	NA	Exploration Core Hole	Existing	848235.4974	746431.7618	1477.50	2267	6.5	5.6	50	5	3	380	380	-	0-380	NX (2.97")					Yes	Yes	
415S	NA	Exploration Core Hole	Existing	858110.49	746648.24	1479.46	2042	6.5	NA	40	5	3	280	280	-	0-280	NX (2.97")					Yes	Yes	
447S	NA	Exploration Core Hole	Existing	847572.0492	746646.8176	1476.90	593	6.5	5.6	40	5	NR	593	NR	4*	NR	-					Yes	Yes	
448S	NA	Exploration Core Hole	Existing	847365.1096	746642.8776	1477.08	750	6.75	NR	40	5	3	750	750	4*	0-750	-					Yes	Yes	
453S	NA	Exploration Core Hole	Existing	847240.1122	746426.8763	1475.47	870	6.75	NR	40	5	3	870	870	4*	0-870	-					Yes	Yes	
454S	NA	Exploration Core Hole	Existing	847574.0571	746216.8169	1475.20	403	6.5	5.6	40	5	NR	403	NR	4*	NR	-					Yes	Yes	
455S	NA	Exploration Core Hole	Existing	847365.1175	746210.3773	1473.55	553	7.875	5.6	40	5	3	553	NR	4*	NR	-					Yes	Yes	
456S	NA	Exploration Core Hole	Existing	847115.1148	746210.3747	1473.21	825	6.75	NR	40	5	3	825	825	-	0-825	-					Yes	Yes	
459S	NA	Exploration Core Hole	Existing	847490.1224	745993.8786	1474.03	483	6.5	NR	40	5	NR	483	NR	-	NR	-					Yes	Yes	
460MF	NA	Exploration Core Hole	Existing	847860.5059	745737.9446	1472.44	474	7.875	6	50	5	3	474	474	-	NR	-					Yes	Yes	
461MF	NA	Exploration Core Hole	Existing	847566.1903	745737.9416	1472.07	385	7.875	6	55	5	3	385	385	-	NR	-					Yes	Yes	
462MF	NA	Exploration Core Hole	Existing	847360.4383	745737.9393	1471.52	494	7.875	6	65	5	3*	494	501*	-	NR	-					Yes	Yes	Records indicate depth of 494, field tagged depth of 501
463MF	NA	Exploration Core Hole	Existing	847157.0591	745851.8123	1471.55	720	7.875	6	50	5	3	720	720	-	NR	-					Yes	Yes	
465MF	NA	Exploration Core Hole	Existing	847740.1329	745560.8806	1471.86	350**	NR	NR	NR	NR	NR	NR	NR	-	NR	-					No	No	
94S	NA	Exploration Core Hole	Existing	847736.125	745999.5686	1475.00	2038	NR	-	-	5.5*	NR	560	NR	4*	NR	NR					Yes	Yes	
95S	NA	Exploration Core Hole	Existing	847236.1198	745999.1883	1472.70	1842	NR	-	-	NR	NR	590	NR	-	NR	NX (2.97")					Yes	Yes	
MCC544	55-548200	Exploration Core Hole	Existing	847485.3097	746002.8159	1473.70	1320.5	NR	NR	NR	NR	4*	380	380	-	NR	HX (3.88")					No	Yes	
CMP11-05	55-220509	Exploration Core Hole	Abandoned	847737.9655	746085.3165	1474.30	1200	8	7	20	6.75	5.5	427	427	-	NA	PQ(4.38")	Type V Cement	467/1200	0	1175	Yes	Yes	
CMP11-06	55-220509	Exploration Core Hole	Abandoned	847667.2736	746156.0257	1475.00	1145	8	7	20	6.75	5.5	429	429	-	NA	PQ(4.38")	Type V Cement	335	0	565	Yes	Yes	Rod stuck, blasted and pulled as much as possible prior to grouting
MCC367	55-539336	Exploration Core Hole	Abandoned	848108.0623	746220.8225	1475.73	941	6.5	5.6	45	5	NR	355	355	-	NR	NX (2.97")	Type V Cement	941	0	NR	Yes	Yes	
MCC368	55-539336	Exploration Core Hole	Abandoned	847985.5026	745998.7585	1475.20	1044	6.5	5.6	55	5	NR	390	390	-	NR	NX (2.97")	Type V Cement	1044	0	800	Yes	Yes	
MCC421	55-539336	Exploration Core Hole	Abandoned	848060.5079	745746.5092	1469.55	1039	6.5	5.6	60	5	3	360	353	-	0-353	NX (2.97")	Type V Cement	1039	0	750	Yes	Yes	
MCC522	55-538308	Exploration Core Hole	Abandoned	847507.0673	745604.8156	1466.00	1380	NR	NR	NR	3.5*	-	NR	Pulled	-	NR	NX (2.97")	Type V Cement	1380	0	750	No	Yes	
MCC525	55-538308	Exploration Core Hole	Abandoned	847728.0587	746213.8186	1476.00	1212	NR	NR	NR	NR	-	430	Pulled	-	NR	NX (2.97")	Type V Cement	1210	0	750	No	Yes	
MCC535	55-548247	Exploration Core Hole	Abandoned	847533.19	745743.1913	1471.80	1279	NR	NR	NR	3.5*	NR	360	220-360	-	NR	NX (2.97")	Type V Cement	1279	0	650	No	Yes	
MCC536	55-548247	Exploration Core Hole	Abandoned	847768.8796	745752.1312	1472.20	1162	NR	NR	NR	3.5*	-	380	Pulled	-	NR	NX (2.97")	Type V Cement	1162	0	650	No	Yes	
MCC538	55-548247	Exploration Core Hole	Abandoned	847852.3215	745570.3192	1472.10	1169	NR	NR	NR	3.5*	-	359	Pulled	-	NR	NX (2.97")	Type V Cement	1169	0	650	No	Yes	
MCC545	55-548200	Exploration Core Hole	Abandoned	847464.4934	746204.4409	1474.00	1370	NR	NR	NR	4.5*	-	363	Pulled	-	NR	NX (2.97")	Type V Cement	1370	0	700	No	Yes	
MCC546	55-548200	Exploration Core Hole	Abandoned	847618.2999	746645.6306	1477.00	1152	NR	NR	NR	3.5*	-	397	Pulled	-	NR	NX (2.97")	Type V Cement	620	0	450	No	Yes	Obstruction at 620' during abandonment.
MCC546A	55-548200	Exploration Core Hole	Abandoned	847627.8622	746653.8179	1477.10	1437	NR	NR	NR	3.5*	-	990	Pulled	-	NR	NX (2.97")	Type V Cement	1437	0	1100	No	Yes	
MCC561	55-548247	Exploration Core Hole	Abandoned	847347.25	745776.6893	1471.10	1480	NR	NR	NR	3.5*	NR	450	50-450	-	NR	NX (2.97")	Type V Cement	1480	0	800	No	No	
MCC569	55-548247	Exploration Core Hole	Abandoned	847104.6765	746250.6247	1473.10	1665	NR	NR	NR	3.5*	-	800	Pulled	-	NR	NX (2.97")	Type V Cement	1665	0	1050	No	No	
B-5	NA	Geophysical Boring	Abandoned	848238.0643	746193.8241	1478.00	31.5	6.625	-	-	-	-	-	-	-	-	-	Native Material	31.5	0	NR	No	Yes	
B-6	NA	Geophysical Boring	Abandoned	848206.2792	745908.8835	1476.00	23.5	6.625	-	-	-	-	-	-	-	-	-	Native Material	23.5	0	NR	No	Yes	

Table C-1 . Wells and Core Holes within 500 Feet of the PTF Well Field

General Information							Construction Details												Well Abandonment Details						
Location Name	ADWR Number	Type	Status	Easting	Northing	Surface Elevation (Feet)	Total Depth (Feet)	Diameter of Surface Borehole (Inches)	Diameter of Surface Casing (Inches)	Depth of Surface Casing (Feet)	Diameter of Well Casing (Inches)	Diameter of Well Borehole (Inches)	Depth of Borehole (Feet)	Depth of Well (Feet)	Screened Interval (Feet)	Cement Seal (Feet)	Bentonite Grout Seal (Feet)	Sand Filter Pack (Feet)	Abandonment Material	Bottom Depth (Feet)	Upper Depth (Feet)	Approximate Volume (Gallons)	Driller's Log Available	Geologic Log Available	Comments
WELLS																									
OB3-1	55-542056	Monitoring Well	Existing	847679.2174	746250.8381	1475.78	800	NR	12	20	4	NR	800	800	500-780	0-20	20-500	500-800					No	No	
OB4-1	55-542055	Monitoring Well	Existing	847572.0773	745631.1264	1471.78	800	NR	12	20	4	NR	800	800	440-780	0-20	20-440	440-800					No	No	
PW3-1	55-542056	Test Well	Existing	847662.6065	746297.518	1475.50	800	NR	12	20	6	NR	800	800	500-780	0-20	20-500	500-800					No	No	
PW4-1	55-542055	Test Well	Existing	847558.7182	745577.6161	1471.80	800	NR	12	20	6	NR	800	800	440-780	0-20	20-440	440-800					No	No	
WW3	55-627608	Irrigation Well	Existing	847774.1494	745638.1085	1470.00	938	NR	24	81	18	18, 14	938	496, 933	240-933	NR	-	NR					Yes	No	
DM-B	55-806521	Non-POC Well	Abandoned	848035.958	746428.5319	1477.30	700	NR	NR	NR	None Found	5	700	617	NR	NR	-	NR	Unknown	Unknown	Unknown	Unknown	No	No	

** = Values Observed in the Field*
*** = Value from SRK Geologic Model*
NR = Not Recorded
NA = Not Available

APPENDIX 2

Revised Exhibit C-1

TABLE OF CONTENTS

Location Name	ADWR Number	Type	Status
EXISTING COREHOLES			
133S	NA	Exploration Core Hole	Existing
135MF	NA	Exploration Core Hole	Existing
145MF	NA	Exploration Core Hole	Existing
149S	NA	Exploration Core Hole	Existing
28S	NA	Exploration Core Hole	Existing
356S	NA	Exploration Core Hole	Existing
357S	NA	Exploration Core Hole	Existing
366S	NA	Exploration Core Hole	Existing
414S	NA	Exploration Core Hole	Existing
415S	NA	Exploration Core Hole	Existing
447S	NA	Exploration Core Hole	Existing
448S	NA	Exploration Core Hole	Existing
453S	NA	Exploration Core Hole	Existing
454S	NA	Exploration Core Hole	Existing
455S	NA	Exploration Core Hole	Existing
456S	NA	Exploration Core Hole	Existing
459S	NA	Exploration Core Hole	Existing
460MF	NA	Exploration Core Hole	Existing
461MF	NA	Exploration Core Hole	Existing
462MF	NA	Exploration Core Hole	Existing
463MF	NA	Exploration Core Hole	Existing
465MF	NA	Exploration Core Hole	Existing
94S	NA	Exploration Core Hole	Existing
95S	NA	Exploration Core Hole	Existing
MCC544	55-548200	Exploration Core Hole	Existing
ABANDONED COREHOLES			
CMP11-05	55-220509	Exploration Core Hole	Abandoned
CMP11-06	55-220509	Exploration Core Hole	Abandoned
MCC367	55-539336	Exploration Core Hole	Abandoned
MCC368	55-539336	Exploration Core Hole	Abandoned
MCC421	55-539336	Exploration Core Hole	Abandoned
MCC522	55-538308	Exploration Core Hole	Abandoned
MCC525	55-538308	Exploration Core Hole	Abandoned
MCC535	55-548247	Exploration Core Hole	Abandoned
MCC536	55-548247	Exploration Core Hole	Abandoned
MCC538	55-548247	Exploration Core Hole	Abandoned
MCC545	55-548200	Exploration Core Hole	Abandoned
MCC546	55-548200	Exploration Core Hole	Abandoned
MCC546A	55-548200	Exploration Core Hole	Abandoned
MCC561	55-548247	Exploration Core Hole	Abandoned
MCC569	55-548247	Exploration Core Hole	Abandoned
B-5	NA	Geophysical Boring	Abandoned
B-6	NA	Geophysical Boring	Abandoned
EXISTING WELLS			
OB3-1	55-542056	Monitoring Well	Existing
OB4-1	55-542055	Monitoring Well	Existing
PW3-1	55-542056	Test Well	Existing
PW4-1	55-542055	Test Well	Existing
WW3	55-627608	Irrigation Well	Existing
ABANDONED WELLS			
DM-B	55-806521	Non-POC Well	Abandoned

Existing Core Holes

Interoffice Communication

To PHILIP W. NASON

From RAY THRELKELD

Date JANUARY 28th, 1974

Subject HOLE SUMMARY 133-S

Coordinates: 746,398.00N 647,690.95E ~~I-2W~~ J-2W
Collar Elevation: 1477.01' est.
Depth to Bedrock: 538'
Oxide-Sulfide Interface: 1494'
Total Depth: 2217'
Rotary Starting Date: 10-14-71 Completion: 10-15-71 Footage: 560'
Core Starting Date: 5-10-72 Completion: 6-13-72 Footage: 1657'
Inclination: 6° S45°W @ 2200'.
Assay Data:

Cross Section:

560.5' - 645' = 84.5' @ .39 Oxide
645' - 700' = 55' @ .78 Oxide
700' - 770' = 70' @ .38 Oxide
770' - 815' = 45' @ .08 Oxide
815' - 865' = 50' @ .58 Oxide
865' - 895' = 30' @ .31 Oxide
895' -1380' = 485' @ .46 Oxide
1380'-1495' = 115' @ .24 Oxide
1495'-2218' = 723' @ .10 Sulfide

200 Scale:

560' - 765' = 205' @ .50 Oxide
815' -1380' = 565' @ .47 Oxide
1380'-1495' = 115' @ .24 Oxide
Total - 885' @ .45 Oxide

Waste:Ore Ratio: 0.79:1
Internal Waste:Ore Ratio: 0.09:1

Rock Types:

0' - 538' ---------- Conglomerate
538' - 601' ---------- Quartz Monzonite Porphyry
601' - 607' ---------- Aplite
607' - 669' ---------- Quartz Monzonite Porphyry
669' - 687' ---------- Diabase
687' - 777' ---------- Quartz Monzonite Porphyry
777' - 813' ---------- Dacite Porphyry
813' - 933' ---------- Quartz Monzonite Porphyry
933' - 938' ---------- Granodiorite Porphyry #1
938' - 1077' ---------- Quartz Monzonite Porphyry
1077' - 1111' ---------- Granodiorite Porphyry #1
1111' - 1124' ---------- Quartz Monzonite Porphyry
1124' - 1131' ---------- Granodiorite Porphyry #1
1131' - 1240' ---------- Quartz Monzonite Porphyry
1240' - 1247' ---------- Diabase
1247' - 1261' ---------- Quartz Monzonite Porphyry
1261' - 1313' ---------- Diabase

DRILLER'S LOG

HOLE NO. 133-5
J2W

TOTAL DEPTH 560
SPOT CORE NONE

DATE STARTED 10-14-71
DATE COMPLETED 10-15-71
DRILLER T. Stewart

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-45	alluv. loose	Clay, Boulders, gravel	Slow	6 1/4
45-160	"	Clay & Sand	Med	5"
160-200	Conq cemented	Sand & gravel	Med	
200-260	" cemented	Sand / Small boulders	Med	
260-340	" "	Sand & Boulders	Slow	
340-410	" "	Sand & Basalt	Med	
410-430	? Cemented	Red clay (BAKED)	Slow	5"
~~430~~	~~Conq~~ ~~Cemented~~	Basalt		
430-538	Conq cemented	L/A Granite Pegm.		
		Sand, Basalt Boulders	Slow	
538-560	Bed-rock	Oxid. Clays & Feldspars		
		Granite	Slow	
45-	5 1/2 Casing			
Set 24 joints 7"	560'	(Cemented)		

Interoffice Communication

To R. E. ANDERSON

From DICK KNAPP

Date MARCH 1, 1972

Subject HOLE SUMMARY 135-MF

Coordinates: H3W (745,519 N, 647,696 E - calculated)
Elevation: ~~1469' (estimated)~~ 1472.2
Depth to Bedrock: 372'
Oxide-Sulfide Interface: 1333'
Rotary Started: 10/25/71 Rotary Completed: 10/27/71
Core Started: 11/03/71 ~~Rotary~~ CORE Completed: 12/20/71

Assay Results:

Cross Section Assays:

380' - 495' = 115' @ .14 Oxide
495' - 545' = 50' @ .46 Oxide
545' - 585' = 40' @ .30 Oxide
585' - 675' = 90' @ .11 Oxide
675' - 780' = 105' @ .31 Oxide
780' -1335' = 555' @ .50 Oxide
780' -1155' = 375' @ .53 Oxide
1155' -1185' = 30' @ .20 Oxide
1185' -1335' = 145' @ .52 Oxide
1335' -1610' = 275' @ .58 Sulfide
1335' -1485' = 150' @ .61 Sulfide
1485' -1520' = 35' @ .49 Sulfide
1520' -1565' = 45' @ .60 Sulfide
1565' -1610' = 45' @ .53 Sulfide
1610' -1715' = 105' @ .35 Sulfide
1610' -1690' = 80' @ .32 Sulfide
1690' -1715' = 25' @ .43 Sulfide
1715' -1800' = 85' @ .27 Sulfide
1800' -1860' = 60' @ .48 Sulfide
1860' -1895' = 35' @ .36 Sulfide + Oxide
1895' -1950' = 55' @ .29 Sulfide
1950' -2095.5' = 145.5 @ .16 Sulfide

200 Scale Map Assays:

→ 495' - 545' = 50' @ .46 Oxide
545' - 595' = 50' @ .26 Oxide
→ 675' - 725' = 50' @ .34 Oxide
725' - 780' = 55' @ .28 Oxide
→ 780' -1335' = 555' @ .50 Oxide
→ 1335' -1610' = 275' @ .58 Sulfide
1610' -1715' = 105' @ .35 Sulfide
→ 1800' -1860' = 60' @ .48 Sulfide
1290' @ .46% Cu 655' Ox @ .48
335' S. @ .56

1860 - 1950 = 90' @ 32 sulfide

"Cross Section Type" Mo Assays:

1335' - 1570' = 235' @ .0089% Mo
1570' - 1755' = 185' @ .0270% Mo
1755' - 2070' = 315' @ .0056% Mo
2070' - 2095.5' = 25.5' @ .0100% Mo

2660

DRILLER'S L

HOLE NO. 135

TOTAL DEPTH 376
SPOT CORE

DATE STARTED 10-25-71
DATE COMPLETED 10-27-71
DRILLER T. Stewart

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-20	alluv.	Clay	Slow	6 1/4
20-60	" loose	Big & Head Gravel		
~~60-80~~	"	Boulders.	Slow	
60-80		Clay	Med	5"
80-240	Cong Cemented	Sand + clay	Med	
240-280	Cong cemented	Sand + Boulders	Med	5"
280-300	" "	Clay	Slow	
300-360	" "	Sand, Feldspar		
360-372	" "	Basalt Flow, White clay,		
372-376	Bed Rock	Granite CVO² Present	Slow	
Set 16 points 3" 376' Cemented				
Set 65' 5 1/2 casing				
Hole moved approx 35' N.				

376
280
96

280
65
215

Interoffice Communication

To R. E. ANDERSON

From RAY THRELKELD

Date OCTOBER 6th, 1972

Subject HOLE SUMMARY 145-MF

Coordinates: 745,575 N 648,200 E estimated H-2-W
Elevation: 1470' estimated
Depth to Bedrock: 378'
Oxide-Sulfide Interface: 1061'
Total Depth: 2170' 200 1770
Date Started: 4-19-72
Date Completed: 5-18-72
Assays:

Cross Section:

375' - 445' = 70' @ .12 Oxide
445' - 475' = 30' @ .41 Oxide
475' - 530' = 55' @ .09 Oxide
530' - 630' = 100' @ .24 Oxide
630' - 670' = 40' @ .12 Oxide
670' - 715' = 45' @ .34 Oxide
715' - 795' = 80' @ .16 Oxide
795' - 825' = 30' @ .46 Oxide
825' - 870' = 45' @ .15 Oxide
870' - 940' = 70' @ .51 Oxide
940' - 975' = 35' @ .19 Oxide
975' -1010' = 35' @ .52 Oxide
1010' -1060' = 50' @ .75 Oxide
1060' -1215' = 155' @ .51 Sulfide
1215' -1245' = 30' @ .83 Sulfide
1245' -1295' = 50' @ .47 Sulfide
1295' -1395' = 100' @ .32 Sulfide
1395' -1425' = 30' @ .59 Sulfide
1425' -1475' = 50' @ .34 Sulfide
1475' -1550' = 75' @ .25 Sulfide
1550' -1650' = 100' @ .54 Sulfide
1650' -1720' = 70' @ .21 Sulfide
1720' -1765' = 45' @ .46 Sulfide
1765' -1820' = 55' @ .25 Sulfide
1820' -1850' = 30' @ .32 Sulfide
1850' -2020' = 170' @ .45 Sulfide
2020' -2065' = 45' @ .73 Sulfide
2065' -2095' = 30' @ .32 Sulfide
2095' -2170' = 75' @ .26 Sulfide

200 Scale:

445' - 495' = 50' @ .26 Oxide
545' - 630' = 85' @ .24 Oxide
680' - 730' = 50' @ .27 Oxide
→ 730' - 830' = 100' @ .36 Oxide
830' - 880' = 50' @ .20 Oxide
→ 880' -1060' = 180' @ .52 Oxide
→ 1060' -1295' = 235' @ .54 Sulfide
1295' -1395' = 100' @ .32 Sulfide
→ 1395' -1445' = 50' @ .48 Sulfide
1445' -1575' = 130' @ .31 Sulfide
→ 1575' -1650' = 75' @ .59 Sulfide
→ 1720' -1770' = 50' @ .45 Sulfide
→ 1850' -2050' = 200' @ .50 Sulfide
1355' @ .43 Total

Mo and Ag in Ore:	% Mo	oz/ton Ag
1060'-1295' = 235' @	.0016	.12
1395'-1495' = 100' @	.0034	.13
1575'-1650' = 75' @	.0072	.13
1720'-1770' = 50' @	.0067	.23

Waste to Ore Ratio: 1.30:1
Internal Waste to Ore Ratio: 0.88:1

DRILLER'S LOG

HOLE NO. 145MF
H2W

TOTAL DEPTH 400
SPOT CORE NONE

DATE STARTED 1-26-72
DATE COMPLETED 1-27-72
DRILLER T. Stewart

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-35	allur.	Clay & Gravel	Slow	6¼
35-45	" Loose	Gravel & Boulders	"	
45-80	"	Clay & Gravel	"	
90-190	Cong cemented	Sand / Clay / Small	Med	
		Boulders	"	5"
190-340	Cong cemented	sand & clay	"	
340-378		Faint Iron Clay, Boulders		
		Granite	Slow	
378-400	Bed rock	Weathered Granite (Junkey)		5"
		Trace CuO_2 Mud Stone	Slow	
		yellow Stained		
Basalt flow 40' - 2' feet thick				
Set 60' 5" casing				
Contact 378				
Set 400' 3" casing		Cemented		

Interoffice Communication

To R. E. ANDERSON

From HAL GARDNER

Date JULY 19th, 1972

Subject HOLE SUMMARY 149-S

Coordinates: 746,390 N, 648,193 E (Estimated) J-1-W
Elevation: ~~1476'~~ Estimated 1477.3 Sea
Depth to Bedrock: 574'
Oxide-Sulfide Interface: 922'
Total Depth: 2142.5'
Date Started: 5-15-72
Date Completed: 6-9-72
Assay Results:

2142
~~601~~
1541

Cross Section

570' - 620' = 50' @ .24 Oxide
620' - 705' = 85' @ .57 Oxide
705' - 765' = 60' @ .14 Oxide
765' - 830' = 65' @ .38 Oxide
830' - 920' = 90' @ .29 Oxide
920' - 975' = 55' @ .41 Sulfide
975' -1175' = 200' @ .28 Sulfide
1175' -1330' = 155' @ .40 Sulfide
1330' -1505' = 175' @ .20 Sulfide
1505' -1555' = 50' @ .41 Sulfide
1555' -1620' = 65' @ .35 Sulfide
1620' -1860' = 240' @ .47 Sulfide
1860' -1920' = 60' @ .33 Sulfide
1920' -1970' = 50' @ .44 Sulfide
1970' -2030' = 60' @ .31 Sulfide
2030' -2080' = 50' @ .52 Sulfide
2080' -2142' = 62' @ .10 Sulfide

200' Scale

570' - 620' = 50' @ .24 Oxide
→ 620' - 705' = 85' @ .51 Oxide
→ 765' - 830' = 65' @ .38 Oxide
830' - 920' = 90' @ .29 Oxide
→ 920' - 975' = 55' @ .41 Sulfide
→ 1175' -1330' = 155' @ .40 Sulfide
→ 1505' -1555' = 50' @ .41 Sulfide
1555' -1620' = 65' @ .35 Sulfide
→ 1620' -1860' = 240' @ .47 Sulfide
1860' -1920' = 60' @ .33 Sulfide
→ 1920' -1970' = 50' @ .44 Sulfide
1970' -2030' = 60' @ .31 Sulfide
→ 2030' -2080' = 50' @ .52 Sulfide

Total Oxide: 150' @ .45
Total Sulfide: 600' @ .44
Total Ore + Protore: 1,075'@ .40

Waste to Ore Ratio: 1.77:1
Internal Waste to Ore: 1.01:1

Mo and Ag in Ore and Protore:

Ore: 600' @ .0101 %Mo and .12 oz/tons Ag
Protore: 185' @ .0200 %Mo and .16 oz/tons Ag

Rock Types: The predominate rock type in 149-S was quartz monzonite porphyry with intrusions into it in the following intervals:

640' - 650' ---------- Andesite
702.5' - 792.5' ------- Granodiorite Porphyry #1
1327.5' - 1470' -------- Granodiorite Porphyry #3
1630' - 1637.5' ------- Diorite
1647.5' - 1652.5' ------ Diorite
1970' - 2010' --------- Granodiorite Porphyry #2
2065' - ~~2100~~' --------- Diorite
2075

Correction by SWM 08-1-74

DRILLER'S LOG

HOLE NO. 149-5
J IW

TOTAL DEPTH 601
SPOT CORE NONE

DATE STARTED 2-7-72
DATE COMPLETED 2-10-72
DRILLER T. Stewart

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-28	alluv.	Clay + Boulders	Slow	6 1/4
* 28-30		Black basalt	"	
30-40	"	Clay + Boulders	"	
40-100	"	Clay + Gravel	Med	5"
100-260	Cong. loose	Sand + Clay	"	
260-290	Cong cemented	Sand + Boulders.	"	
290-310		Brown Clay	Slow	
310-348	Cong cemented	Sand + Clay	Med	
348-356		Granitic Material / White	Slow	
~~356-358~~		Weathered clay		
~~356~~-358		Hard black Intrusive		
358-365		White Weathered clay		
		Bedrock chips -		
365-470		Hard clear Quartz, White	Slow	5"
		clay		
470-540		Granite Diorite	Slow	5"
~~540~~ -		Weathered Clay		5"
540-556		" "		5"
556-574		Weathered clay Bedrock	Slow	
		chips		
574-601	Bedrock	Granite, CuO_2 Stain		
		White Clays.		
Left	601' of 3" Casing	Cemented		
Contact at	572'			
Left 40' of 5" Casing				

170
65
105

CONTINENTAL OIL CO.

MINERAL EXPLORATION · METALLICS DIVN.

GEOLOGIC LOG

HOLE NO. 28S SHEET NO. 1
COORDINATES 745,967.51N 648431.52E
TYPE DRILL Rot. & Core BIT SIZE NX
INCLINATION -90° BEARING
LENGTH CORED 1567 CLAIM NO. State
CONTRACTOR Joy

PROJECT Flor
LOCATION Florence

COLLAR ELEVATION 1475.34
TOTAL FOOTAGE 2227
LOGGED BY RWT (OJR) SURVEYOR
2nd DATE STARTED COMPLETED 6-9-72
SCALE

Depth run bottom	LITH
0	All
10	
20	
30	
40	
50	CONG
60	
70	
80	
90	
100	
110	
120	
130	
140	
150	
160	
170	
180	
190	
200	
210	
220	
230	
240	
250	
260	

REMARKS

NO ROTARY DRILL LOW ESTIMATED CONTACT

Interoffice Communication

To PHILIP W. NASON

From ALLEN SHAW

Date FEBRUARY 14, 1975

Subject HOLE SUMMARY 356-S

Coordinates: 746,601.42 648,071.43 J.5-1W
Collar Elevation: 1478'
Depth to Bedrock: 530'
Oxide-Sulfide Interface: 1061, 1223, 1288'
Total Depth: 2094' Logging Completion Date: 10-8-74
Rotary Starting Date: 1-4-74 Completion Date: 1-7-74 Footage: 473'
Core Starting Date: 9-7-74 Completion Date: 10-8-74 Footage: 1621'
Deepening Starting Date: Completion Date: Footage:
Inclination: 2¼° @ 1200'
Core Recovery: 97%
Assay Data: Assay Completion Date:

Cross Section:	Footage Map Data:	%OxCu	% Mo	oz/T Ag
528' - 558' = 30' @ .10 Ox.	558' - 668' = 110' @ .31 Ox.	.17		
558' - 618' = 60' @ .37 Ox.	668' - 718' = 50' @ .47 Ox.	.32		
618' - 668' = 50' @ .24 Ox.	718' - 798' = 80' @ .25 Ox.	.09		
668' - 708' = 40' @ .53 Ox.	798' - 948' = 150' @ .42 Ox.	.18		
708' - 798' = 90' @ .24 Ox.	948' -1058' = 110' @ .23 Ox.	.10		
798' - 888' = 90' @ .43 Ox.	1058'-1218' = 160' @ .45 Sul	.05	.0091	.15
888' - 918' = 30' @ .24 Ox.	1218'-1288' = 70' @ .31 Ox.	.15	.0068	.16
918' - 948' = 30' @ .55 Ox.	1288'-1508' = 220' @ .28 Sul		.0134	.10
948' - 988' = 40' @ .21 Ox.	1508'-1648' = 148' @ .42 Sul		.0150	.08
988' - 1028' = 40' @ .17 Ox.	1090' @ .35		590'@.0118	
1028' - 1058' = 30' @ .34 Ox.			590'@ .12	
1058' - 1088' = 30' @ .36 Sul.				
1088' - 1118' = 30' @ .70 Sul.				
1118' - 1218' = 100' @ .40 Sul.				
1218' - 1288' = 70' @ .31 Ox.				
1288' - 1318' = 30' @ .30 Sul.				
1318' - 1408' = 90' @ .25 Sul.				
1408' - 1438' = 30' @ .44 Sul.				
1438' - 1508' = 70' @ .24 Sul.				
1508' - 1548' = 40' @ .55 Sul.				
1548' - 1578' = 30' @ .36 Sul.				
1578' - 1618' = 30' @ .29 Sul.				
1618' - 1648' = 30' @ .49 Sul.				
1648' - 1788' = 140' @ .16 Sul.				
1788' - 2094' = 306' @ .07 Sul.				

Waste: Ore Ratio = 558/1090=.51
Internal Waste: Ore Ratio = 28/1090= 0.03

DRILLER'S LOG

HOLE NO. #356
U. 5-1 N

TOTAL DEPTH ~~550'~~ 473'
SPOT CORE

DATE STARTED 1-4-74
DATE COMPLETED 1-7-74
DRILLER

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-45	Alluv - Loose	Gravel Boulders Clay	Slow	6½
45-180'	Cong - Loose	Clay - Sand	Slow	5"
180'-440'	Cong - Cement	Clay - Sand Boulders	Med Slow	
440-473	Bedrock			
Set	45' of 5 9/16 Surface			

Interoffice Communication

To PHILIP W. NASON

From SYVER W. MORE

Date NOVEMBER 20th, 1974

Subject HOLE SUMMARY 357-S

Coordinates: 746,384.92 N 647,946.43 E J-1.5W
Collar Elevation: 1476.85'
Depth to Bedrock: 522'
Oxide-Sulfide Interface: 1169'
Total Depth: 2280' Logging Completion Date: 9-20-74
Rotary Starting Date: 1-7-74 Completion Date: 1-8-74 Footage: 455'
Core Starting Date: 8-14-74 Completion Date: 9-20-74 Footage: 1825'
Deepening Starting Date: Completion Date: Footage:
Inclination: 4° maximum (surveyed to 2000').
Core Recovery: 1795'/1825' = 98.36%
Assay Data: Assay Completion Date: 11-14-74

Cross Section:	Footage Map Data:	% OxCu	% Mo	oz/T Ag
522' - 577' = 53' @ .26 Oxide	522' - 577' = 55' @ .26 Ox.	.19		
577' - 627' = 50' @ .61 Oxide	577' - 627' = 50' @ .61 Ox.	.48		
627' - 757' = 130' @ .37 Oxide	627' - 757' =130' @ .37 Ox.	.19		
757' - 837' = 80' @ .23 Oxide	757' - 837' = 80' @ .23 Ox.	.11		
837' -1167' = 330' @ .43 Oxide	837' -1167' =330' @ .43 Ox.	.25		
1167'-1697' = 530' @ .42 Sulfide	1167'-1697' =530' @ .42 Sul.		.0146	.11
1697'-1797' = 100' @ .33 Sulfide	1697'-1797' =100' @ .33 Sul.		.0309	.13
1797'-1897' = 100' @ .20 Sulfide	1797'-1897' =100' @ .20 Sul.		.0099	.11
1897'-2280' = 383' @ .05 Sulfide	Oxide: 645' @ .40			
	Sulfide: 730' @ .38			
	Total: 1375' @ .39			

Rock Types:

0' - 522' ---------- Overburden (alluvium and conglomerate)
522' - 541' ---------- Quartz Monzonite Porphyry
541' - 544' ---------- Granodiorite Porphyry #1(?) (Highly altered)
544' - 621' ---------- Quartz Monzonite Porphyry
621' - 622' ---------- Aplite
622' - 675' ---------- Quartz Monzonite Porphyry
675' - 680' ---------- Aplite
680' - 690' ---------- Quartz Monzonite Porphyry
690' - 705' ---------- Diorite Porphyry
705' - 718' ---------- Quartz Monzonite Porphyry
718' - 721' ---------- Andesite
721' - 727' ---------- Quartz Monzonite Porphyry

DRILLER'S LOG

HOLE NO. #357
0-1.5 W

TOTAL DEPTH 455'
SPOT CORE

DATE STARTED 1-7-74
DATE COMPLETED 1-8-74
DRILLER

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-45	Allum - Loose	Boulders - Gravel		6½
		Clay	Slow	
45-160'	Cong - Loose	Clay - Sand	Slow	5"
160'-380'	Cong - Cemented	Clay - Sand		
		Boulders	Med	
380'-420	Cong - Cemented	Sand - Clay	Med	
420'-455	Bedrock			

Set 45' of 5 9/16 Surface

264
x 2.0
5.
85 x month
7

DRILLER'S LOG

HOLE NO. #366
I.5-1.5W

TOTAL DEPTH 425'
SPOT CORE

DATE STARTED 1-17-74
DATE COMPLETED 1-17-74
DRILLER

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-45'	Alluv - Loose	Boulders - Gravel		6½
		Clay	Slow	
45-160'	Cong - Loose	Sand - Clay	Slow	5"
160-280'	Cong - Cemented	Sand - Boulders		
		Clay	Med	
280-300'	Cong	Brown Sticky		
		Clay	Slow	
300-390'	Cong - Cemented	Sand - Clay	Med	
390'-	Possible Bedrock		Slow	

Set 45' of 5 9/16 Surface

Interoffice Communication

To PHILIP W. NASON

From SYVER W. MORE

Date OCTOBER 11th, 1974

Subject HOLE SUMMARY 414-S

Coordinates: 746,384.92 N 648,446.43 E J-0.5W ✓
Collar Elevation: 1477.50'
Depth to Bedrock: 375'
Oxide-Sulfide Interface: 754'
Total Depth 2267'2 Logging Completion Date: 8-19-74
Rotary Starting Date: 4-6-74 Completion Date: 4-6-74 Footage: 380'
Core Starting Date: 7-20-74 Completion Date: 8-16-74 Footage: 1897'
Deepening Starting Date: Completion Date: Footage:
Inclination: 7½° maximum, surveyed to 2300'.
Core Recovery: 1971.5'/1992' = 98.97%
Assay Data:

Cross Section:	Footage Map Data:	% OxCu	%Mo	oz/T Ag
375' - 568' = 193' @ .45 Oxide	375' - 568' =193' @ .45 Ox.	.24		
568' - 648' = 80' @ .25 Oxide	568' - 648' = 80' @ .25 Ox.	.12		
648' - 758' = 110' @ .36 Oxide	648' - 758' =110' @ .36 Ox.	.21		
758' - 808' = 50' @ .45 Sulfide	758' - 808' = 50' @ .45 Sul.		.0057	.05
808' - 898' = 90' @ .25 Sulfide	808' - 898' = 90' @ .25 Sul.		.0066	.02
898' -1348' = 450' @ .40 Sulfide	898' -1348' =450' @ .40 Sul.		.0081	.07
1348'-1428' = 80' @ .21 Sulfide	1348'-1428' = 80' @ .21 Sul.		.0146	.05
1428'-1868' = 440' @ .34 Sulfide	1428'-1868' =440' @ .34 Sul.		.0172	.06
1868'-1898' = 30' @ .12 Sulfide	1898'-1978' = 80' @ .20 Sul.		.0123	.03
1898'-1978' = 80' @ .20 Sulfide	2008'-2078' = 70' @ .25 Sul.		.0122	.04
1978'-2008' = 30' @ .12 Sulfide	383' @ .38 Ox.			
2008'-2078' = 70' @ .25 Sulfide	1370' @ .30 Sul.			
2078'-2267' = 189' @ .09 Sulfide	1753' @ .32 Total			

Rock Types;

0' - 375' ---------- Overburden (Alluvium and Conglomerate)
375' - 388' ---------- Granodiorite Porphyry #2
388' - 393.5' ---------- Quartz Monzonite Porphyry
393.5' - 413' ---------- Granodiorite Porphyry #1
413' - 571' ---------- Quartz Monzonite Porphyry
571' - 600' ---------- Granodiorite Porphyry
600' - 607' ---------- Quartz Monzonite Porphyry
607' - 611' ---------- Granodiorite Porphyry #1
611' - 613' ---------- Aplite
613' - 673' ---------- Quartz Monzonite Porphyry
673' - 682' ---------- Aplite
682' - 695' ---------- Quartz Monzonite Porphyry
695' - 700' ---------- Aplite
700' - 778' ---------- Quartz Monzonite Porphyry
778' - 894' ---------- Granodiorite Porphyry #1
894' - 1247.5' ---------- Quartz Monzonite Porphyry

DRILLER'S LOG

HOLE NO. #414-5
U-0,54

TOTAL DEPTH 380'
SPOT CORE

DATE STARTED 4-6-74
DATE COMPLETED 4-6-74
DRILLER T. R. Cissell

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST; MEDIUM SLOW	
0-50'	Alluv - Loose	Boulders - Sand Clay	Slow	6½ 1
50'-140'	Cong - Loose	Sand - Clay	Slow	5"
140-280	congl. - loose	~~Clay~~	~~Slow~~	
280-295		Clay	Slow	
295-375	alluvium - loose		med.	
375-380	Red Rock			
Set	15 joints 3" Casing		Cemented	
Set	50 of 5% Surface			

DRILLER'S LOG

HOLE NO. 447

TOTAL DEPTH 593
SPOT CORE

DATE STARTED 10-14-74
DATE COMPLETED 10-14-74
DRILLER H. Mongold C. Green

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-40	ALL	Boulders + Gravel	Slow	16½
40-380	Congl. Loose		Med	5"
380-575	alluvium Loose	Cong	Med	"
490-593				"
575-593	Bedrock		Slow	"
	Set 40 Feet Surface		5 9/16"	

DRILLER'S LOG

HOLE NO. 448
J.5-2W

TOTAL DEPTH 750
SPOT CORE NONE

DATE STARTED 10-5-74
DATE COMPLETED 10-2-
DRILLER L. Stewart

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0 – 40	alluv. loose	Sand & gravel & Boulders	Slow	6 3/4
40 – 120	" Cemented	Sand & clay	Med	5
120 – 300	Cong Cemented	Sand, clay, gravel	Med	5"
300 – 730	" "	Sand & conglomerate	Slow	5"
730 – 750	Bedrock	granite Diorite		
		Brown, Mica		
		Very Rough.	Slow	
	(740-750) Heavy Show	~~Traces of~~ CuO^2		
		SMOOTH ROCK at T.D.		

Set 750' of 3" cemented

DRILLER'S LOG

HOLE NO. 453
J-2.5W

TOTAL DEPTH 870
SPOT CORE NONE

DATE STARTED 10-7-74
DATE COMPLETED 10-9-
DRILLER T. Stewart

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0 - 40	alluv. Loose	Sand, Boulder Gravel,	Slow	6 3/4
40 - 100	" Cemented	Sand & Clay	med	5"
100 - 340	Cong. Loose	Sand, gravel, Clay	"	
340 - 620	" Cemented	Weathered Basalt		5"
		Clay, Diorite Boulders	Slow	
700-800		andesite	"	
620-800	Cong. Cemented	andesite, Basalt		5"
~~800-870~~	~~Bedrock~~	Flow, Boulders.	Slow	5"
800-870	Bedrock	granite, CUO_2	Slow	
Set	870' of 3" Cemented			

DRILLER'S LOG

HOLE NO. 454

TOTAL DEPTH 403
SPOT CORE _____

DATE STARTED 10-12-74
DATE COMPLETED 10-12-74
DRILLER H. Mongold

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-40		Boulders + Gravel	Slow	6½
40-90		Clay	Med	5"
90-380	Congl.		Med	"
380-403	Bedrock		Slow	"
	Set 40 Feet Surface 5 9/16"			

DRILLER'S LOG

HOLE NO. 455

TOTAL DEPTH 553
SPOT CORE

DATE STARTED 10-17-74
DATE COMPLETED 10-18-74
DRILLER C. Drew
Mongard

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-40		Boulders + Gravel	Slow	7 7/8
40-170		Clay + Boulders St.	Med	5"
170-290	Congl. Loose		Med.	"
290-300	Alluvium	Clay	Slow	
300-330		Clay	Slow	"
330-340		Clay-Gravel	Slow	
340-355	Besault		Slow	
355-390 440-540	Congl. Loose		Slow	"
390-545	Cong	CLAY, H	Slow	
545-553	Bedrock		Slow	
	Set 40 Feet	Surface	5 9/16"	

(over)
Tally
@ pipe
3"

DRILLER'S LOG

HOLE NO. 456
I-5-3W

TOTAL DEPTH 825
SPOT CORE None

DATE STARTED 10-9-70
DATE COMPLETED 10-10-
DRILLER T. E. Leonard

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-40	alluv. loose	Boulders & gravel	Slow	6 3/4
40-290	Cong "	Sand, clay, gravel	Med	5"
291-370	Mudstone		Slow	
370-620	Cong. Cemented	quartz sand, clay	Med	
~~620-~~	~~Cong Conglomerate~~	Basalt		5"
620-810	Cong Conglomerate	Basalt flow		5"
720-810		Clay		5"
810-825	Bed rock	granite Diorite		
		CaCO2	Slow	

Set 825' of 3" Cemented
Back off Collar approx. 150' off Bottom

DRILLER'S LOG

HOLE NO 459

TOTAL DEPTH 483
SPOT CORE

DATE STARTED 10-11-74
DATE COMPLETED 10-12-74
DRILLER H. Mongold, L. Green

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-40		Boulders	Slow	16½
40-160		Clay + Gravel	Med	5"
380-480				
160-470	Congl. Loose		Med	"
470-483	Bedrock		Slow	"

DRILLER'S LOG

HOLE NO. 460 MF
H.5-2W
OFF-SET

TOTAL DEPTH 474
SPOT CORE

DATE STARTED 10-22-74
DATE COMPLETED 10-23-74
DRILLER C. Green & Mongold

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-50		Boulders & Gravel	Slow	7 7/8
50-290	ALLU.	SAND, GRAVEL, CLAY	MED	5"
290-350	"	CLAY	Slow	
350-400	CONGLOMERATE		Slow	"
400-464	"		Slow	"
464-474	Bedrock		Slow	1C

Set 50' 6" Surface Casing

(over)

23 joints 3" casing - each joint = 21.3'

DRILLER'S LOG

HOLE NO. 461 MF

H.5-2.5W
OFFSET

TOTAL DEPTH TD. 55

SPOT CORE

DATE STARTED 10-23-74

DATE COMPLETED 10-23-74

DRILLER C. Green

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-55		Boulders + Gravel	Slow	7 7/8
	Set 55 Feet	Surface	6"	

1974

DRILLER'S LOG

HOLE NO. 461

TOTAL DEPTH 385.
SPOT CORE NONE

DATE STARTED 11/27/74
DATE COMPLETED 11/27/74
DRILLER T. Stewart

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0 - 55	Drill BY Rig #2			7 7/8
55 - 280	Cong loose	Sand & Clay	med	5"
280 - 310 (310)	Mudstone	Clay	Slow	
310 - 360	Cong Cemented	Sand & Boulders	med	
360 - 370	Basalt Flow	Black Basalt	Slow	
370 - 380	Cong Cemented	Vol'c Clay & Boulders	Slow	
380 - 385	Bedrock	red iron stain granite		

Set 385' of 3"

Set 385' of 3" Casing

DRILLER'S LOG

HOLE NO. 462MF
H.5-30
OFFSET

TOTAL DEPTH 494
SPOT CORE

DATE STARTED 10-23-74
DATE COMPLETED
DRILLER C. Olson - H. Mongold

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-65		Boulders - Gravel	Slow	7 7/8
65-270		Gravel Sand - Clay	Med.	5"
270-330		Clay	Slow	
330-410	Alluvium	Gravel - Clay	Slow	
410-485	Cong.		Slow	"
485-494	Bedrock.		Slow	"
	Set 65' of 6" Surface Casing			

DRILLER'S LOG

HOLE NO. 463-MA
4-5-3.5 w

TOTAL DEPTH 720
SPOT CORE

DATE STARTED 10-31-74
DATE COMPLETED 11-4-74
DRILLER Mangoll

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-50		Boulders-Gravel	Slow	7 7/8
50-300		Clay-Sand-Gravel	Med	5
300-340	Congl (Cemented)	Clay	Slow	
340-700	Congl.		Slow	
700-710	"		Slow	
710-720	BR		Slow	
620-720				

Set 50' 6" Surface Casing:

Hauled & Ran 35 jts 3" Casing:

34 jts 21' 714
1 " 6' 6
720'

5500 ns

DATABASE CHANGES FOR DRILL HOLE 465 MF

Date: 10/12/96 **Geologist:** Harold Maneth

The following changes were made to the database. The changes are based on:

Please check all that apply.

- ☐ Overburden units derived from Conoco driller's log (T. Stewart)
- ☒ Geology interpretation from similar continuous units in nearby hole(s).
- ☐ Physical inspection of core.
- ☐ Physical inspection of cuttings/chips.
- ☐ Information derived from hydrophysical tests, pump tests, or other hydrology data.
- ☐ Other _____

LITHOLOGY	FROM	TO	COMMENTS
Qal	0	80	
ULcgl	80	225	
UCcgl	225	275	
clay	275	305	
LCcgl	305	bedrock	

Interoffice Communication

To R. E. ANDERSON

From DICK KNAPP

Date MAY 26th, 1972

Subject HOLE SUMMARY 94-S

Coordinates: 745,951.72 N 647,947.08 E (I-2-W)
Elevation: 1475.01'
Depth to Bedrock: 370'
Oxide-Sulfide Interface: 1236'
Total Depth: 2038'
Rotary Started: 3-9-71 Rotary Completed: 3-12-71
Core Started: 4-13-72 Core Completed: 5-11-72
Assays:

Cross Section:

571' - 650'	=	80' @ .34	Oxide
650' - 700'	=	50' @ .53	Oxide
700' - 775'	=	75' @ .38	Oxide
775' - 805'	=	30' @1.85	Oxide
805' - 880'	=	75' @ .41	Oxide
880' - 920'	=	40' @ .18	Oxide
920' - 970'	=	50' @ .45	Oxide
970' -1020'	=	50' @ .58	Oxide
1020' -1050'	=	30' @1.33	Oxide
1050' -1100'	=	50' @ .67	Oxide
1100' -1155'	=	55' @ .49	Oxide
1155' -1235'	=	80' @ .26	Oxide
1235' -1410'	=	175' @ .32	Sulfide
1410' -1565'	=	155' @ .44	Sulfide
1565' -1625'	=	60' @ .34	Sulfide
1625' -1690'	=	65' @ .45	Sulfide
1690' -1775'	=	85' @ .31	Sulfide
1775' -1835'	=	60' @ .52	Sulfide
1835' -1895'	=	60' @ .33	Sulfide
1895' -2038'	=	143' @ .17	Sulfide

200 Scale:

571' -1155'	=	584' @ .56	Oxide
1155' -1235'	=	80' @ .26	Oxide
1235' -1410'	=	175' @ .32	Sulfide
1410' -1565'	=	155' @ .44	Sulfide
1565' -1625'	=	60' @ .34	Sulfide
1625' -1690'	=	65' @ .45	Sulfide
1690' -1775'	=	85' @ .31	Sulfide
1775' -1835'	=	60' @ .52	Sulfide
1835' -1895'	=	60' @ .33	Sulfide
		1,324' @ .45	Total

Oxide Ore: 584' @ .56
Sulfide Ore: 280' @ .46

	Mo	Ag
1410' -155'	.0045	.10
1625' - 65'	.0073	.10
1775' - 60'	.0042	.06
280'	.0051	.09

Rock Types: (10' minimum)

0' - 465'?	----------	Overburden
465' - 777'	----------	Quartz Monzonite Porphyry
777' - 802'	----------	Granodiorite Porphyry 1
802' - 882'	----------	Quartz Monzonite Porphyry
882' - 920'	----------	Granodiorite Porphyry 2
920' -2038'	----------	Quartz Monzonite Porphyry

Alteration: Supergene argillic in the oxide zone, and hypogene (mainly veinlet with only local pervasive) potassic. Very little downhole trend other than weak development of sericitic veining in the bottom of the hole. There is some pinkish zeolite (?) veining in some parts of the hole. No sudden changes in alteration.

DRILLER'S LOG

HOLE NO. 94S

TOTAL DEPTH 366½'
SPOT CORE 560-563
563-566½

DATE STARTED 3/9/71
DATE COMPLETED 3/12/71
DRILLER R Hayes

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-10	loose	sand	Fast	
10-55	loose	Boulders + Gravel	slow	
55-180		clay	med	✓
180-350		gravels with streaks clay	med	✓
350-560		Boulders + clay	med	
560	Bedrock			
	No Casing - Bedrock @ ~~465~~ 370?			

Interoffice Communication

To R. E. ANDERSON

From JOE LANGLOIS

Date DECEMBER 29th, 1972

Subject HOLE SUMMARY 95-S (REVISION)

Coordinates: 745,952.39 N 647,447.09 E I-3-W
Collar Elevation: 1474' estimated
Depth to Bedrock: 570'
Oxide-Sulfide Interface: 1495' (some sulfides @ 1470')
Total Depth: 1842'
Rotary Started: 3-12-71 Completed: 3-16-71 Footage: 590'
Core Started: 5-21-71 Completed: 6-24-71 Footage: 1252'
Inclination: 1½° @ 1820'; maximum 3° @ 420'
Assay Data:

Cross Section:

596' - 810' = 214' @ .38 Oxide
810' - 880' = 70' @ .60 Oxide
880' - 935' = 55' @ .43 Oxide
935' -1015' = 80' @ .60 Oxide
1015'-1230' = 215' @ .44 Oxide
1230'-1265' = 35' @ .02 Oxide
1265'-1365' = 100' @ .43 Oxide
1365'-1425' = 60' @ .67 Oxide
1425'-1495' = 70' @ .39 Oxide
1495'-1550' = 55' @ .41 Sulfide
1550'-1675' = 125' @ .18 Sulfide
1675'-1842' = 168' @ .08 Oxide

200 Scale:

596' - 660' = 64' @ .30 Oxide
660' -1220' = 560' @ .48 Oxide
1270'-1495' = 225' @ .48 Oxide
1495'-1550' = 55' @ .41 Sulfide
904' @ .46 Total

1495' - 1550' = 55' @ .0057 Mo

Rock Types:

0' - 180' ---------- Alluvium
180' - 570' ---------- Conglomerate
570' - 622' ---------- Quartz Monzonite Porphyry
622' - 670' ---------- Granodiorite Porphyry 1
670' - 770' ---------- Quartz Monzonite Porphyry
770' - 804' ---------- Granodiorite Porphyry 1
804' - 877' ---------- Quartz Monzonite Porphyry
877' - 880' ---------- Granodiorite Porphyry
880' - 1183' --------- Quartz Monzonite Porphyry
1183' - 1189' -------- Quartz Monzonite Porphyry & Alaskite
1189' - 1223' -------- Quartz Monzonite Porphyry
1223' - 1227' -------- Andesite
1227' - 1230' -------- Quartz Monzonite Porphyry
1230' - 1267' -------- Dacite Porphyry
1267' - 1537' -------- Quartz Monzonite Porphyry
1537' (< 1 ft.) ------ Alaskite
1537' - 1549' -------- Quartz Monzonite Porphyry

CONTINENTAL OIL CO.

MINERAL EXPLORATION · METALLICS DIVN.

GEOLOGIC LOG

HOLE NO. 95S SHEET NO 1

COORDINATES ______ - ______

TYPE DRILL DIAMOND BIT SIZE NX

INCLINATION ______ BEARING ______

LENGTH CORED ______ CLAIM NO. ______

CONTRACTOR SHELTON-JOY

PROJECT FLOR

LOCATION Florence

I-3-W; MP-7

COLLAR ELEVATION ≈1474

TOTAL FOOTAGE 1842

LOGGED BY RCM+RWT SURVEYOR ______

DATE STARTED ______ COMPLETED ______

SCALE ______

CORE Run	CORE Rec	Depth run bottom	Rock	LITH	Tex.	Frac Int	Frac Dip	Flt. Dip	COLOR	ALTERATION MINERALS OR	BIO	QTZ	SER	CLY	CHL	EPI	CAR	GYP	ANH	MAG	01	02	03	04	Oxidized ZONE LIM	HEM	CuO.1	CuO.2	Zone MIN	MET	SULFIDE ZONE Py	Cp	Cc	Bn	Mo	01	02	03	04	ASSAYS Total Cu	CuOx	Mo.	Ag.	Au.	Pb.	Zn.	REMARKS
		0																																													
		10																																													
		20																																													
		30																																													
		40																																													
		50																																													
		60																																													
		70																																													
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		190																																													
		200																																													
		210																																													
		220																																													
		230																																													
		240																																													
		250																																													
		260																																													

DRILLER'S LOG

HOLE NO. 955

TOTAL DEPTH 590'
SPOT CORE

DATE STARTED 3/12/71
DATE COMPLETED 3/16/71
DRILLER R Hayes

Collar elevation estimate - 1470 JDL 6-17-71

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-20	loose	sandy clay	Fast	
20-40	loose	Boulders + Gravel	slow	✓
40-180	loose	clay	med	
180-260	conglom	gravel + clay	med	
260-290	"	boulders	slow	
290-330	loose	clay + gravels	med	
330-570	congl. w/ volcanics	boulders	slow to med.	✓
570-590	Bed rock	course sand	med	
		Bedrock 570'.		
		T.D. 590'		
	little limonitic + hematitic clay	560-570	- qmp	
	abt. Chrysocolla	Bedrock	570'.	
	No casing			

MAGMA COPPER - FLORENCE
Drill Hole Summary
MCC544, (site F5)
September 10, 1995

Type: Rotary 0' to 30', Hx Diamond 30' to 1320.5'
Started: April 22, 1995; Completed: May 21, 1995
Total depth: 1320.5'
Collar coordinates: 745,956.03N; 647,696.25E
Top of casing elevation: 1473.10 ft
Ground elevation: 1473.70 ft
Azimuth: N/A
Inclination: -90°; downhole surveys at ±100 ft. increments from 400' to 1200' depth, with an off-interval measurement at 1315'.
Drilling contractor: Christensen Boyles Co.
Logged by: J. Downey
Purpose: Ore reserve confirmation and classification on the west side of the deposit during the 1995 pre-feasibility program. Hx holes core Gila Conglomerate for hydrologic data, packer tests, and down-hole geophysical logging. MCC544 is located approximately 5 feet west and 9 feet north of Conoco hole 459s.

Geologic Summary

The Quaternary alluvium from the surface to 318' is largely unconsolidated and consists of fine to very fine grained sands, interbedded with silts and clays, with a few small beds of coarser sands and occasional boulder beds. The fine sand and silt tend to alternate as thick beds (up to 25' thick) of one sediment, with minor beds (generally less than 1 foot thick) of the other. Both types are generally weakly to moderately calcareous, though local exceptions exist and often coincide with the coarser sands. The Tertiary Gila Conglomerate interval from 318' to 369' consists of moderately to poorly consolidated conglomerate/sed. breccia. Sorting is poor, with clast size ranging from a few millimeters to half a meter, supported by a semi calcareous matrix of silt and sand. Clasts are sub-angular to sub-rounded, and are usually basalt, andesite, granodiorite, or granodiorite porphyry. Quartz monzonite clasts are rare, and most occur below 359', where, coincidentally, there is a notable drop in carbonate content. The contact with bedrock at 369' is obscure, but seems to be depositional.

Precambrian Quartz Monzonite in the hole is fairly typical for the area, usually consisting of ~35% microcline, ~25% quartz, ~25% plagioclase, ~15% biotite, which is often partially or totally altered to chlorite. Alteration of the Precambrian Quartz Monzonite is generally potassic, defined here as moderate to abundant secondary biotite/chlorite, with varying amounts of Kspar-quartz-biotite veinlets. The interstitial secondary biotite in this hole is pervasive, though only locally strong, and the kqb veinlets are often absent entirely. Clay-sericite alteration is also present throughout the hole, though it is variable in intensity, and is enhanced in the oxide zone by supergene alteration. This alteration forms clay and sericite in the plagioclase feldspar sites, often stained by copper oxides. Biotite also seems to be affected, being altered to chlorite and locally to vermiculite. Some of the clay alteration is certainly primary, as it exists in and below the transition zone from oxide to sulfide. Mineralization consists of fracture chrysocolla ± tenorite and plagioclase hosted chrysocolla in fairly equal proportions, though the intensities of each are variable and do not seem to have any predictable relation.

There is an aphanitic mafic dike from 498.5' to 517.5', which is logged as Precambrian Diabase. The material is moderately altered to clay ± talc, and is strongly brecciated. The brecciation consists of angular fragments of ~1-4 cm size with a chrysocolla ± tenorite matrix. There are a few small needle-like phenocrysts in the rock that have been altered to iron oxides. Most of the dike is moderately to weakly magnetic, and the rock feels very dense in spite of the alteration.

MAGMA COPPER - FLORENCE
Interpretation of Downhole Geophysics
MCC-544

Memo to: File
From: Liz Greene
Date: November 1995

Subject: Geophysical Log Response Notes for MCC-544: correlation of geologic core logs with borehole geophysical logs.

GENERAL
Logs run: Caliper, Resistivity, SP(spontaneous potential), Gamma, Neutron, Sonic, VDL(variable density log).
Core size: 2.4 in. diameter (HX).
Casing size: 4 in.
Total depth: 1320.5 ft.
Drilled interval: 0-30 ft. rotary, 30-1320.5 ft. core.
Cased interval: 0-380 ft.
Logged depth: caliper 8-1300 ft., gamma and neutron 135-1320 ft., SP and resistivity 380-1320 ft., sonic and VDL 378-1312 ft.

Abbreviations:
Quaternary Alluvium - Qa
Tertiary Gila Conglomerate - Tgc
Precambrian Quartz Monzonite - Yqm
Precambrian Diabase - Ydb
Tertiary Granodiorite Porphyry - Tgdp

SUMMARY
Bedrock boundary:
Gradual increase on gamma log at Tgc/Yqm boundary. Significant increase at bedrock boundary on neutron log.

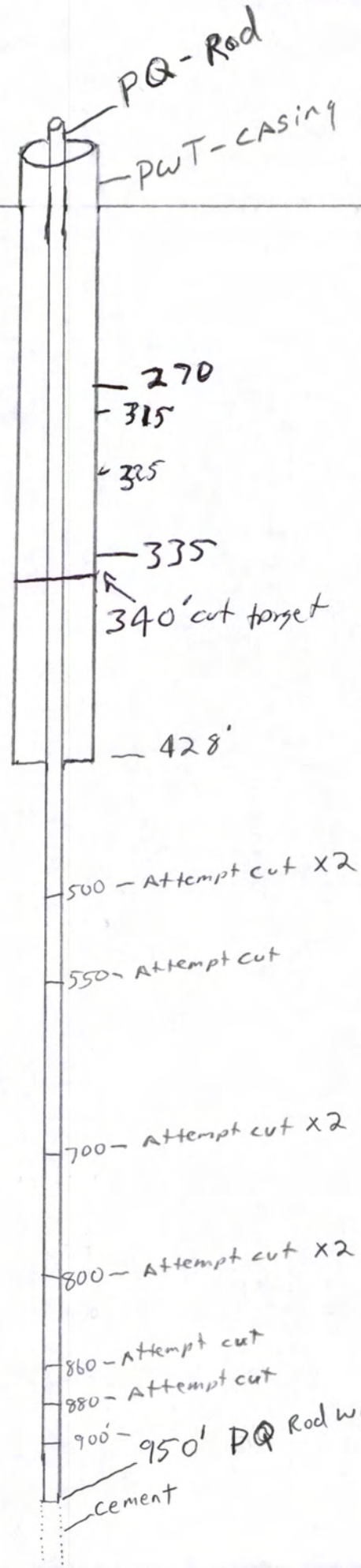
Fracture intensity:
Resistivity, gamma, neutron and sonic logs correlate to fracture intensity. In general as fracture intensity increases, resistivity decreases, gamma increases, neutron decreases and sonic velocity decreases (traveltime increases). There is a good example on the resistivity log in this well. A fault zone located at 1075-1120 ft. has two lows with a high of competent rock in between. This same zone is seen on the neutron, sonic and VDL logs with the expected responses.

Rock type response:
Quaternary Alluvium - low gamma, neutron.
Tertiary Gila Conglomerate - low gamma; neutron higher than Qal and lower than Yqm.
Precambrian Diabase - low resistivity, neutron.
Tertiary Granodiorite Porphyry - low gamma.
Tertiary Andesite - low gamma and neutron.
Biotite alteration - low resistivity and neutron, high gamma.

Oxide/sulfide boundary:
Resistivity - low in transition zone, very slight increase at top of sulfide zone 1300 ft., but below background.
Neutron - spike (high) at top of sulfides/bottom of transition zone - 1300 ft.

Abandoned Core Holes

CMP11-05



JWGS@Live.com

250 5939304

CLIENT: FLORENCE COPPER PROJ	Mon. Tue. (Wed.) Thur. Fri. Sat. Sun.	DATE: 9 / 14 /2011	**National** EXPLORATION • WELLS • PUMPS
JOB NAME: FLORENCE COPPER	RIG#: 180		DAILY ROTARY DRILL REPORT
JOB LOCATION: FLORENCE, AZ	NATIONAL JOB#: 401-030		

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
(Day)	CMPH-05	PC Expl.										
		PC Expl.										
Night	CMPH-05	PC Expl.					PULL		50'	PWT	FROM	
		PC Expl.							B/AST.			

Hourly Distribution	From	To	Total
NEWP Safety Meeting/INSP	6:00AM	6:15AM	1/4
Drilling - Tri-Cone / Hammer			
Move Rig, RIG DOWN	11:30AM	1:30pm	(2)
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
Condition Hole, Lost Circulation			
Reaming/Back Reaming			
Casing - Placing/(Pulling) PWT	10:00AM	10:30AM	(1/2)
Hole Abandonment	8:30AM	10:00AM	(1 1/2)
Client Delays-Blast, Weather etc.			
Backhoe Work DEMOBILIZE	1:30pm	3:00pm	1 1/2
Surveying, Inclination Test			
~~Booster MOBILIZATION~~			
B/AST (STANDBY)	6:15AM	8:30AM	(2 1/4)
HOLE ABADOMENT	10:30AM	11:30AM	(1)
WORK AT SHOP	3:00pm	6:00pm	3
Maintenance			
Client Safety Meeting			
TOTAL HOURS	12hrs		
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	(NO)	
PRE-SHIFT INSPECTION COMPLETED BY:	RG.		

Description	Size	Product Name	Day (circle if chargeable)	Night (circle if chargeable)
Gel	50# Bag	SUPPLIED BY CLIENT		
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag		62 BAGS	
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			

Diesel	Cost		Supplied by:	National	Client	Gal
Gas				National	Client	Gal
Water Haul			Miles			Loads

Rental Equipment

Casing Lost or Left in Hole	Size	Feet	Hole#

Lost Tooling

Bits	Serial Number	Size	Type (circle)	Depth In
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	

Casing Shoes

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
	RITO GOMEZ	12	95	BRIAN REDFEARN	12	Ø	WILLIAM RIVAS	12	95
Hours	From: 6:00AM To: 6:00pm	RG Initials Verify Hrs & Breaks		From: 6:00AM To: 6:00pm	BR Initials Verify Hrs & Breaks		From: 6:00AM To: 6:00pm	WR Initials Verify Hrs & Breaks	
Extra	DAN MACY	12	95	DUSTIN STRINGER	12	95	ANDY RICHMOND	12	95
Hours	From: 6:00AM To: 6:00pm	DM Initials Verify Hrs & Breaks		From: 6:00AM To: 6:00pm	DS Initials Verify Hrs & Breaks		From: 6:00AM To: 6:00pm	AR Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below)

Rig Days Off - From: / /2011 - To: / /2011

B/AST 290' & 330' (PURFURATE)

HOLE ABANDOMENT - RUN IN TRIM PIPE CEMENT TO 150' TRIP TRIM PIPE OUT.

BLAST AT 50' PULL 50'

PULL PWT AT 50' BREAK 5' SECTIONS.

HOLE ABANDOMENT - RUN IN TRIM PIPE 150' CEMENT TO SURFACE. TRIP OUT.

RIG DOWN, LOAD UP DRILLING MISC. WASH DOWN EQUIPMENT.

DEMOBILIZATION - 1 1/2

WORK AT SHOP Gilbert, AZ YARD.

NEWP Supervisor: [signature] Client Signature: [signature]

Office Admin: E-FAX 800-878-4749 Invoiced:

CLIENT: Curis Resources	Mon. (Tue.) Wed. Thur. Fri. Sat. Sun.	DATE: 9 / 13 /2011	**National** EXPLORATION • WELLS • PUMPS
JOB NAME: Florence Abandonment	RIG#: 180		DAILY ROTARY DRILL REPORT
JOB LOCATION: Florence Az	NATIONAL JOB#: 401.030		

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
(Day)	Cmp 11-05	PC Expl.										
		PC Expl.										
Night		PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total
NEWP Safety Meeting			
Drilling - Tri-Cone / Hammer			
Move Rig			
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
Condition Hole, Lost Circulation			
Reaming/Back Reaming			
Casing - Placing/Pulling			
Hole Abandonment			
Client Delays-Blast, Weather etc.			
Backhoe Work			
Surveying, Inclination Test			
Booster			
Stand by (client)	NOT CHARGEABLE		(12)
(Maintenance)	6:00	12:00	6
Client Safety Meeting			
TOTAL HOURS		12	
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	(NO)	
PRE-SHIFT INSPECTION COMPLETED BY:	D. Macy		

Description	Size	Product Name	Day	Night
Gel	50# Bag		circle if chargeable	circle if chargeable
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag			
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			
LCM(Explain)				
Wear Sleeve- Bladder Sub				
Bladder for Sub				
Diesel / Cost / Supplied by:		National / Client / Gal		
Gas / Cost / Supplied by:		National / Client / Gal		
Water Haul	Miles	Loads		
Rental Equipment				
Casing Lost or Left in Hole	Size	Feet	Hole#	
Lost Tooling				

Bits	Serial Number	Size	Type (circle)	Depth In
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
Days	Dan Macy	12	95	Andy Richmond	12	95	Dustin Stringer	12	95
Hours	From: 6:00am To: 6:00pm	Initials Verify Hrs & Breaks DM		From: 6:00am To: 6:00pm	Initials Verify Hrs & Breaks AR		From: 6:00am To: 6:00pm	Initials Verify Hrs & Breaks DS	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below)

Rig Days Off - From: / /2011 - To: / /2011

6:00 - 12:00 Dan took F-250 to dealer, had slip tanks fuel pump fixed and truck serviced. Returned to sight to help Neil and RiTO till 6:00 pm.

Andy Ricmond and Dustin Stringer were on site helping Neil and RiTO all day.

Stand by for ~~Newmans~~ NORMAN wireline. 2 crews working together. 12hrs total chargable standby.

CHARGEABLE HOURS ON RITO'S LOG FOR TODAY

NEWP Supervisor: [signature] Client Signature: [signature]

Office Admin: E-FAX 800-878-4749 Invoiced:

CLIENT: FLORENCE COPPER PROJECT	Mon. Tue. Wed. Thur. Fri. Sat. Sun.	DATE: 9 / 13 /2011
JOB NAME: FLORENCE COPPER	RIG#: 180	
JOB LOCATION: FLORENCE, AZ	NATIONAL JOB#: 401.030	

National
EXPLORATION · WELLS · PUMPS
DAILY ROTARY DRILL REPORT

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
Day		PC Expl.										
		PC Expl.										
Night		PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total
NEWP Safety Meeting			
Drilling - Tri-Cone / Hammer			
Move Rig			
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
Condition Hole, Lost Circulation			
Reaming/Back Reaming			
Casing - Placing/Pulling			
Hole Abandonment			
Client Delays-Blast, Weather etc.			
Backhoe Work			
Surveying, Inclination Test			
Booster			
STAND BY	→	→	12
Maintenance			
Client Safety Meeting			
TOTAL HOURS	12		
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	NO	
PRE-SHIFT INSPECTION COMPLETED BY:	R6		

Description	Size	Product Name	Day (circle if chargeable)	Night (circle if chargeable)
Gel	50# Bag	SUPPLIED BY CLIENT.		
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag	→	2 BAGS	
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			
LCM(Explain)				
Wear Sleeve- Bladder Sub				
Bladder for Sub				
Diesel / Cost	Supplied by:	National / Client	Gal	
Gas / Cost	Supplied by:	National / Client	Gal	
Water Haul	Miles		Loads	
Rental Equipment				
Casing Lost or Left in Hole	Size	Feet	Hole#	
Lost Tooling				

Bits	Serial Number	Size	Type (circle)	Depth In
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
	RITO GOMEZ	12	95	BRIAN REDFEARN	12	95	WILLIAM RIALS	12	95
Hours	From: To:	R6 Initials Verify Hrs & Breaks		From: To:	BK Initials Verify Hrs & Breaks		From: To:	WR Initials Verify Hrs & Breaks	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below) Rig Days Off - From: / /2011 - To: / /2011

STAND BY WAITING ON BLAST CREW. 12HRS
RUN TRIM PIPE TO 334' TRIP OUT TRIM PIPE & HOLE # CMP 11-05
BREAK HWT IN 10' SECTIONS 400' OF HWT
TOP OFF HOLE WITH CEMENT HOLE # CMP-11-06
DIG OUT 5' AROUND PWT ON HOLE # CMP11-01 CUT CASING AT 5'
BACKFILL BACK IN.
SET UP MIXER ON HOLE CMP11-05
WASH DOWN EQUIPMENT & PICK-UPS.

NEWP Supervisor: Client Signature:

Office Admin: E-FAX 800-878-4749 Invoiced:

CLIENT: Curis Resources	Mon. Tue. Wed. Thur. Fri. Sat. Sun.	DATE: 9 / 12 /2011	**National** EXPLORATION · WELLS · PUMPS
JOB NAME: Florence 900 Abandonment	RIG#: 180		DAILY ROTARY DRILL REPORT
JOB LOCATION: Florence Az	NATIONAL JOB#: 401.030		

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
Day	Cmp 11-06	PC Expl.										
	Cmp 11-05	PC Expl.										
Night		PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total
NEWP Safety Meeting	5:45	6:00	.25
Drilling - Tri-Cone / Hammer			
Move Rig	10:00 /	11:00 /	2
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
Condition Hole, Lost Circulation			
Reaming/Back Reaming			
Casing - Placing/Pulling	6:00/11:30	7:00/1:00	2.5
Hole Abandonment	1:00	2:30	1.5
Client Delays-Blast, Weather etc.			
Backhoe Work			
Surveying, Inclination Test			
Booster			
Stand by (National)	9:00 /	10:00 /	1
Stand by (Client)	7:00/3:30	9:00/6:00	4.5
Set up (grout)	11:00	11:30	.5
Maintenance			
Client Safety Meeting			
TOTAL HOURS		12.25	
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	NO	
PRE-SHIFT INSPECTION COMPLETED BY:	D. Macy		

Description	Size	Product Name	Day (circle if chargeable)	Night (circle if chargeable)
Gel	50# Bag			
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag	Client Supplied		
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			
LCM(Explain)				
Wear Sleeve- Bladder Sub				
Bladder for Sub				
Diesel / Cost	Supplied by:	National / Client	Gal	
Gas		National / Client	Gal	
Water Haul	Miles		Loads	
Rental Equipment				
Casing Lost or Left in Hole	Size	Feet	Hole#	
Lost Tooling				

Bits	Serial Number	Size	Type (circle)	Depth In
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
Days	Dan Macy	12.25	95	Andy Richmond	12.25	95	Dustin Stringer	12.25	95
Hours	From: 5:45am To: 6:00pm	Initials Verify Hrs & Breaks		From: 5:45am To: 6:00pm	Initials Verify Hrs & Breaks		From: 5:45am To: 6:00pm	Initials Verify Hrs & Breaks	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below) Rig Days Off - From: / /2011 - To: / /2011

5:45-6:00 Safety meeting / pre-op. 6:00-7:00 Cmp 11-5 pulled on PWT with air on. No progress. 7:00-9:00 Stand by for Clients decision. 9:00-10:00 stand by for decision from Nationals office. 10:00-11:00 move back to Cmp 11-6. 11:00-11:30 Set up to pump grout. 11:30-2:30 pulled PWT out of Cmp 11-6 and Abandoned hole with grout(335'). 2:30-3:30 moved back to Cmp 11-5. 3:30-6:00 Standby for ~~Akumans~~ NORMAN wireline. eta Wednesday. Cmp 11-06 was abandoned with 565 gals of grout cement.

NEWP Supervisor: [signature] Client Signature: [signature]

Office Admin: E-FAX 800-878-4749 Invoiced:

CLIENT: Curis Resources	Mon. Tue. Wed. Thur. Fri. Sat. (Sun)	DATE: 9 / 11 /2011	**National** EXPLORATION • WELLS • PUMPS
JOB NAME: Florence Abandonment	RIG#: 180		DAILY ROTARY DRILL REPORT
JOB LOCATION: Florence Az	NATIONAL JOB#: 401.030		

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
Day	Cmp 11-01	PC Expl.										
	Cmp 11-06	PC Expl.										
Night	Cmp 11-05	PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total
NEWP Safety Meeting	5:45	6:00	(.25)
Drilling - Tri-Cone / Hammer			
Move Rig	7:30/7:00	9:00/8:00	(2)
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
Condition Hole, Lost Circulation			
Reaming/Back Reaming			
Casing - Placing/Pulling			
Hole Abandonment	6:00/	7:30/	(1.5)
Client Delays-Blast, Weather etc.			
Backhoe Work			
Surveying, Inclination Test			
Booster			
Stand by	9:30	5:00	(7.5)
Stand by (Shot)	5:00/8:00	7:00/10:45	(4.75)
~~Secure site/clean up~~			
Maintenance			
Client Safety Meeting			
TOTAL HOURS		17	
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	(NO)	
PRE-SHIFT INSPECTION COMPLETED BY:	D. Macy		

Description	Size	Product Name	Day (circle if chargeable)	Night (circle if chargeable)
Gel	50# Bag			
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag	Client Supplied	4	
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			
LCM(Explain)				
Wear Sleeve- Bladder Sub				
Bladder for Sub				
Diesel / Cost	Supplied by:	National / Client	Gal	
Gas		National / Client	Gal	
Water Haul	Miles		Loads	
Rental Equipment				
Casing Lost or Left in Hole	Size	Feet	Hole#	
Lost Tooling				

Bits	Serial Number	Size	Type (circle)	Depth In
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
Days	Dan Macy	17	95	Andy ~~Stringer~~ Richmond	17	95	Dustin Stringer	17	95
Hours	From: 5:45am To: 10:45pm	Initials Verify Hrs & Breaks DM		From: 5:45am To: 10:45pm AR	Initials Verify Hrs & Breaks		From: 5:45am To: 10:45pm	Initials Verify Hrs & Breaks	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below)

Rig Days Off - From: / /2011 - To: / /2011

5:45-6:00 Safety meeting/pre-op. 6:00-7:30 Topped off Cmp 11-01 with 4 bags of portland cement and 24 gals of water. 7:30-9:00 Moved equipement from Cmp 11-01 to Cmp 11-06. 9:00 to 9:30 set up to pull PVC casing out of Cmp 11-06. 9:30-5:00 Standby for blast crew. 5:00-7:00 standby for shot on Cmp 11-06, it was a success. 7:00-800 moved to hole # Cmp 11-5. 8:00-10:45 Stand by for shot, no progress. Secured site and cleaned up. Neil Hale was a tremendous help today. Thanks.

NEWP Supervisor: Neil Hale

Client Signature:

Office Admin:

E-FAX 800-878-4749

Invoiced:

CLIENT: Curis Resourse	Mon. Tue. Wed. Thur. (Fri.) Sat. Sun.	DATE: 9 / 9 /2011
JOB NAME: Florence Abandonment	RIG#: 180	
JOB LOCATION: Florence Az	NATIONAL JOB#: 401.030	

National
EXPLORATION • WELLS • PUMPS
DAILY ROTARY DRILL REPORT

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
(Day)	Cmp 11-05	PC Expl.									PWT	
		PC Expl.										
Night		PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total
NEWP Safety Meeting	11:00	11:15	(.25)
Drilling - Tri-Cone / Hammer			
Move Rig			
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
Condition Hole, Lost Circulation			
Reaming/Back Reaming			
Casing - Placing/(Pulling)	11:15	6:00	(6.75)
Hole Abandonment			
Client Delays-Blast, Weather etc.			
Backhoe Work			
Surveying, Inclination Test			
Booster			
Gilbert Yard	6:00	11:00	(5)
Maintenance			
Client Safety Meeting			
TOTAL HOURS		12	
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	(NO)	
PRE-SHIFT INSPECTION COMPLETED BY:			

Description	Size	Product Name	Day (circle if chargeable)	Night (circle if chargeable)
Gel	50# Bag	Client Supplied	4	
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag			
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			
LCM(Explain)				
Wear Sleeve- Bladder Sub				
Bladder for Sub				
Diesel (Cost)	Supplied by:	National / Client	Gal	
Gas (Cost)	Supplied by:	National / Client	Gal	
Water Haul	Miles		Loads	
Rental Equipment				
Casing Lost or Left in Hole	Size	Feet	Hole#	
Lost Tooling				

Bits	Serial Number	Size	Type (circle)	Depth In
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
Days	Dan Macy	12	95	Andy Richmond	12	95	Dustin Stringer	12	95
Hours	From: 6:00am To: 6:00pm	DM Initials Verify Hrs & Breaks		From: 6:00am To: 6:00pm	AR Initials Verify Hrs & Breaks		From: 6:00am To: 6:00pm	DS Initials Verify Hrs & Breaks	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below)

Rig Days Off - From: / /2011 - To: / /2011

6:00-11:00 Met Rossi and Neil at yard. Welded cup for downhole hammer. Traveled out to site. 11:00-11:15 Safety meeting/pre-op. 11:15-6:00 Pulled on PWT casing with no progress. Injected gel and water. Secured site at the end of the day.

NEWP Supervisor: Neil Hale

Client Signature:

Office Admin:

E-FAX 800-878-4749

Invoiced:

V

CLIENT: Curis Resource	Mon. Tue. Wed. Thur. Fri. Sat. Sun.	DATE: 9 / 10 /2011	**National** EXPLORATION • WELLS • PUMPS
JOB NAME: florence Abandonment	RIG#: 180		DAILY ROTARY DRILL REPORT
JOB LOCATION: florence Az	NATIONAL JOB#: 401.030		

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
Day	Cmp-11-05	PC Expl.										
	Cmp-11-06	PC Expl.										
Night	Cmp-11-01	PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total
NEWP Safety Meeting	5:45	6:00	.25
Drilling - Tri-Cone / Hammer			
Move Rig	6:00/10:00	7:00/11:00	2
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
Condition Hole, Lost Circulation			
Reaming/Back Reaming			
Casing - Placing/Pulling	7:00	10:00	3
Hole Abandonment	12:30	3:00	2.5
Client Delays-Blast, Weather etc.			
Backhoe Work			
Surveying, Inclination Test			
Booster			
Plugged pump	12:00	12:30	.5
Trimmy pipe in/out	11:00	11:45	[illegible]
Maintenance	3:00	6:00	3
Client Safety Meeting			
TOTAL HOURS		12.25	
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	NO	
PRE-SHIFT INSPECTION COMPLETED BY:	D. Macy		

Description	Size	Product Name	Day (circle if chargeable)	Night (circle if chargeable)
Gel	50# Bag			
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag	Client Supplied	56	
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			
LCM(Explain)				
Wear Sleeve- Bladder Sub				
Bladder for Sub				
Diesel / Cost	Supplied by:	National / Client	Gal	
Gas		National / Client	Gal	
Water Haul	Miles		Loads	
Rental Equipment				
Casing Lost or Left in Hole	Size	Feet	Hole#	
Lost Tooling				

Bits	Serial Number	Size	Type (circle)	Depth In
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
Days	Dan Macy	12.25	95	Andy Richmond	12.25	95	Dustin Stringer	12.25	95
Hours	From: 5:45am To: 6:00pm	Initials Verify Hrs & Breaks: DM		From: 5:45am To: 6:00pm	Initials Verify Hrs & Breaks: AR		From: 5:45am To: 6:00pm	Initials Verify Hrs & Breaks: D.S.	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below)

Rig Days Off - From: / /2011 - To: / /2011

5:45-6:00 Safety meeting /pre op. 6:00-7:00 move from Cmp 11-5 to Cmp 11-6. 7:00-10:00 pull on PLUT casing with no progress. 10:00-11:00 move to Cmp 11-01. Tripped in trimmy pipe, pump was plugged with paper bag. fixed pump and grouted hole with 385gals of water and 56 bags of portland Cement, Cleaned Trimmy. 3:00-6:00 fixed pressure washer, broken bolt on hydro pump of Drill.

NEWP Supervisor: [signature] Client Signature: [signature]

Office Admin: E-FAX 800-878-4749 Invoiced:

CLIENT: Curis Resources

Mon. Tue. Wed. Thur. Fri. Sat. Sun.

DATE: 9 / 8 /2011

JOB NAME: Florence Abandonment

RIG#: 180

JOB LOCATION: Florence Az

NATIONAL JOB#: 401.030

National
EXPLORATION • WELLS • PUMPS
DAILY ROTARY DRILL REPORT

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
Day	Cmp 11-06	PC Expl.										
		PC Expl.										
Night	Cmp 11-05	PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total
NEWP Safety Meeting	5:45	6:00	.25
Drilling - Tri-Cone / Hammer			
Move Rig	8:00	9:00	1
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
Condition Hole, Lost Circulation			
Reaming/Back Reaming			
Casing - Placing/Pulling	6:00	5:45	9.75
Hole Abandonment			
Client Delays-Blast, Weather etc.			
Backhoe Work			
Surveying, Inclination Test			
Booster			
Stand by (Shot)	11:00	12:00	1
Maintenance			
Client Safety Meeting			
TOTAL HOURS		12	
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	NO	
PRE-SHIFT INSPECTION COMPLETED BY:	D. Macy		

Description	Size	Product Name	Day (circle if chargeable)	Night (circle if chargeable)
Gel	50# Bag			
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag			
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			
LCM(Explain)				
Wear Sleeve- Bladder Sub				
Bladder for Sub				
Diesel Cost 3.89	Supplied by:	National / Client	Gal	183
Gas		National / Client	Gal	
Water Haul	Miles		Loads	
Rental Equipment				
Casing Lost or Left in Hole	Size	Feet	Hole#	
Lost Tooling				

Bits	Serial Number	Size	Type (circle)	Depth In
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
D	Dan Macy	12	95	Andy Richmond	12	95	Dustin Stringer	12	95
Hours	From: 5:45am To: 5:45pm	Initials Verify Hrs & Breaks: DM		From: 5:45am To: 5:45pm	Initials Verify Hrs & Breaks: AR		From: 5:45am To: 5:45pm	Initials Verify Hrs & Breaks: DS	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below)

Rig Days Off - From: / /2011 - To: / /2011

5:45-6:00 Safety meeting / Pre-op. 6:00-8:00 pulled on PWT Casing hole # Cmp 11-06 with no progress. 8:00-9:00 Rigged down and moved to hole # Cmp 11-05 Set up to pull HWT Casing. 9:00-11:00 Pulled HWT with no progress. 11:00-12:00 Helped wire line rig up to shoot HWT. Shot was successful. Pulled 440' HWT out of hole # Cmp 11-5 12:00-2:00. Changed over to pull PWT at 2:00. Pulled on PWT hole # Cmp 11-05 from 2:00-5:30. Secured site left rig at 5:45pm.

NEWP Supervisor:

Client Signature:

Office Admin:

E-FAX 800-878-4749

Invoiced:

CLIENT: FLORENCE COPPER PROJECT	Mon. Tue. Wed. Thur. Fri. Sat. Sun.	DATE: 6 / 28 /2011	National EXPLORATION • WELLS • PUMPS
JOB NAME:	RIG#: 180		DAILY ROTARY DRILL REPORT
JOB LOCATION: FLORENCE, AZ	NATIONAL JOB#: 401.030		

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
Day	ALT-02	PC Expl.	90°	6¾-TRICONE	0'	308'			308'			
	CMP11-05	PC Expl.										
Night		PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total
NEWP Safety Meeting / INSP	5:00 AM	5:30 AM	½
Drilling - Tri-Cone / Hammer	8:30 AM.	10:00 AM	1½
Move Rig			
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
Condition Hole, Lost Circulation			
Reaming/Back Reaming			
Casing - Placing/Pulling			
Hole Abandonment			
Client Delays-Blast, Weather etc.			
Backhoe Work			
Surveying, Inclination Test			
Booster			
FILL MUD SYSTEM	5:30 AM	8:30 AM	3
DRILLING-TRICONE	2:00 PM	8:30 PM	6½
Maintenance Hydraulic	10:00 AM	2:00 PM	4
Client Safety Meeting			
TOTAL HOURS	15½		
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	NO	
PRE-SHIFT INSPECTION COMPLETED BY:	RG		

Description	Size	Product Name	Day	Night
Gel	50# Bag		circle if chargeable 25	circle if chargeable
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag			
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			
SODA ASH			1	
QUICK TROL LV			1	
LCM(Explain)				
Wear Sleeve- Bladder Sub				
Bladder for Sub				
Diesel / ~~Gas~~ Cost ~~[illegible]~~ 80 gal	Supplied by:	National / Client	Gal	
Diesel / ~~Gas~~ Cost	Supplied by:	National / Client	Gal	
Water Haul	Miles		Loads	
Rental Equipment				
Casing Lost or Left in Hole	Size	Feet	Hole#	
Lost Tooling				

Bits	Serial Number	Size	Type (circle)	Depth In
TRICONE	06F171955	6¾	Hammer Carbide Steel Deephole	0'
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
	RITO GOMEZ	16	95	BRIAN REDFEARN	15½	95	WILLIAM RIALS	15½	95
Hours	From: 5:00 AM To: 8:30 PM	RG Initials Verify Hrs & Breaks		From: 5:00 To: 8:30	TR Initials Verify Hrs & Breaks		From: 5:00 To: 8:30	WR Initials Verify Hrs & Breaks	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below)

Rig Days Off - From: / /2011 - To: / /2011

Log, FAX (½ HR RITO GOMEZ)

FILL MUD SYSTEM WITH WATER TO START MIXING DRILLING ~~FLUIDS~~ FLUIDS

HYDRAULIC HOSE LEAKING, REPLACING HYDRAULIC HOSE

1-BOX OF RAGS, 3 SAFETY METAL COVERS, 1-LIFT PUMP.

2-SET OF STAIR FOR MUD SYSTEM, 4 HAND RAILS. 1-¼ HOSE X 23'.

3-SET of QUICK CONNECT MALE & FEMALE. 1-BOX DUST MASK

NEWP Supervisor: BILL EDDY & NEIL HALE

Client Signature: [signature]

Office Admin: E-FAX 800-878-4749 Invoiced:

CLIENT: FLORENCE COPPER PROJ	Mon. Tue. Wed. Thur. Fri. Sat. Sun.	DATE: 6 / 27 /2011	**National** EXPLORATION • WELLS • PUMPS
JOB NAME:	RIG#: 180		DAILY ROTARY DRILL REPORT
JOB LOCATION: FLORENCE	NATIONAL JOB#: 401.030		

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
Day	ALT-02	PC Expl.	90°									
	CMP11-05	PC Expl.										
Night		PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total
NEWP Safety Meeting / INSP	7:00 AM	7:30 AM	1/2
Drilling - Tri-Cone / Hammer			
Move Rig	1:30 PM	8:00 PM	6 1/2
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
Condition Hole, Lost Circulation			
Reaming/Back Reaming			
Casing - Placing/Pulling			
Hole Abandonment			
Client Delays-Blast, Weather etc.			
Backhoe Work			
Surveying, Inclination Test			
Booster			
MOBILIZATION	11:30 AM	1:00 PM	1 1/2
PRE-TRIP	11:00 AM	11:30 AM	1/2
POST TRIP	1:00 PM	1:30 PM	1/2
Maintenance	7:30 AM	11:00	3 1/2
Client Safety Meeting			
TOTAL HOURS	13		
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	NO	
PRE-SHIFT INSPECTION COMPLETED BY:	RG		

Description	Size	Product Name	Day	Night
Gel	50# Bag		circle if chargeable	circle if chargeable
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag			
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			

Diesel	Cost 101.78	Supplied by:	National	Client	Gal	
Gas	4.766		National	Client	Gal	
Water Haul		Miles			Loads	
Rental Equipment						
Casing Lost or Left in Hole		Size		Feet		Hole#
Lost Tooling						

Bits	Serial Number	Size	Type (circle)	Depth In
NEW ~~6 3/4~~	06F171955	6 3/4	Hammer Carbide Steel Deephole	0'
TRICON			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
✓	RITO GOMEZ	13 1/2	95	BRIAN REDFERN	13	95	WILLIAM RIALS	13	95
Hours	From: 7:00 AM To: 8:00 PM	RG Initials Verify Hrs & Breaks		From: 7:00 AM To: 8:00 PM	BD Initials Verify Hrs & Breaks		From: 7:00 AM To: 8:00 PM	WR Initials Verify Hrs & Breaks	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below) Rig Days Off - From: / /2011 - To: / /2011

LOG, FAX (1/2 HR RITO 6)
MAINTENANCE AT YARD ON EQUIPMENT, NEW SCREENS ON MUD SYSTEM
GET CONNECTIONS READY ON RIG FOR LIFT PUMP.
MOBILIZATION - RIG, RIG TENDER, MUD SYSTEM
RIG UP, SET UP DRILL SITE TO DRILL MUD ROTARY. 600' OF DRILL PIPE 20' EACH.
1-4FT 3 1/2 IF PIN TO 3 1/2 IF PIN TOP HEAD SUB, 1-1FT 3 1/2 IF BOX - 2 7/8 PIN 2 7/8 DRILL PIPE 30 DRILL RODS
1-6" 3 1/2 IF PIN - 2 7/8 BOX, 1-1FT 3 1/2 IF BOX - 3 1/2 REG BOX, 1-6 3/4 TRICONE BIT. 5-FENCING STAKE, 1-ROLL OF ~~[illegible]~~ ORANGE FENCE
1-4'10" 3 1/2 IF PIN TO 3 1/2 IF PIN ROLLER REAMER, 1-5'6" 3 1/2 IF PIN - 3 1/2 IF PIN ROLLER REAMER, 1-FORK LANDING PLATE

NEWP Supervisor: BILL EDDY & NEIL HALE Client Signature: [signature]

Office Admin: E-FAX 800-878-4749 Invoiced:

CLIENT: Florence Copper Project	Mon. Tue. Wed. Thur. Fri. Sat. Sun.	DATE: 4 / 28 /2011	National EXPLORATION • WELLS • PUMPS
JOB NAME:	RIG#: 180		DAILY ROTARY DRILL REPORT
JOB LOCATION: Florence	NATIONAL JOB#: 401.030		

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
Day	AIT 02 11	PC Expl.			308	4285			1205			
	CMP 11-05	PC Expl.										
Night		PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total
NEWP Safety Meeting			
Drilling - Tri-Cone / Hammer			
Move Rig			
Casing Advance/Symmetrix			
Drill & Install Surface Casing			51.139
Condition Hole, Lost Circulation	12:30	1:30	1
Reaming/Back Reaming			
Casing - Placing/Pulling			
Hole Abandonment			
Client Delays-Blast, Weather etc.			
Backhoe Work	8:00	11:00	3
Surveying, Inclination Test		MOVING CASING AND LOADING FOR MOVE	
Booster			
Maintenance			
Client Safety Meeting			
TOTAL HOURS			
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	NO	
PRE-SHIFT INSPECTION COMPLETED BY:	Rob Wineman		

Description	Size	Product Name	Day (circle if chargeable)	Night (circle if chargeable)
Gel	50# Bag	22 bags of gel between 4-27-11 & 4-29-11		
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag			
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			
	18.505			
			199.00	
LCM(Explain)			14	
Wear Sleeve- Bladder Sub	69.542		78.14	
Bladder for Sub			14	
Diesel Cost 178.98	Supplied by:	National / Client	Gal 45.904	2 fuel runs
Gas Cost 271.14		National / Client	Gal 69.542	
Water Haul	Miles	Chargeable	Loads	
Rental Equipment				
Casing Lost or Left in Hole	Size	Feet	Hole#	
Lost Tooling				

Bits	Serial Number	Size	Type (circle)	Depth In
		6 3/4	Hammer Carbide Steel Deephole	308
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
	Robert Wineman	20	95.00	Dustin Stringer	16.0	95.00	Andy Richmond	16.0	95.00
Hours	From: 4:00pm To: 12:00pm	Initials Verify Hrs & Breaks		From: 8:00pm To: 12:00pm	Initials Verify Hrs & Breaks		From: 8:00pm To: 12:00pm	Initials Verify Hrs & Breaks	
Extra	4-28-11 - 4-29-11								
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below)

Rig Days Off - From: / /2011 - To: / /2011

Came in @ 8:00pm with crew, went over rig & mud tank til 8:45, checked equipment out started drilling @ 8:45pm T.D. @ 4:24 12:30 pump mud for 1 hour to condition hole, finish pumping mud @ 1:30am, start tripping out rods, rods out of hole @ 3:30am set up to trip in casing, finish casing @ 7:30am rig down, move to next site set up drill rig, mix mud dig discharge ditch, load bit & reamer into mast.

Casing bit # 1A10275 (2A0) supplied by client

NEWP Supervisor: Client Signature:

Office Admin: E-FAX 800-878-4749 Invoiced:

New Page Added

ENTERED

SEP -- 2011

NORMAN WIRELINE SERVICES, INC.

Norman WIRELINE INC.

1301 JAMES ROAD
BAKERSFIELD, CA 93308-9753
(661) 399-5697

National EWP, Inc
CHARGE TO: NATIONAL EXPLORATION
DATE: 9-8-11
ADDRESS:
P.O. NO.:
CITY:
VENDOR NO.:
LOCATION: FLORENCE ARIZONA
WELL NO.:
RIG:
SECTION:
OPERATOR: JIM NORMAN
FOREMAN:
START TIME:
STOP TIME:
TOTAL.

1200 MI AT 2.50 PER MI	3000.00
SERVICE CHARGE 1 TON 900 PER DAY	900.00
SUBSISTANCE 100.00 PER DAY PER MAN 3 DAYS 2 men	600.00
OPERATOR & HELPER 1 DAY	1200.00
CMP 11-05	
SHOOT OFF 4 in at 440 FT	1750.00
CMP 11-01	
10 FT 2 1/8 PERFORATORS SHOT AT 280-275	1950.00
10 FT 2 1/8 PERFORATORS SHOT AT 275-265	1950.00
PO# 4942	

11-06

APPROVED BY: SEPT 11

TOTAL 11,350.00

PLEASE PAY FROM THIS INVOICE. STATEMENT SENT ON REQUEST ONLY.
TERMS: NET 30 DAYS. FINANCE CHARGE 1.5% PER MONTH
THANK YOU FOR YOUR BUSINESS.

INVOICE NUMBER: 35334

rShelton@nationalewp.com (48[redacted]8-3500 Rhonda

New Page Added

ENTERED JUN -- 2011

NORMAN WIRELINE SERVICES, INC.

1301 JAMES ROAD
BAKERSFIELD, CA 93308-9753
(661) 399-5697

CHARGE TO: NATIONAL EWP
DATE: 6-11-2011
ADDRESS: 1200 W. San Pedro St
P.O. NO.:
CITY: Gilbert AZ 85233
VENDOR NO.: 3048
LOCATION: FLORENCE ARIZONA
WELL NO.: CMP 1101
RIG: NATIONAL 180
SECTION:
OPERATOR: Jim Norman
FOREMAN:
START TIME: 7AM
STOP TIME: 5 PM
TOTAL.

MILLAGE 1200 Mi AT 2.50 Per Mi	3000.00
SERVICE CHARGE 1 TON 900.00 Per DAY	900.00
SUBSISTANCE 3 DAYS 100.00 Per DAY	300.00
RUN 4in Shoot off To 175 FT Guage Run	N/C
RUN 3in [redacted] off To 320 FT Guage	600.00
RUN 3in [redacted] To 320 FT FT Shootoff	1750.00
Run 4in Guage To 125 FT	N/C
Run 3in Guage To 125 FT	600.—
Run 1 1/8 WTS To 125 FT ATTEMPT To DISLODGE BRIDGE	600.—
STAND by For Rig operation	
Run 4in Guage To 300 FT	N/C
Run 4in Shoot off To 300 FT	1750.00
Run 4in Guage To 280 FT	N/C
Run 4in Shoot off To 280 FT	1750.00
8 [redacted] AT 150.00 Per hr	[redacted] 1200.00
TOTAL	12,450.00

APPROVED BY:

PLEASE PAY FROM THIS INVOICE. STATEMENT SENT ON REQUEST ONLY.
TERMS: NET 30 DAYS. FINANCE CHARGE 1.5% PER MONTH
THANK YOU FOR YOUR BUSINESS.

INVOICE NUMBER: 34827

New Page Added

ENTERED

SEP -- 2011

NORMAN WIRELINE SERVICES, INC.

1301 JAMES ROAD
BAKERSFIELD, CA 93308-9753
(661) 399-5697

CHARGE TO: NATIONAL ELSP, Inc
DATE: 9-14-11
ADDRESS:
P.O. NO.:
CITY:
VENDOR NO.:
LOCATION: FLORENCE COPPER
WELL NO.: CMP 11-05
RIG:
SECTION:
OPERATOR: Jim
FOREMAN:
START TIME: STOP TIME: TOTAL.

1200 mi AT 250 Per mi	3000.00
WIRELINE UNIT 900.00 Per DAY	900.00
SUB 1000.00 Per DAY PER MAN 2 MEN 3 DAYS	600.00
1 DAY 8 hr. 150.00 Per hr	1200.00
Perforate 4 holes Per FT 330-320	1950.00
Perforate 4 holes Per FT 320-310	1950.00
Perforate 4 holes Per FT 310-300	1950.00
Perforate 4 holes Per FT 300-390	1950.00
Shoot off 5 in CASEING AT 50 FT	1750.00
PO # 4142	
TOTAL	15,250.00

APPROVED BY:

PLEASE PAY FROM THIS INVOICE. STATEMENT SENT ON REQUEST ONLY.
TERMS: NET 30 DAYS. FINANCE CHARGE 1.5% PER MONTH
THANK YOU FOR YOUR BUSINESS.

INVOICE NUMBER: 35360

SRK Tucson
3275 West Ina Road, Suite 240
Tucson, AZ 85741

T: 520 544 3688
F: 520 544 9853

tucson@srk.com
www.srk.com

Memo

To:	Mel Lawson	**Date:**	October 5, 2011
Company:	Curis Resources Ltd.	**From:**	Daniel Russin
Copy to:	Bob Cluff	**Project #:**	204400.05
Subject:	Drill Hole Summary – CMP11-05, PQ Diameter Core		

Type: 0-427' 6.25" Rotary, cased to 427'
427-1200' PQ, 5' split barrel
Started: June 29, 2011 (diamond)
Completed: July 7, 2011
Total Depth: 1200 feet
Collar Coordinates: N: 746,095.87; E: 847,729.96 (UTM NAD 83 ft)
Ground Elevation: 1475 ft amsl (approx.)
Drilling Contractor: National (Rotary), Cabo Drilling Corp. (PQ Core)

1 Executive Summary

CMP11-05 was drilled to obtain large samples of core for metallurgical testing. Core was logged at the drill site and placed into plastic tubes for storage and transport to the analytical lab. Rotary drilling at this site was completed by National several weeks before the core drilling began. At the conclusion of PQ drilling, the rods got stuck in the hole and were not removed.

2 Downhole Survey

Downhole surveys were measured by Cabo and digitally recorded at approximately 100-foot increments below the top of bedrock. A subtraction of 11 degrees was made to the recorded azimuth to account for magnetic declination; note the declination calculators and charts range from a deviation of 10.3 to 11 degrees for this area. The measurements were recorded at the rig by Curis and SRK personnel.

Depth (ft)	Dip	Azimuth	Corrected Azimuth
456	-88.7	212.1	201.1
503.5	-88.8	176.8	165.8
600	-88.7	177.9	166.9
700	-88.9	189.3	178.3
800	No survey	No survey	No survey
900	-88.8	192.9	181.9
1000	-88.2	191.1	190.1
1100	-88.3	216.3	205.3
1200	-88.4	216	205

3 Geologic Summary

A summary of footages for rock type contacts is listed below. Contact angles are provided with respect to the core axis (TCA) and an indication if the contact is an intrusive or fault contact where known. It was not possible to assess fault or contact angle in core that was heavily broken or where core loss occurred.

Depth (ft)	Rock Type	Contact
0-427	Rotary – no recovery	
427-440	Yqm	Yqm → Mixed, Indeterminate contact
440-446	Mixed Yqm and Tgdp	Mixed → Tgdp, Indeterminate contact
446-457.5	Tgdp	Tgdp → Yqm, Indeterminate contact
457.5-670	Yqm	Yqm → Mixed, Fault contact?
670-675	Mixed Yqm and Tgdp	Mixed → Yqm, Fault contact?
675-759	Yqm	Yqm → Diabase, Fault contact, 60°
759-774.3	Ydb	Ydb → Yqm, Planar contact (fault?), 35°
774.3-858.5	Yqm	Yqm → Tgdp, Rubblized contact, appears ~50°
858.5-881.5	Tgdp	Tgdp → Yqm, Intrusive contact, 45°
881.5-1007.3	Yqm	Yqm → Mixed, Irregular contact
1007.3-1012	Mixed Yqm and Tgdp	Mixed → Tgdp, Irregular contact
1012-1017	Tgdp	Tgdp → Mixed, Irregular contact
1017-1026	Mixed	Mixed → Yqm, Irregular contact
1026-1057	Yqm	Yqm → Ta, Rubblized contact
1057-1065.2	Ta	Ta → Yqm, Irregular contact, ~25°
1065.2-1074.1	Yqm	Yqm → Mixed, Rubblized contact
1074.1-1078	Mixed Yqm, Tgdp, and Ta	Mixed → Yqm, Rubblized contact
1078-1200	Yqm	

3.1 Rock Types

Chip samples were not collected during mud rotary drilling of the basin-fill formations and bedrock to 427 feet. The depth to the top of bedrock is unknown, since rotary drilling and casing penetrated the contact.

Precambrian Quartz Monzonite (Yqm) constitutes 87.3% of the drill hole. This rock type consists of equigranular to coarsely porphyritic monzonite with an original texture of 25-35% quartz, 30-35% potassium feldspar, 20-25% plagioclase, and 5-8% biotite. The rock is broadly porphyritic in nature with large K-feldspar in a matrix of smaller quartz, plagioclase, and biotite. Most of the original texture has been overprinted by clay alteration and oxidation minerals (iron and manganese oxides), and has been disrupted by abundant fault breccia and gouge. Large, euhedral crystals of potassium feldspar exist at 0.5-3 cm across. Quartz crystals are 0.5-2 cm, plagioclase crystals are 2-10 mm, and biotite crystals are 1-10 mm in size.

Tertiary Granodiorite Porphyry (Tgdp) constitutes 3.1% of the drill hole. The rock contains 1-5 mm feldspar phenocrysts, mostly plagioclase, in an olive gray aphanitic matrix. Biotite phenocrysts compose ~10% of the rock. The geology logging did not attempt to segregate the granodiorite intercepts into Types 1, 2, and 3 as defined by Conoco.

Mixed Precambrian Quartz Monzonite (Yqm) and Tertiary Granodiorite Porphyry (Tgdp) constitutes 5.9% of the hole. SRK attempted to split out as many individual rock types as possible but in many cases the intervals were too small and were logged as a mixed zone. Often, the mineralogical composition was a true mix, meaning there were 2-5 mm plagioclase phenocrysts, indicative of the Tertiary Granodiorite Porphyry, intermixed with 1-2.5 cm salmon-colored K-feldspar crystals, found in Precambrian Quartz Monzonite. The overall mineral assemblages are consistent with those zones of non-mixing described above.

Tertiary Andesite (Ta) constitutes 1.3% of the hole. This rock type is a dark olive grey with an aphanitic texture. It contains some areas of intense copper oxide clay. Chrysocolla and tenorite are also present in some zones.

Precambrian Diabase (Ydb), constitutes 1.3% of the hole. This rock type is dark gray to black with strong alteration and mineralization.

3.2 Structure

Numerous fault structures, breccia zones, and fault planes were noted as described below. The breccia varies from crumbly, broken rock with no discernible breccia fragments or fault contact angles to well-milled breccia fragments in fine-grained gritty iron-stained matrix. Fault gouge consisting of clay and fine rock particles with or without slickensides was noted in many intervals typically less than one foot in thickness.

Depth (ft)	Fault Zones
464-475	Shattered rock, not milled breccia
477.5-479	Fault zone, 60°
485-498.5	Fault zone, gouge in various orientations
530-532	Fault zone, 65°
559.5-660	Fault zone, gouge in various orientations; **Rattlesnake Fault**
787-805	Fault zone, no orientation visible; **Thrasher Fault**
840-843	Fault zone, no orientation visible
855-880	Fault zone, gouge in various orientations
885.5-912	Fault zone, gouge in various orientations
938-950	Fault zone, 25° at top contact
973-995	Fault zone, ~35°
1010-1095	Fault zone, gouge in various orientations; **Sidewinder Fault**

3.3 Alteration

The rock is dominated by potassic alteration of low to moderate intensity. Quartz veins and associated secondary K-feldspar are common; secondary biotite is locally present. Pervasive argillic alteration (mostly supergene) obscures much of the hypogene detail. Sericitic and propylitic alteration are locally observed. Sericitic alteration was likely more abundant than was evident, however it was strongly overprinted by supergene iron oxides and clay and was thus difficult to observe.

3.4 Metzone

Metallurgical zones (Metzone) codes were recorded for each sample interval. The codes for the Oxide Zone designate the interval in terms of whether the interval is dominated by copper oxides/silicates (code 1), mixed copper and iron oxides (code 2) , or shows high concentration of iron oxides with little or no copper oxides (code 3). The Transition Zone (code 4) is designated by the presence of one or more overlapping Oxide and Sulfide minerals including hematite/goethite, pyrite, chrysocolla, cuprite, native copper, chalcocite, and/or chalcopyrite.

Depth (ft)	Metallurgical Zone
427-1174	Intermingled zones of mixed copper and iron oxides and high-iron zones
1174-1200	4 (Transition zone; coexisting oxide and sulfide minerals)

3.5 Mineralization

There are pervasive copper oxides on fractures and in clay sites throughout the oxide zone. Copper oxides are consistently present from 427-1200 feet, with the exception of 860-880 feet. The most common copper oxide is a copper-bearing clay that replaces plagioclase; other copper oxides present are chrysocolla and tenorite/wad. No copper oxides were present in the sulfide zone. Iron oxides (hematite, goethite, and jarosite) occur at mostly low abundances (1-5%) throughout the hole, both in the oxide and sulfide zones; however, abundances are lowest in the sulfide zone. Minor chalcocite (<<1%) is present in the lowest portions of the hole.

4 Geotechnical Summary

Average total core recovery (TCR) was over 95% for the hole. Average rock quality (RQD) was generally well below 50%.

MetZone	Oxide	Transition

Depth	427-1174	1174-1200
Total Feet	747	26
Average TCR (%)	90.2	97.3
Average RQD (%)	38.4	21.9

4.1 Fracture Intensity

Core was collected in a split-tube barrel in order to ensure the highest integrity of intact conditions. Mechanical fractures caused by handling or placing the materials in the core box were discounted during the fracture intensity review.

The fracture intensity is low to moderate for the majority of the hole, with abundances of 0-15 fractures per foot. Areas near fault zones are substantially more fractured.

4.2 Core Recovery

Statistics on the core recovery in CMP11-05 are presented below. Recovery averaged 95.2% with the lowest recovery in Yqm (83.6%) and the highest recovery in andesite (100%). RQDs range from 50% to 77.3%; these numbers are almost certainly skewed high. No handling of the core was permitted, so determining RQD is less precise.

Rock Type	Drill Run Interval (ft)	TCR %	RQD %
Yqm	675	90.8	35.8
Tgdp	25	97.2	51
Mixed Yqm & Tgdp	47	97.7	34.4
Ta	10	100	0
Ydb	15	66.7	41
CMP11-01 Totals	375	92.2	52.1

5 Sampling and Analysis

No assay samples were taken from CMP11-05, since the material was to be used in metallurgical tests. As of September 2011, metallurgical testing on this material is ongoing. No HQ companion hole was drilled at this site, since the drillers were unable to remove the PQ rods from the hole.

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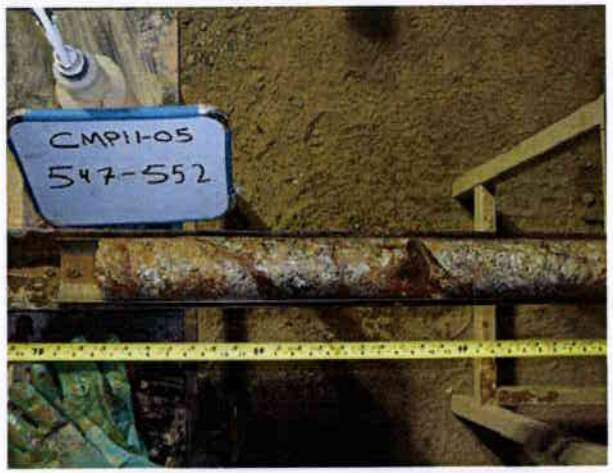
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CMP11-05
1197.5 - 1200'
T.D.

HDI CURIS

Florence Project

GEOTECHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
3	Planar-rough
4	Undulating-slickensided
5	Undulating-smooth
6	Undulating-rough
7	Stepped-slickensided
8	Stepped-smooth
9	Stepped-rough

Hole-ID CMP11-05

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Logged by Majalca/York

Signed

Box	Drill Run (ft)			Core Recovery		RQD		Intact Rock Strength				Joint
No.	From	To	Interval	TCR (ft)	TCR %	RQD (ft)	RQD %	Strong	Weak	Weak (ft)	Weak %	Condition
	427	430	3	2.1	70.0	2.1	100.0	R3	R2	1.2	57.1	3
	430	435	5	4.9	98.0	4.9	100.0	R3	R1	4.4	89.8	9
	435	440	5	4.8	96.0	4.8	100.0	R2	-	-	-	6
	440	446	6	5	83.3	5	100.0	R3	R1	3.4	68.0	6
	446	451	5	4.4	88.0	4.4	100.0	R3	R0	0.3	6.8	3
	451	456.5	5.5	0.8	14.5	0.8	100.0	R4	R2	0.4	50.0	-
	456.5	457.5	1	0.4	40.0	0	0.0	R3	-	-	-	-
	457.5	462.5	5	2.7	54.0	2.5	92.6	R3	R0	0.7	25.9	6
	462.5	468	5.5	4.9	89.1	0	0.0	R1	-	-	-	9
	468	470	2	2	100.0	0	0.0	R1	-	-	-	9
	470	473.5	3.5	3.3	94.3	0	0.0	R1	R0	0.8	24.2	9
	473.5	475	1.5	1.2	80.0	0	0.0	R1	-	-	-	9
	475	480	5	4.8	96.0	0	0.0	R3	R0	1.2	25.0	3
	480	485	5	4.1	82.0	0	0.0	R1	-	-	-	9
	485	490	5	5	100.0	0	0.0	R3	R0	2	40.0	9
	490	495	5	5	100.0	0	0.0	R1	R0	2.4	48.0	9
	495	498.5	3.5	3.3	94.3	0	0.0	R1	R0	1.1	33.3	9
	498.5	503.5	5	4.8	96.0	2.1	43.8	R3	R1	2.2	45.8	3
	503.5	506.5	3	3	100.0	0	0.0	R3	R0	0.3	10.0	3
	506.5	510	3.5	3.5	100.0	1.3	37.1	R3	R0	0.8	22.9	6
	510	515	5	5.1	102.0	0.9	17.6	R3	R0	0.3	5.9	6
	515	518	3	2.2	73.3	0	0.0	R3	R0	0.9	40.9	9
	518	522	4	3.5	87.5	0	0.0	R3	-	-	-	6
	522	527	5	4.9	98.0	1.9	38.8	R3	R1	0.7	14.3	3
	527	530	3	3.3	110.0	2.3	69.7	R3	R0	0.6	18.2	3
	530	532	2	1.9	95.0	0	0.0	R1	R0	0.2	10.5	3
	532	537	5	4.5	90.0	4.2	93.3	R4	R0	0.2	4.4	3
	537	542	5	4.6	92.0	4.6	100.0	R4	R2	0.5	10.9	3
	542	547	5	4.8	96.0	4.8	100.0	R3	R2	2	41.7	6
	547	552	5	4.6	92.0	4.4	95.7	R4	R3	2.4	52.2	6
	552	557	5	4.9	98.0	4.9	100.0	R3	-	-	-	6
	557	562	5	3.3	66.0	2.3	69.7	R3	R1	0.5	15.2	6
	562	562.5	0.5	0.5	100.0	0	0.0	R0	-	-	-	-

HDICURIS

Florence Project

GEOTECHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
3	Planar-rough
4	Undulating-slickensided
5	Undulating-smooth
6	Undulating-rough
7	Stepped-slickensided
8	Stepped-smooth
9	Stepped-rough

Hole-ID CMP11-05

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Logged by Majalca/York

Signed

Box	Drill Run (ft)			Core Recovery		RQD		Intact Rock Strength				Joint
No.	From	To	Interval	TCR (ft)	TCR %	RQD (ft)	RQD %	Strong	Weak	Weak (ft)	Weak %	Condition
	562.5	568	5.5	5	90.9	4.6	92.0	R4	R1	0.2	4.0	3
	568	573	5	4.7	94.0	4.4	93.6	R3	R0	0.3	6.4	3
	573	578	5	5	100.0	0	0.0	R1	R0	1.1	22.0	9
	578	580.5	2.5	2	80.0	0	0.0	R3	R0	0.4	20.0	3
	580.5	583	2.5	2.4	96.0	1.6	66.7	R4	R3	0.2	8.3	3
	583	588	5	4.9	98.0	2.8	57.1	R3	R1	1.9	38.8	3
	588	590	2	2	100.0	0	0.0	R3	R1	1	50.0	3
	590	592.5	2.5	1	40.0	0	0.0	R1	-	-	-	9
	592.5	597.5	5	4.8	96.0	1.1	22.9	R3	R0	0.6	12.5	6
	597.5	602.5	5	5	100.0	0	0.0	R1	R0	0.9	18.0	3
	602.5	607.5	5	5	100.0	3	60.0	R3	R2	1.3	26.0	3
	607.5	610	2.5	2.6	104.0	0	0.0	R3	R1	1	38.5	3
	610	615	5	5	100.0	0	0.0	R3	R2	4	80.0	3
	615	620	5	5	100.0	0	0.0	R2	-	-	-	9
	620	625	5	5	100.0	0	0.0	R3	R1	2	40.0	3
	625	630	5	5	100.0	0.8	16.0	R3	R0	0.2	4.0	6
	630	635	5	5	100.0	0.4	8.0	R4	R1	1	20.0	3
	635	640	5	5	100.0	0	0.0	R3	R0	0.4	8.0	6
	640	645	5	4.7	94.0	0.8	17.0	R3	R0	0.5	10.6	3
	645	650	5	4.9	98.0	1.8	36.7	R3	R0	0.9	18.4	3
	650	655	5	4.4	88.0	0	0.0	R2	R0	2.5	56.8	3
	655	660	5	5.1	102.0	1	19.6	R3	R1	0.6	11.8	3
	660	665	5	4.2	84.0	0.8	19.0	R3	-	-	-	3
	665	670	5	5	100.0	3.8	76.0	R4	R0	0.1	2.0	9
	670	675	5	4.8	96.0	4.8	100.0	R3	-	-	-	9
	675	680	5	4.7	94.0	2.7	57.4	R4	R0	0.2	4.3	9
	680	685	5	4.6	92.0	4.4	95.7	R3	-	-	-	9
	685	690	5	4.7	94.0	4.2	89.4	R4	-	-	-	6
	690	695	5	4.4	88.0	3.4	77.3	R3	-	-	-	9
	695	700	5	4.6	92.0	3.9	84.8	R3	R1	0.5	10.9	9
	700	705	5	4.6	92.0	4.4	95.7	R6	R3	2.9	63.0	3
	705	710	5	4.3	86.0	4	93.0	R6	-	-	-	1
	710	715	5	4.9	98.0	4.4	89.8	R5	R3	0.3	6.1	3

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Florence Project

GEOTECHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
3	Planar-rough
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6	Undulating-rough
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8	Stepped-smooth
9	Stepped-rough

Hole-ID CMP11-05

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Logged by Majalca/York

Signed

Box	Drill Run (ft)			Core Recovery		RQD		Intact Rock Strength				Joint
No.	From	To	Interval	TCR (ft)	TCR %	RQD (ft)	RQD %	Strong	Weak	Weak (ft)	Weak %	Condition
	715	720	5	4.7	94.0	0.9	19.1	R4	R2	1.8	38.3	3
	720	725	5	4.7	94.0	3.8	80.9	R4	R3	1.6	34.0	3
	725	730	5	5.3	106.0	4.2	79.2	R4	-	-	-	3
	730	735	5	4.9	98.0	2.1	42.9	R3	R2	1	20.4	3
	735	740	5	4.4	88.0	3.9	88.6	R4	R2	0.4	9.1	3
	740	744	4	3.7	92.5	2.2	59.5	R3	R1	0.4	10.8	6
	744	749	5	4.9	98.0	1.3	26.5	R3	R1	0.9	18.4	3
	749	754	5	5	100.0	2	40.0	R3	R2	0.8	16.0	6
	754	759	5	4.8	96.0	0	0.0	R3	R1	2.7	56.3	6
	759	764	5	4.8	96.0	0.4	8.3	R3	R1	1.2	25.0	6
	764	769	5	0.4	8.0	0	0.0	R0	-	-	-	9
	769	774	5	4.8	96.0	4	83.3	R6	R0	0.5	10.4	3
	774	779	5	4.9	98.0	4.8	98.0	R4	R3	3.2	65.3	6
	779	784	5	4.9	98.0	4.2	85.7	R5	R0	0.1	2.0	9
	784	789	5	4.8	96.0	2.8	58.3	R4	R1	2.5	52.1	6
	789	794.5	5.5	4.9	89.1	2.8	57.1	R3	R2	3.6	73.5	6
	794.5	800	5.5	0	0.0	0	-	-	-	-	-	-
	800	805	5	4.5	90.0	3.3	73.3	R4	R1	0.7	15.6	3
	805	810	5	4.8	96.0	3.5	72.9	R5	R3	0.2	4.2	3
	810	815	5	4.9	98.0	4.7	95.9	R4	-	-	-	9
	815	820	5	4.2	84.0	3.4	81.0	R5	R1	0.2	4.8	3
	820	825	5	4.7	94.0	4.7	100.0	R4	-	-	-	9
	825	830	5	4.7	94.0	3.3	70.2	R4	R0	0.3	6.4	6
	830	835	5	4.6	92.0	2.4	52.2	R3	-	-	-	3
	835	840	5	4	80.0	0.4	10.0	R3	R1	0.9	22.5	3
	840	843	3	2.4	80.0	0	0.0	R0	-	-	-	9
	843	848	5	4.6	92.0	0.4	8.7	R3	R1	0.4	8.7	3
	848	850	2	2	100.0	0	0.0	R3	R1	0.3	15.0	6
	850	855	5	4.6	92.0	0.4	8.7	R3	R0	0.2	4.3	6
	855	860	5	4.8	96.0	0	0.0	R2	R0	0.5	10.4	9
	860	865	5	5.2	104.0	0	0.0	R2	-	-	-	3
	865	870	5	5.1	102.0	0	0.0	R3	R2	3.4	66.7	6
	870	875	5	4.6	92.0	0	0.0	R3	R0	0.4	8.7	6

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Florence Project

GEOTECHNICAL LOG

Intact Rock Strength	
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Joint Condition	
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Hole-ID CMP11-05

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Logged by Majalca/York

Signed

Box	Drill Run (ft)			Core Recovery		RQD		Intact Rock Strength				Joint
No.	From	To	Interval	TCR (ft)	TCR %	RQD (ft)	RQD %	Strong	Weak	Weak (ft)	Weak %	Condition
	875	880	5	4.6	92.0	0	0.0	R3	R1	1.8	39.1	3
	880	885	5	5	100.0	1.9	38.0	R4	R1	0.4	8.0	3
	885	890	5	4.6	92.0	2	43.5	R3	R0	0.1	2.2	6
	890	895	5	5.1	102.0	0	0.0	R1	R0	3.4	66.7	9
	895	900	5	4.4	88.0	0	0.0	R1	R0	0.5	11.4	9
	900	905	5	5	100.0	0	0.0	R3	R0	1.4	28.0	9
	905	910	5	4.2	84.0	2	47.6	R3	R2	1.1	26.2	6
	910	915	5	2.1	42.0	2	95.2	R5	-	-	-	6
	915	916.5	1.5	1	66.7	0	0.0	R2	R0	0.1	10.0	-
	916.5	920	3.5	3.2	91.4	2.1	65.6	R4	R1	0.8	25.0	6
	920	925	5	4.6	92.0	1.8	39.1	R3	R1	0.5	10.9	3
	925	930	5	4.9	98.0	0.9	18.4	R3	R1	0.9	18.4	9
	930	935	5	5.1	102.0	0.4	7.8	R3	R0	0.4	7.8	6
	935	940	5	4.7	94.0	0.8	17.0	R3	R0	1.8	38.3	9
	940	945	5	4.5	90.0	0	0.0	R2	-	-	-	9
	945	950	5	4.7	94.0	0	0.0	R3	-	-	-	9
	950	955	5	5	100.0	1	20.0	R2	R0	0.2	4.0	9
	955	960	5	4.7	94.0	0	0.0	R2	R0	1.4	29.8	9
	960	965	5	4.9	98.0	0	0.0	R2	R0	0.2	4.1	9
	965	970	5	4.8	96.0	2.5	52.1	R4	R0	0.1	2.1	5
	970	975	5	5	100.0	2.2	44.0	R3	R1	0.9	18.0	6
	975	980	5	3.7	74.0	3	81.1	R3	-	-	-	3
	980	985	5	4.7	94.0	1.8	38.3	R3	R1	0.7	14.9	9
	985	990	5	5.1	102.0	2	39.2	R3	R1	0.6	11.8	3
	990	995	5	5.1	102.0	0	0.0	R2	-	-	-	6
	995	1000	5	4.7	94.0	4.5	95.7	R4	-	-	-	6
	1000	1005	5	4.5	90.0	3.6	80.0	R4	R1	0.7	15.6	6
	1005	1010	5	4.5	90.0	4.5	100.0	R4	R2	1.3	28.9	6
	1010	1012	2	0.5	25.0	0.5	100.0	R1	R0	0.2	40.0	-
	1012	1017	5	4.8	96.0	4.4	91.7	R3	R1	3.9	81.3	6
	1017	1020.5	3.5	3.4	97.1	2.7	79.4	R2	R1	3.2	94.1	6
	1020.5	1026	5.5	4.5	81.8	2.9	64.4	R3	-	-	-	6
	1026	1030	4	3.8	95.0	3.6	94.7	R3	R1	1.1	28.9	1

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Florence Project

GEOTECHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
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6	Undulating-rough
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8	Stepped-smooth
9	Stepped-rough

Hole-ID CMP11-05

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Logged by Majalca/York

Signed

Box	Drill Run (ft)			Core Recovery		RQD		Intact Rock Strength				Joint
No.	From	To	Interval	TCR (ft)	TCR %	RQD (ft)	RQD %	Strong	Weak	Weak (ft)	Weak %	Condition
	1030	1035	5	5.1	102.0	0	0.0	R2	R1	1	19.6	6
	1035	1040	5	5	100.0	1.3	26.0	R3	R0	0.5	10.0	3
	1040	1045	5	5.1	102.0	0	0.0	R2	-	-	-	6
	1045	1050	5	5	100.0	0	0.0	R2	-	-	-	6
	1050	1055	5	5	100.0	0	0.0	R2	-	-	-	9
	1055	1060	5	4.8	96.0	0	0.0	R2	R0	0.2	4.2	8
	1060	1065	5	5.2	104.0	0	0.0	R2	R0	0.2	3.8	8
	1065	1070	5	4.9	98.0	0	0.0	R2	R0	0.5	10.2	5
	1070	1075	5	5.1	102.0	0	0.0	R1	-	-	-	1
	1075	1080	5	4.9	98.0	0	0.0	R2	-	-	-	8
	1080	1085	5	5	100.0	0	0.0	R2	R0	0.4	8.0	6
	1085	1090	5	4.9	98.0	0	0.0	R2	R0	0.7	14.3	8
	1090	1095	5	0.6	12.0	0	0.0	R0	-	-	-	9
	1095	1100	5	5	100.0	0.4	8.0	R3	R0	0.2	4.0	5
	1100	1103.5	3.5	2.9	82.9	2.6	89.7	R4	-	-	-	3
	1103.5	1108.5	5	4.7	94.0	4.1	87.2	R4	-	-	-	6
	1108.5	1113.5	5	4.8	96.0	4.1	85.4	R3	R1	1.5	31.3	6
	1113.5	1119	5.5	4.9	89.1	3.7	75.5	R4	-	-	-	6
	1119	1124	5	3.1	62.0	0.9	29.0	R5	-	-	-	6
	1124	1129	5	4.9	98.0	3.5	71.4	R4	R0	0.3	6.1	3
	1129	1134	5	4.8	96.0	4.3	89.6	R4	-	-	-	2
	1134	1139	5	4.7	94.0	3.8	80.9	R4	R3	0.9	19.1	3
	1139	1144	5	4.6	92.0	4.3	93.5	R4	R1	2	43.5	3
	1144	1149	5	4.9	98.0	4.1	83.7	R4	R0	0.3	6.1	1
	1149	1154	5	4.9	98.0	4.1	83.7	R4	-	-	-	6
	1154	1159	5	0	0.0	0	-	-	-	-	-	-
	1159	1160	1	0	0.0	0	-	-	-	-	-	-
	1160	1164	4	3.4	85.0	0.6	17.6	R3	R0	0.3	8.8	3
	1164	1169	5	5	100.0	2.3	46.0	R3	R3		0.0	3
	1169	1174	5	5	100.0	2.7	54.0	R3	R1	1.3	26.0	3
	1174	1179	5	4.9	98.0	2	40.8	R4	R2	0.2	4.1	3
	1179	1183	4	3.1	77.5	0	0.0	R2	R0	0.2	6.5	3
	1183	1188	5	5.1	102.0	2.7	52.9	R3	-	-	-	3

HDICURIS

Florence Project

GEOTECHNICAL LOG

Intact Rock Strength	
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Joint Condition	
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Hole-ID CMP11-05

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Signed

Box	Drill Run (ft)			Core Recovery		RQD		Intact Rock Strength				Joint
No.	From	To	Interval	TCR (ft)	TCR %	RQD (ft)	RQD %	Strong	Weak	Weak (ft)	Weak %	Condition
	1188	1193	5	4.6	92.0	0	0.0	R3	R0	0.4	8.7	3
	1193	1197.5	4.5	5.1	113.3	0	0.0	R2	R2	-	-	6
	1197.5	1200	2.5	2.5	100.0	1	40.0	R2	-	-	-	4

HDI CURIS **Florence Project** GEOTECHNICAL LOG

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Hole-ID CMP 11-05

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Box No.	Drill Run (ft) From	Drill Run (ft) To	Interval	Core Recovery TCR (ft)	TCR %	RQD RQD (ft)	RQD %	Intact Rock Strength Strong	Weak	Weak (ft)	Weak %	Joint Condition
	427	430		2.1		2.1		R3	R2	1.2		3
	430	435		4.9		4.9		R3	R1	4.4		9
	435	440		4.8		4.8		R2	—	—		6
	440	446		5		5		R3	R1	3.4		6
	446	451		4.4		4.4		R3	R0	0.3		3
	451	456.5		0.8		0.8		R4	R2	0.4		N/A
	456.5	457.5		0.4		0		R3	—	—		—
	457.5	462.5		2.7		2.5		R3	R0	0.7		6
	462.5	468		4.9		0		R1	—	—		9
	468	470		2.0		0		R1	—	—		9
	470	473.5		3.3		0		R1	R0	0.8		9
	473.5	475		1.2		0		R1	—	—		9
	475	480		4.8		0		R3	R0	1.2		3
	480	485		4.1		0		R1	—	—		9
	485	490		5.0		0		R3	R0	2.0		9
	490	495		5.0		0		R1	R0	2.4		9
	495	498.5		3.3		0		R1	R0	1.1		9
	498.5	503.5		4.8		2.1		R3	R1	2.2		3
	503.5	506.5		3.0		0		R3	R0	0.3		3
	506.5	510		3.5		1.3		R3	R0	0.8		6
	510	515		5.1		0.9		R3	R0	0.3		6
	515	518		2.2		0		R3	R0	0.9		9
	518	522		3.5		0		R3	—	—		6
	522	527		4.9		1.9		R3	R1	0.7		3
	527	530		3.3		2.3		R3	R0	0.6		3
	530	532		1.9		0		R4	R0	0.2		3
	532	537		4.5		4.2		R4	R0	0.2		3
	537	542		4.6		4.6		R4	R2	0.5		3
	542	547		4.9		4.9		R3	R2	2.0		6
	547	552		4.6		4.4		R4	R3	2.4		6

HDI CURIS **Florence Project** **GEOTECHNICAL LOG**

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
3	Planar-rough
4	Undulating-slickensided
5	Undulating-smooth
6	Undulating-rough
7	Stepped-slickensided
8	Stepped-smooth
9	Stepped-rough

Hole-ID CMP11-05

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Logged by Majalca / York

Signed

Box No.	Drill Run (ft) From	Drill Run (ft) To	Interval	Core Recovery TCR (ft)	TCR %	RQD (ft)	RQD %	Intact Rock Strength Strong	Weak	Weak (ft)	Weak %	Joint Condition
	552	557		4.9		4.9		R3	—	—		6
	557	562		3.3		2.3		R3	R1	0.5		6
	562	562.5		0.5		0		R0				—
	562.5	568		5		4.6		R4	R1	0.2		3
	568	573		4.7		4.4		R3	R0	0.3		3
	573	578		5.0		0		R1	R0	1.1		9
	578	580.5		2.0		0		R3	R0	0.4		3
	580.5	583		2.4		1.6		R4	R3	0.2		3
	583	588		4.9		2.8		R3	R1	1.9		3
	588	590		2.0		0		R3	R1	1.0		3
	590	592.5		1.0		0		R1	—	—		9
	592.5	597.5		4.8		1.1		R3	R0	0.6		6
	597.5	602.5		5.0		0		R1	R0	0.9		3
	602.5	607.5		5.0		3.0		R3	R2	1.3		3
	607.5	610		2.6		0		R3	R1	1.0		3
	610	615		5.0		0		R3	R2	4.0		3
	615	620		5.0		0		R2	—	—		9
	620	625		5.0		0		R3	R1	2.0		3
	625	630		5.0		0.8		R3	R0	0.2		6
	630	635		5.0		0.4		R4	R1	1.0		3
	635	640		5.0		0		R2	R0	0.4		6
	640	645		4.7		0.8		R3	R0	0.5		3
	645	650		4.9		1.8		R3	R0	0.9		3
	650	655		4.4		0		R2	R0	2.5		3
	655	660		5.1		1.0		R3	R1	0.6		3
	660	665		4.2		0.8		R3	—	—		3
	665	670		5		3.8		R4	R0	0.1		9
	670	675		4.8		4.6		R3	—	—		9
	675	680		4.7		2.7		R4	R0	0.2		9
	680	685		4.6		4.4		R3	—	—		9
	685	690		4.7		4.2		R4	—	—		6
	690	695		4.4		3.4		R3	—	—		9
	695	700		4.6		3.9		R3	R1	0.5		9

HDI CURIS **Florence Project** GEOTECHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
3	Planar-rough
4	Undulating-slickensided
5	Undulating-smooth
6	Undulating-rough
7	Stepped-slickensided
8	Stepped-smooth
9	Stepped-rough

Hole-ID CMP11-05

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Logged by

Signed

Box No.	Drill Run (ft) From	To	Interval	Core Recovery TCR (ft)	TCR %	RQD RQD (ft)	RQD %	Intact Rock Strength Strong	Weak	Weak (ft)	Weak %	Joint Condition
	700	705		4.6	4.4	4.4		R6	R3	2.9		3
	705	710		4.3		4.0		R6	-	-		1
	710	715		4.9		4.4		R5	R3	0.3		3
	715	720		4.7		0.9		R4	R2	1.8		3
	720	725		4.7		3.8		R4	R3	1.6		3
	725	730		5.3		4.2		R4	-	-		3
	730	735		4.9		2.1		R3	R2	1.0		3
	735	740		4.4		3.9		R4	R2	0.4		3
	740	744		3.7		2.2		R3	R1	0.4		6
	744	749		4.9		1.3		R3	R1	0.9		3
	749	754		5.0		2.0		R3	R2	0.8		6
	754	759		4.8		0		R3	R1	2.7		6
	759	764		4.8		0.4		R3	R1	1.2		6
	764	769		0.4		0		R0	-	-		9
	769	774		4.8		4.0		R6	R0	0.5		3
	774	779		4.9		4.4		R4	R3	3.2		6
	779	784		4.9		4.2		R5	R0	0.1		9
	784	789		4.8		2.8		R4	R1	2.5		6
	789	794.5		4.9		2.8		R3	R2	3.6		6
	794.5	800		0		0		—	—	—		—
	800	805		4.5		3.3		R4	R1	0.7		3
	805	810		4.8		3.5		R5	R3	0.2		3
	810	815		4.9		4.7		R4	-	-		9
	815	820		4.2		3.4		R5	R1	0.2		3
	820	825		4.7		4.7		R4	-	-		9
	825	830		4.7		3.3		R4	R0	0.3		6
	830	835		4.6		2.4		R3	-	-		3
	835	840		4.0		0.4		R3	R1	0.9		3
	840	843		2.4		0		R0	-	-		9
	843	848		4.6		0.4		R3	R1	0.4		3
	848	850		2.0		0		R3	R1	0.3		6
	850	855		4.6		0.4		R3	R0	0.2		6
	855	860		4.8		0		R2	R0	0.5		9

HDI CURIS **Fi[illegible]ence Project** GEO[illegible]CHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
3	Planar-rough
4	Undulating-slickensided
5	Undulating-smooth
6	Undulating-rough
7	Stepped-slickensided
8	Stepped-smooth
9	Stepped-rough

Hole-ID CMP11-05

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Logged by

Signed

Box No.	Drill Run (ft) From	To	Interval	Core Recovery TCR (ft)	TCR %	RQD RQD (ft)	RQD %	Intact Rock Strength Strong	Weak	Weak (ft)	Weak %	Joint Condition
	860	865		5.2		0		R2	-	-		3
	865	870		5.1		0		R3	R2	3.4		6
	870	875		4.6		0		R3	R0	0.4		6
	875	880		4.6		0		R3	R1	1.8		3
	880	885		5.0		1.9		R4	R1	0.4		3
	885	890		4.6		2.0		R3	R0	0.1		6
	890	895		5.1		0		R1	R0	3.4		9
	895	900		4.4		0		R1	R0	0.5		9
	900	905		5.0		0		R3	R0	1.4		9
	905	910		4.2		2		R3	R2	1.1		6
	910	915		2.1		2		R5	-	-		6
	915	916.5		1		0		R2	R0	0.1		—
	916.5	920		3.2		2.1		R4	R1	0.8		6
	920	925		4.6		1.8		R3	R1	0.5		3
	925	930		4.9		0.9		R3	R1	0.9		9
	930	935		5.1		0.4		R3	R0	0.4		6
	935	940		4.7		0.8		R3	R0	1.8		9
	940	945		4.5		0		R2	-	-		9
	945	950		4.7		0		R2	-	-		9
	950	955		5.0		1.0		R3	R0	0.2		9
	955	960		4.7		0		R2	R0	1.4		9
	960	965		4.9		0		R2	R0	0.2		9
	965	970		4.8		2.5		R4	R0	0.1		5
	970	975		5.0		2.2		R3	R1	0.9		6
	975	980		3.7		3.0		R3	-	-		3
	980	985		4.7		1.8		R3	R1	0.7		9
	985	990		5.1		2.0		R3	R1	0.6		3
	990	995		5.1		0		R2	-	-		6
	995	1000		4.7		4.5		R4	-	-		6
	1000	1005		4.5		3.6		R4	R1	0.7		6
	1005	1010		4.5		4.5		R4	R2	1.3		6
	1010	1012		0.5		0.5		R1	R0	0.2		—

HDI CURIS **Florence Project** GEOTECHNICAL LOG

Intact Rock Strength	
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Hole-ID _____

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Logged by _____

Signed _____

Box No.	Drill Run (ft) From	Drill Run (ft) To	Drill Run (ft) Interval	Core Recovery TCR (ft)	Core Recovery TCR %	RQD RQD (ft)	RQD RQD %	Intact Rock Strength Strong	Intact Rock Strength Weak	Intact Rock Strength Weak (ft)	Intact Rock Strength Weak %	Joint Condition
	1012	1017		4.8	4.4	4.4		R3	R1	3.9		6
	1017	1020.5		3.4		2.7		R2	R1	3.2		6
	1020.5	1026		4.5		2.9		R3	—	—		6
	1026	1030		3.8		3.6		R3	R1	1.1		1
	1030	1035		5.1		0		R2	R1	1.0		6
	1035	1040		5.0		1.3		R3	R0	0.5		3
	1040	1045		5.1		0		R2	—	—		6
	1045	1050		5.0		0		R2	—	—		6
	1050	1055		5.0		0		R2	—	—		9
	1055	1060		4.8		0		R2	R0	0.2		8
	1060	1065		5.2		0		R2	R0	0.2		8
	1065	1070		4.9		0		R2	R0	0.5		5
	1070	1075		5.1		0		R1	—	—		1
	1075	1080		4.9		0		R2	—	—		8
	1080	1085		5.0		0		R2	R0	0.4		6
	1085	1090		4.9		0		R2	R0	0.7		8
	1090	1095		0.6		0		R0	—	—		9
	1095	1100		5.0		0.4		R3	R0	0.2		5
	1100	1103.5		2.9		2.6		R4	—	—		3
	1103.5	1108.5		4.7		4.1		R4	—	—		6
	1108.5	1113.5		4.8		4.1		R3	R1	1.5		6
	1113.5	1119		4.9		3.7		R4	—	—		6
	1119	1124		3.1		0.9		R5	—	—		6
	1124	1129		4.9		3.5		R4	R0	0.3		3
	1129	1134		4.8		4.3		R4	—	—		2
	1134	1139		4.7		3.8		R4	R3	0.9		3
	1139	1144		4.6		4.3		R4	R1	2.0		3
	1144	1149		4.9		4.1		R4	R0	0.3		1
	1149	1154		4.9		4.1		R4	—	—		6
	1154	1159		0		0		—	—	—		—
	1159	1160		0		0		—	—	—		—
	1160	1164		3.4		0.6		R3	R0	0.3		3
	1164	1169		5		2.3		R3	R3	—		3

HDICURIS **Fl[illegible]ence Project** GEO[illegible]CHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
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Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
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6	Undulating-rough
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8	Stepped-smooth
9	Stepped-rough

Hole-ID _____

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Logged by _____

Signed _____

Box No.	Drill Run (ft)			Core Recovery		RQD		Intact Rock Strength				Joint
	From	To	Interval	TCR (ft)	TCR %	RQD (ft)	RQD %	Strong	Weak	Weak (ft)	Weak %	Condition
	1169	1174	5	5		2.7		R3	R1	1.3		3
	1174	1179	5	4.9		2.0		R4	R2	0.2		3
	1179	1183	4	3.1		0		R2	R0	0.2		3
	1183	1188	5	5.1		2.7		R3	—	—		3
	1188	1193	5	4.6		0		R3	R0	0.4		3
	1193	1197.5	4.5	5.1		0		R2	R2	—		6
	1197.5	1200	2.5	2.5		1.0		R2	—	—		4
		TD										

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMPW-05
SHEET 1 OF 12

CONTRACTOR: [redacted] BD
CORE SIZE: HQ
LOGGED BY: M. Sieber/D. Russin
SCALE: 1" = 10'

ELEVATION: 1975' Approx.
BEARING: 201.1° @ 456'
INCLINATION: -88.7°
TOTAL DEPTH: 1200'

COLLAR COORDINATES: N: 746,095.87* E: 847729.96*
STARTED: June 29, 2011
COMPLETED: July 7, 2011

COMMENTS: Survey @456': az = 212.1° incl. = -88.7° corrected az = 201.1°

AVG. CORE REC'Y/HOLE: 90.4%

FOOTAGE	ALTERATION: ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	OXIDE: UM JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	SULFIDE: MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY
	-1	-1	-1	-1	-1						N	O	S	A	M	P	L	E				-1	-1	-1	-1	-1		
427			1		2	2							3	1		3	-	3						2	5	-		
430					2	1							2	1		3	-	3						1	5	-		
			1		3								3	1		3	-	3						5	4	4		
440			1		4								3			3	3	3						3	3	-		
			2		4								2	1		-	3	3						2	-	-		
450			2		3								1			-	3	3						2	-	-		
							N	O			R	E	C	O	V	E	R	Y									?	?
			2		2								1	1		-	-	3						4	-	-		
			1		3	1							1			-	2	2						2	-	-		
460							N	O			R	E	C	O	V	E	R	Y									?	?
			1		4	1							1	3	2	0	2	2						4	4	2		
					5	1							2	2	2	0	1	3						4	-	-		
470			1		3	1							1	2	2	0	1	3						4	4	-		
			1		4	1							2	0	2	0	2	2						4	3	-		
	1		1		5								2	2	2	1	2	2						5	6	7		
480			1		5	2							1	2	2	1	3	2						4	-	-		
490	1		1		5	2							1	2	2	1	2	2						5	-	-		

DESCRIPTION: GEO., MINERAL., ALT, STRUCT.

0-427' Casing through basin-fill sediments. Top of bedrock is unknown; first run of core is in QMP. Mud rotary drilling.
Collar coordinates are NAD 83, not state plane (NAD 27) as in older holes.
NAD 27 coords: 746039.99 N, 647950.60 E

427-440' QMP
429.2-430' leached cap - hematite w/ considerable clay
433.5-434' yellow stains; jarosite?
435.8 + 436.5' Thin parallel faults, 40° TCA.
Considerable quartz; phenocrysts? silicification?

440-446' Mixed QMP + Tgdp

446-457.5' Tgdp
449.2-450.2' hard, silicified
451-452' hard, silicified
452-456.5' No recovery
456.5-457.5' same

457.5-670' QMP
458-458.5' breccia w/ some clay
458.6-460' Cu clays after plagioclase
464' 1/4" gouge zone @ 20° TCA; separates competent from broken rock. CuOx in clays above this seam; none below. Fault breccia below 464'; 95% QMP, 5% Tgdp. Abundant FeOx.
468-470' very broken; FeOx occurs as streaks of different colors. Shattered breccia is not milled. Trace Cu clay, no CuOx!
470-473.5' slightly more competent rock, poorly mineralized as above.
472-473' shattered.
473.5-475' same as above, slight increase in Cu clay, w/ associated jarosite. Very broken
475-477.5' competent rock w/ salmon-colored kspar (strong color). Rock appears fairly fresh, w/ no obvious alteration or mineralization.
477.5-479' fault w/ layered gouge + breccia. 60° TCA.
479-480' shattered QMP w/ blood-red ksp + abundant Cu clay in feldspars, + on fractures.
480-485' shattered QMP.
481.5-481.7, 489.5-490' milled breccia
Streaky FeOx + CuOx
485-490' milled fault breccia, w/ clasts of QMP embedded in shattered milled QMP.
Gouge zones @ various orientations (30°, 55°, 70°; appears to be random)

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.		SAMPLE INTERVAL
427 3	40	N/S		N/S
430 5	98			
435 5	96			
440 6	83			
446 5	88			
451 5	14			
456.5 1	40			
457.5 5	54			
462.5 5.5	89			
468 2	100			
470 3.5	94			
473.5	80			
475 5	96			
480 5	82			
485 5	100			
490				

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-05
SHEET 2 OF 12

CONTRACTOR: CARD
CORE SIZE: PQ
LOGGED BY: D. Rossin/M. Sieber
SCALE: 1" = 10'

COLLAR COORDINATES: (NAD83) ELEVATION: 1475' APPROX
N: 7460995.87 E: 847729.96 BEARING: 165.8° @ 503.5'
STARTED: June 29, 2011 INCLINATION: -88.8°
COMPLETED: July 7, 2011 TOTAL DEPTH: 1200'

COMMENTS: Survey @ 503.5': az = 176.8° incl. = -88.8°
corrected az = 165.8°

AVG. CORE REC'Y/HOLE

FOOTAGE	ALTERATION: ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	OXIDE: DM/MAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	SULFIDE: MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP
490–498.7	1	1	1		6	2	1					1	2	2		1	2	2						5	-	-
495–498.5	1	1	0		5	2	1					1	2	2		1	1	2						5	-	-
498.5–501	0	0	1		4	1	0					1	2	1		0	1	2						3	8	-
503.5–506	1	1	2		3	1						0	1	1		0	2	2						3	4	-
506.5–509	1	1	1		5	1						1	2	2		0	2	2						4	5	8
510–513.5	3	1	3		4	0	1					1	3	2		1	2	2						3	4	-
515–518	4	1	3		3	1	0					1	2	3		0	2	2						5	4	4
518–522	3	2	3		2	2						0	2	1		2	2	1						3	5	-
522–527	3	2	4		3	2	2					0	2	2		0	1	3						3	6	-
527–529.3	2	2	3		3	1	1					1	2	2		0	1	3						2	6	-
530–532.5	1		1		4	1						0	1	2		0	0	3						5	-	1
533–537			1		4	1							1			0	3	3						4	5	-
537–542	2	2	1		1	3							2	1		3	0	3						2	6	-
542–547		1	1		1	2							1	1		0	0	3						4	6	-
547–552	1	2	1		1	2							1			3	3	3						3	7	-
552–557		2			1	2							2	1		3	3	3						5	6	8
557–560		1	1			3							2	1		0	0	3						5	8	8

FRACTURING

GEOLOGY

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

457.5–670' QMP

490–498.7' continued fault breccia. Gouge seams in multiple orientations. Very abundant clay w/ local jerosite.
495–498.5' same fault bx. ~1/16" chrys. vein @ 497.5'; 35° TCA.
497.5' 1/16" chrys. vein, 35° TCA.
498.7'–501' shattered QMP w/o rotation (no milling)
501–503.5' competent QMP; pale blue-green in plag + hem on fxs
503.5–506.5' same
506' 3" of shattered breccia; completely disaggregated. No jerosite + very little goethite.
504' 3/8" qtz-bio vein, 55° TCA.
506.5–509' solid QMP, same as 501–503.5'
509–510.5' shattered, ~3" zone of gouge/bx @ 509–509.3', 75° TCA. Gouge contains traces of Cu clay.
510.5–513.5' solid QMP as above; low-grade w/ minor Cu clay after plag.
513.5–515.8' shattered fault breccia.
514.5' 2" vein of ksp+bio+qtz, 75° TCA.
515–515.7' intensely altered fault breccia, all Tgdp w/ strong ksp→qtz alt.
515.7–518' same QMP
517.5' minor tenorite on fractures.
519.5–522' moderate qtz-ksp-bio alteration w/ tenorite + minor chrys. Well-broken
522–527' hard barren QMP as common above. Very little clay; bio → chl + ep (completely; it is very green)
523–523.5' ~6" silicified zone w/ w/ ghostly biotite patches.
527–527.2' shattered gouge bx; 65° TCA.
527.2–529.3' QMP as above; slightly more fractured w/ abundant FeOx on fxs.
530–532' milled breccia w/ clay gouge. 65° TCA.
532.2–532.5' chunk of fine-grained light pink rock; aplite?
533–533.1' clay w/ some breccia, some Cu clay after plag.
537–537.8' abundant hematite.
537–542' abundant chlorite after biotite
539.5–540' sheared zone w/ abundant yellow FeOx
as above
549.8–552' common cu clay after plag
abundant chl after biotite
THIS FAULT CORRESPONDS W. RATTLESNAKE FAULT 559.5 to at least 660'
559.5–561' fault breccia w/ cobbles + clay

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
490–5	100	N/S	N/S
495–3.5	94		
498.5–5	96		
503.5–3	100		
506.5–3.5	100		
510–5	102		
515–3	73		
518–4	88		
522–5	98		
527–3	110		
530–2	95		
532–5	90		
537–5	92		
542–5	96		
547–5	92		
552–5	98		
557–5	66		

HBCURIS

LOCATION: FLORENCE
HOLE ID: CMP11-05
SHEET 3 OF 12

CONTRACTOR: CABD
CORE SIZE: PQ
LOGGED BY: M. Sieber / K. Nunnar
SCALE: 1" = 10'

ELEVATION: 1475' approx
BEARING: 166.9° @ 600'
INCLINATION: -88.7°
TOTAL DEPTH: 1200'

COLLAR COORDINATES: NAD83
N: 746095.87 E: 847729.96
STARTED: June 29, 2011
COMPLETED: July 7, 2011

COMMENTS: Survey @ 600'; az = 177.9°, incl. = -88.7°
corrected az = 166.9°

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	LIMONITE	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
560	-1	-1	-1	-1			N	O			R	E	C	O	V	E	R	Y					-1	-1	-1	-1	?	?	5		N/S	N/S
																								5					562.5	100		
	1		1		1	2							2			3	-	3						5	8	7			5.5	91		
																													568			
570					4											3	2	3						5	-	-			5	94		
																													573			
					5	1							1	4	2	1	1	3						5	-	4			5	100		
																													578			
					5	1							1	3	1	-	-	3						5	-	5			2.5	80		
580																													580.5			
					1	1							1	2	1	-	-	3						1	4	7			2.5	96		
																													583			
					1	1							1	5	3	1	-	3						5	4	4			5	98		
																													588			
					1	1							1	2	1	1	1	2						4	-				2	100		
590	-1	-1	-1	-1			N	O			R	E	C	O	V	E	R	Y					-1	-1	-1	-1	?	?	590			
					4	1							1	3	1		1	2						5	-	-			2.5	40		
																													592.5			
		2			3	1							1	4	2		2	2						5	-	-			5	96		
																													597.5			
600	1	2			5	1							1	3	1		1	2						5	-	6			5	100		
																													602.5			
					3	1							1	4	1		1	2						4	-	-			5	100		
																													607.5			
					2	1							1	1	1		2	2						5		-			2.5	104		
610																													610			
					2	1							1	1	1		2	2						5	-	1			5	100		
																													615			
					1	1							1	1	1		1	2						5	-	-			5	100		
620																													620			
					4	1							1	3	2		3	2						5	-	4			5	100		
																													625			
					4	1							1	4	2		1	2						5	-	3			5	100		
630																																

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

457.5-670' QMP continued from above

RATTLESNAKE FAULT ~559.5 – 660'

562-562.5' all ~2cm gravel.
562.5-562.7' fault breccia (total 559.5-562.7')
562.7-568' much larger fragments, + stronger alteration

568-573' fault breccia w/ frags up to ~4-6".

571.1-573' Tgdp; all sheared fault breccia. Common Cu clay.

573-573.3' strong chrys in one fx; ~1-3cm crackled rock w/ chrys cement.
573-578' all fault bx w/ milled frags.

578-580.5' fault bx, 50° TCA? No visible Cu.

580.5-583' very abundant ksp; rock is nearly all pink. No visible Cu; fxs ~35° TCA.
580.5-580.7' bx w/ abundant FeOx; ~70° TCA.
583-588' very high FeOx; minor Cu visible of fxs.
585.7-586', 583-583.2', 584.8-585.2' fault bx, ~40° TCA.
rock is fairly hard between them

588-590' Cu increases downward; rock is very well broken.

590-591.5' no recovery
591.5-592.5' fault bx w/ gouge 591.5-591.7'.
592.5-597.5' high Cu clay + CuOx; minor tenorite. Biotite flooding @ bottom of the interval.
594.3-596.3' fault breccia; w/ gouge (minor) + possible pieces of Tgdp. No ∠ measurable.

597.5-602.5' breccia w/ gouge; as above. Cu clay is conspicuous throughout the interval.
597.5-598' biotite flooding as seen above. ~40x40mm ksp phenos embedded in bio.
Fault ~60° TCA.

602.5-607.5' more competent QMP, scattered Fe/CuOx.
irregular fractures very common, w/ ↗, minor clay + chrys.

607.5-610' very broken but not milled bx.
609.6-610' high Cu, some chrys. on fxs w/ slickensides.
609-611' 2mm-wide vein of CuOx; 20° TCA. Full of light green clay, w/ tenorite on the sides.
Rock is brecciated below this vein; thin fault?
613-615' back into fault breccia

615-620' entirely fault breccia, w/ large fragments surrounded by FeOx-rich matrix.

620-625' very fractured w/ intermittent breccia, little gouge.
CuOx on fractures oriented ~50-70° TCA.

625-630' very fractured as above, could not clean core from 628.5-629.5'
627.2-627.5', 628.5-629.5' fault breccia w/ gouge in lower zone, ∠25° TCA.
some Cu clay in fault gouge.

COLLAR COORDINATES:	ELEVATION: 1475' approx.	CONTRACTOR: CABO	HDI CURIS
N: 746,095.87 E: 847,729.96	BEARING: 166.9° @ 600'	CORE SIZE: PQ	LOCATION: FLORENCE
STARTED: June 29, 2011	INCLINATION: -88.7°	LOGGED BY: K. Noonan/M. Sieber	HOLE ID: CMP11-05
COMPLETED: July 7, 2011	TOTAL DEPTH: 1200'	SCALE: 1" = 10'	SHEET 4 OF 12

FOOTAGE	700	690	680	670	660	650	640	630
ALTERATION: ORTHO	1	1	1	1				
BIO	1	2	2	1	1			
QTZ	1	1	1	1	1			
SER								
CLAY	1	1	1	1	2	1	3	3
CHL	1	1	1	1		1	2	2
EPID								
CARB								
GYPS								
ANHY								
MAG								
OXIDE: ~~HM~~ JAR					1	1	1	1
HEM	1	1	1	2	2	3	3	4
GOE	1	1	1	1		2	3	2
CU GRAPHIC								
CUOX 1	2	2	2	2	1	1	2	2
CUOX 2	2	2	2	2	2	1	3	2
SULFIDE: MET ZONE	2	2	2	3	2	2	2	2
PY								
CPY								
CC								
BN								
MO								
FRACT INT	2	3	2	4	5	4	4	5
FRACT DIP	8	8	7	6	7	-	-	6
FAULT DIP	-	-	-	-	2	-	-	3
FRACTURING								
GEOLOGY								

COMMENTS:

AVG. CORE REC'Y/HOLE

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

457.5-670' QMP continued from above

630-635' fault bx; very crumbly; can't wash 632.8-633.2'. Minor chrysocolla on fls, very little gouge

635-640' similar to above; fault bx; seems to be ~30° TCA.

638.9-640' high-grade Cu; rich Cu clay (seafoam green)

639' 2x2cm bio patch → chlorite; ~2x2cm of Tgdp (?)

640-646' similar fault bx; discontinuous zones of breccia separated by shattered QMP.

640-640.2' solid Cu clay

644.2-644.5' gouge

645-650' shattered QMP.

646.3-646.5', 646.9-647.1', 648.9-649', 649.2-649.4' thin intervals of milled bx, ~50° TCA.

649-649.4' olive-green patches of clay.

650-655' fault bx, little gouge. Low Cu.

655-660' same shattered rock; low Cu + intermittent thin breccia zones

658.5-660' biotite flooding

660.5-661.4' Cu clay after plag.

661.7-663.5' 1cm vein of CuOx/Cu clay, ~10° TCA.

Rock has strong clay-chlorite overprint

668.3-668.4' ~1.5" qtz vein ~70° TCA.

670-675' Mixed QMP + Tgdp

Mostly Tgdp; well broken w/ abundant goethite

Little Cu.

675-759' QMP

675.9-680' Cu clay after plag

675-675.9 Tgdp; contact w/ QMP @ 675.9' is ~70°.

676.1-676.3' brecciated

680-685' minor Cu clay in plag sites, as above

~3% bio → chl.

Fairly uniform rock, streaks of goethite + minor Cu clay after plag.

685-700' increase in hematite

	630	635	640	645	650	655	660	665	670	675	680	685	690	695
DRILLING INTERVAL	5	5	5	5	5	5	5	5	5	5	5	5	5	5
% CORE RECOVERED	100	100	94	98	88	102	84	100	96	94	92	94	88	92
RECOVERY % BY A.I.	N/S													
SAMPLE INTERVAL	N/S													

HBI CURIS

LOCATION: FLORENCE
HOLE ID: CMPH-05
SHEET 5 OF 12

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: M.Sieber/D.Russia
SCALE: 1" = 10'

ELEVATION: 1475' APPROX
BEARING: 178.3° @ 700'
INCLINATION: -88.9°
TOTAL DEPTH: 1200'

COLLAR COORDINATES:
N: 746,095.87 E: 847,728.96
STARTED: June 29, 2011
COMPLETED: July 7, 2011

COMMENTS: Survey @ 700': az = 189.3° incl. = -88.9°
corrected az = 178.3°

AVG. CORE REC'Y/HOLE

FOOTAGE	ALTERATION: ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	OXIDE: LIM JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	SULFIDE: MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP
700–705	1		1		1	1							1			2	2	2						1	8	
705–710	1		1		1	1							2			2	2	2						3	6	-
710–715	1	1	1		1	1							2	1		2	2	2						3	6	-
715–720	2	1	1		3	1						1	1	2		1	2	2						3	5	-
720–725	3	1	3		3	1	1					1	2	2		1	2	2						2	6	-
725–730	4	2	5		3	1	1					1	2	2		1	3	2						2	8	-
730–735	2	1	3		3	1	1					1	3	2		1	3	2						1	7	-
735–740	2	2	4		3	1	0					1	3	2		2	2	2						1	7	-
740–744	2	1	3		3	1						1	3	2		3	2	2						1	3	-
744–749	3	2	4	1	3	1						1	2	1		2	2	1						1	7	-
749–754	3	2	3	2	4	1						1	2	1		4	3	1						1	3	-
754–759	3	1	5	1	5	1	1					1	2	2		2	3	1						5	4	4
759–764	0	0	3	2	1	1	0					0	1	0		1	0	2						3	7	-
764–769	NO RECOVERY																									

FRACTURING: ? ?

GEOLOGY

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

675-759' QMP continued from above

700-705' very hard competent rock.
702.1-705' Cu in plag sites + on fractures.

708' minor tenorite + hematite plates Cu

712.4 + 714.2'

715-720' blown out of tube halfway w/o plug. Well-fractured but intact QMP. Blood-red hematite common in plag; minor Cu clay present throughout the interval.

715.5-716' streaks of tenorite up to ~1cm wide. Irregular.

720-725' competent core w/ decent RQD. Abundant qtz veins w/ hem pseudomorphs after py+/cpy.

725-730' patches of quartz flooding; several 1/4-1/2" qtz vns (w/ hem after sulfides) with ~1" qtz-bio envelopes. ~45° TCA.

733.5' crackled qtz w/ tiny (<<1mm) hem on fxs

730-735' similar to above; slightly less intense qtz-ksp-bio alt. Common hem + Cu clay in plag sites

734.5-734.7' shattered zone

735-740' same as previous interval.

736.5' 1" qtz-tenorite vein, ~40° TCA. Abundant thin (<2mm) fxs w/ chrys. Common cu clay after plag.

741' 1" qtz-ten vn w/ ~1.5" (on each side) qtz-ksp-bio envelope. Abundant jarosite + greenish clay

744.6-745.1' abundant qtz veins <1cm, w/ chrys + hem after plag. Jarosite is common in plag sites. A few small thin sericite envelopes (?) visible in ksp grains.

750.1-750.6' streaks + irregular clots of tenorite. Good grade

751.5' 1" vein of qtz+chrys+tenorite w/ hem + goe. ~30° TCA.

751.5-754' common ~1cm veins of chrys + Cu clays.

756-756.4' solid qtz w/ some chrys + ten on fxs. Silicified zone, not vein quartz.

756.4-757' milled fault bx. 35° TCA; abundant jarosite + Cu clay.

758-759' strong Cu clay w/ minor chrys. in fxs.

759-774.3' Diabase ← contact sheared; ~60° TCA.

Medium gray slightly porphyritic diabase. Abundant quartz veins w/ thin sericite envelopes, largest vein is ~7mm. Most are 50-70° TCA. Not much Cu mineralization.

764-769' recovered 0.4' of brecciated diabase + gray-brown gouge.

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
700–705: 5	92	N/S	N/S
705–710: 5	86		
710–715: 5	98		
715–720: 5	94		
720–725: 5	94		
725–730: 5	106		
730–735: 5	98		
735–740: 5	88		
740–744: 4	93		
744–749: 5	98		
749–754: 5	100		
754–759: 5	96		
759–764: 5	96		
764–769: 5	8		

COLLAR COORDINATES:	ELEVATION: 1475' APPROX	CONTRACTOR: CABO	HDI CURIS
N: 746,095.87 E: 847,729.96	BEARING: 178.3° @ 800'	CORE SIZE: PQ	LOCATION: FLORENCE
STARTED: June 29, 2011	INCLINATION: -88.9°	LOGGED BY: M. Sieber/D. Russin	HOLE ID: CMP11-05
COMPLETED: July 7, 2011	TOTAL DEPTH: 1200'	SCALE: 1" = 10'	SHEET 6 OF 12

FOOTAGE	770	780	790	800	810	820	830	840
ALTERATION: ORTHO		1	1	1	1	1	2	1
BIO		1	1	1	1		1	0
QTZ	3	1		1	1	1	3	2
SER	3						1	1
CLAY		1	3	2	1	2	3	4
CHL			1	1	1	1	1	1
EPID								
CARB								
GYPS								
ANHY								
MAG								
OXIDE: ~~HM~~ JAR							0	0
HEM	2	1	3	2	2	1	2	1
GOE		1		1	1	1	1	1
CU GRAPHIC								
CUOX 1	2	-	-	3	3	2	2	1
CUOX 2	1	2	2	2	2	2	2	2
SULFIDE: MET ZONE	2	2	2	2	2	2	2	2
PY								
CPY								
CC								
BN								
MO								
FRACT INT	5	3	5	4	3	2	5	2
FRACT DIP	8	6		8	6		7	7
FAULT DIP	8	5	3	-	-		5	-
FRACTURING								
GEOLOGY								

COMMENTS: Survey @ 800' = az = 189.3° incl. = -88.9° corrected az = 178.3°

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

759-774.3' Diabase — continued from above; abundant qtz vns w/ sericite envelopes.

759-759.6' mostly clay w/ some diabase fragments

772.7-773' 2cm vein of solid chrys; likely a former solid cpy vn.

774.3-858.5' QMP — contact is ~35° TCA; planar intrusive (?) fault?

Similar to QMP seen above; strong FeOx + clay + bio → chlorite.

782.6' several patches of tenorite.

787.2-788.2' fault breccia w/ abundant FeOx + little gouge.

similar to above.

790.5-791' exceptionally strong clay alteration (ksp + plag → completely white clay)

794.5-800' no recovery.

THRASHER FAULT ZONE ~787-805' SHEARED, CLAY ALT, NO REC.

800-805' similar to above; sheared QMP w/ strong clay alt. Minor Cu clay after plag.

805-810' similar to above. Yellow-green (jarosite + Cu clay?) in plag sites. Common qtz vns up to ~10mm.

810.8-811.8' sheared + deformed orthoclase

810-815' decent Cu mineralization of fractures + clays.

817.6-818' numerous clay-filled fractures

823.4-825' mostly light green Cu clay in feldspars, fine hematite.

823.7-825' silicified.

826-826.3' breccia w/ clay

825.3-826.6' good Cu clay; one is light green.

830-835' QMP w/ common qtz-biotite veins; possibly some sericite in the vein envelopes.

Weak-mod Cu clay in plag sites.

835-840' very uniform rate; Cu clay partially repl. plag; streaks of hem + goe. Common Qtz vns up to ~1cm.

837.5' 1" qtz vein w/ weak ksp envelope.

AVG. CORE REC'Y/HOLE

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
769 5	96	N/S	N/S
774 5	98		
779 5	98		
784 5	96		
789 5.5	89		
794.5 5.5	0		
800 5	90		
805 5	96		
810 5	98		
815 5	84		
820 5	94		
825 5	94		
830 5	92		
835 5	80		

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-05
SHEET 7 OF 12

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: D. Russin/M. Sieber
SCALE: 1" = 10'

ELEVATION: 1475' approx
BEARING: 181.9° @ 900'
INCLINATION: -88.8°
TOTAL DEPTH: 1007'

COLLAR COORDINATES:
N: 746,095.87 E: 847,729.96
STARTED: June 29, 2011
COMPLETED: July 7, 2011

COMMENTS: Survey @ 900': az = 192.9° incl. = -88.8°
corrected az = 181.9°

AVG. CORE REC'Y/HOLE

FOOTAGE	ALTERATION: ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	OXIDE: HAL JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	SULFIDE: MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP
840					6	1						0	1	2		0	2	2						5	-	-
	4	2	3	1	3	1						1	1	1		1	2	1						2	7	-
	2	3	2	0	4	0						0	1	1		1	2	2						1	7	-
850	3	2	3		4	1	1					0	3	2		1	2	2						3	6	6
	2	1	3		5	1	1					0	2	3		1	3	2						5	5	5
860	1	1	2	2	6	0	0					0	3	3		0	0	3						5	-	-
	3	0	2	0	5							0	4	2		0	0	3						5	-	-
870	3	0	2		4	1						1	2	3		0	0	3						4	-	-
	3	1	3		4	1						0	2	2		0	1	3						4	-	3
880	4	2	4		2	1						0	1	1		2	2	1						2	4	-
	2	2	3		5	1						1	1	2		2	2	1						5	4	4
890	1	2	1		5	1						0	1	2		3	2	1						5	-	-
	0	0	0		6	1						1	3	2		0	2	1						5	-	-
900					5	1						0	3	2		1	2	2						5	7	7
					5	1							3			1	2	2						5	7	-
910																										

FRACTURING / GEOLOGY

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

774.3-858.5' QMP cont. from above

840-843' milled bx & gouge. Weak Cu clay throughout, no measurable orientation.
844-845' slightly finer-grained QMP; largest ksp < 1cm. Similar alt/min to above.
843.8-844.5' abundant biotite veins & irregular patches.
844.3' 1/2" bio-chl vein.
848.6' ~3/8" qtz-ksp(?) vn w/ 1.5" bio-hem envelope. EDM vein? 848-850' wk Cu clay after diag.
852' 2" qtz-bio swath; pervasive alteration, not a vein.
854' 3" of gouge/bx; 60° TCA. Shattered bx below.
855-856' fault bx w/ gouge; 40° TCA. Strong Cu clay & minor chrys.
856.6' 3" sheared breccia, strong Cu clay.

contact is broken; appears to be ~50° TCA.

858.5-881.5' Tgdp

Medium-light gray, locally altered (qtz, ser, ksp)
860-865' fault breccia, all Tgdp. Milled fragments up to ~10cm. Some fragments have visible veining (qtz w/ ser(?) envelopes)
865-867' same breccia
867-873.5' very well broken but not milled. Possible abundant fine qtz veins, but hematite overprint makes it difficult to tell.
873.5-875' much more competent rock. Abundant qtz vns w/ ksp envelopes. Common jarosite on fxs. No Cu.
875-880' similar to above; shattered Tgdp. Heavy clay + FeOx overprint, makes veins difficult to identify.
876' 1/4" biotite vein, 25° TCA.
876, 878, 879' shears @ 30° TCA. QMP frag @ 880.5' (4" or so)

intrusive planar contact; 45° TCA.

881.5-1007.3 QMP

hard QMP w/ strong qtz-ksp alt. Sheeted chrys & tenorite vlts, < 5mm, mostly ~35° TCA.
885-885.5' Tgdp w/ 2 1" EDM vns, both parallel @ ~40° TCA.
884.5-885' much CuOx; irregular mass? Broken up removing from the shoe.
885.5-910' QMP Fault breccia. Abundant blotches of clays, tenorite, & Cu clay. Shears are ~35° TCA. Top contact is ~80° TCA.
890-895' extremely sticky core; stuck badly to splits & was mostly pulled apart.
890.3-890.8' very strong CuOx; tenorite & chrysocolla are nearly solid in small areas.
895-900' strong clay - FeOx overprint; detail is obscured.
900-905' slightly more competent.
903' ~2" of solid gouge; 65° TCA.
905' mod. Cu clay in pieces. sides.
905-907.1
907.1-910' strong clay; core sticking to splits.

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
840 3	80	N/S	N/S
843 5	92		
848 2	100		
850 5	92		
855 5	96		
860 5	104		
865 5	102		
870 5	92		
875 5	92		
880 5	100		
885 5	92		
890 5	102		
895 5	88		
900 5	100		
905 5	84		

HDI CURIS

LOCATION: FLORENCE
HOLE ID: AMP11-05
SHEET 8 OF 12

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: A. Sieber / D. Russin
SCALE: 1" = 10'

ELEVATION: 1475' approx.
BEARING: 181.9°
INCLINATION: -88.8°
TOTAL DEPTH: 1200'

COLLAR COORDINATES:
N: 746,095.87 E: 847,728.96
STARTED: June 29, 2011
COMPLETED: July 7, 2011

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		HM JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY
					N	O		R	E	C	O	V	E	R	Y														?	?
910	1	1			1									1	1		-	2	2							3				
					5									1			-	2	2							4	-	-		
	1	1	1		3	1											2	2	2							5	6	5		
920	2	3	3		4	1	1						0	2	1		1	2	2							2	7	-		
	4	1	2		4	1	1						1	3	1		0	2	2							2	7	-		
930	2	2	3		4	1	1						1	3	2		1	2	2							3	4	-		
	1	1	2		5	1	1						1	3	3		1	2	2							5	3	3		
940	3	2	4		6	1	1						0	2	2		0	2	2							5	-	-		
	3	2	4		6	1	1						0	2	2		0	2	2							5	-	-		
950	1	1	1	2	3	1	0						1	2	1		0	2	2							2	4	-		
	1	0	1	4	4	0							0	4	1		0	1	3							4	4	-		
960	1	2	1	2	5	1							2	1	2		0	2	2							5	-	3		
	5	1	4	0	4	1							1	2	1		0	2	2							3	4	7		
970	1	0	2		4	1							2	2	1		0	3	2							3	5	-		
	2	2	3	1	5	1							1	3	3		1	2	2							5	-	-		
980																														

COMMENTS:

AVG. CORE REC'Y/HOLE

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

881.5-1007.3' QMP

~910-912' no recovery

915-915.3' redrilled pebbles

916.9-917.5' fault zone, ~45° TCA

Minor Cu clay after plagioclase

917 & 918.5' chunks of bio-rich ro ; looks almost like clasts but is probably alteration. Strong Cu clay associated with them.

Abundant qtz veins w/ associated qtz-ksp-bio envelopes (thin)

925-930' similar to above, not very interesting. Fewer qtz vns & bio than previous interval. Lots of ksp; flooding (?) 927-927.8'.

930-932.5' same; most qtz veins are ~70° TCA.

932.5-933' strong qtz (+bio+ksp) alt; w/ Cu clay & minor chrys; epidote common in bio sites.

933.5-934' shattered zone; seams of breccia (milled) are < 1/2".

935-940' same weakly mineralized QMP.

936.5-937' gouge/bx; no measurable angle.

938-939.5' gouge/bx; 25° TCA. Minor Cu clay + common jarosite.

940-945' fault bx; shattered & locally milled. Some low-grade QMP. numerous qtz-ksp vns w/ bio; various orientations.

945-950' same

950.3' begin competent QMP. Same rock, just not faulted. Abundant <1mm fxs w/ hem.

953-955' sheeted fxs; ~30° TCA. Abundant hem @ bottom of the run; very red color.

955-956.5' same

956.5-959' strong sericite alt (?); looks almost etched. Intense hem; sheeted fxs ~40° TCA. Looks leached.

959-960' back into weakly altered, low grade QMP.

960-964.1' shattered & milled breccia

963' 4" clot of biotite; altered diabase fragment?

964.1' 25° TCA top of gouge zone. Abundant goethite + jarosite in bx.

965-968' same QMP

968-968.8' v. strong qtz-ksp alt (or aplitic dike?); no orientation visible. Fractured & original texture of QMP is gone.

969' 1" gouge w/ Cu; 65° TCA.

969-970' increase in Cu; more competent rock.

970-972' same?; sheeted fx w/ hem coating; 10° TCA.

972.5' ~1" of yellow-stained clay; ~50° TCA.

973-975' shattered; possibly milled but difficult to see. Abundant hematite

975-980' recovered 4'; all fault breccia w/ fairly large fragments. Little milling, or just v. large pieces? Abundant Clay, Cu clay, & FeOx

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
910 5	42	N/S	N/S
915 1.5	67		
916.5 3.5	91		
920 5	92		
925 5	98		
930 5	102		
935 5	94		
940 5	90		
945 5	94		
950 5	100		
955 5	94		
960 5	98		
965 5	96		
970 5	100		
975 5	74		

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-05
SHEET 9 OF

CONTRACTOR: CABO
CORE SIZE: TQ
LOGGED BY: D. Russin/M. Sieker
SCALE: 1" = 10'

ELEVATION: 1475' approx
BEARING: 196.1° @ 1,000'
INCLINATION: -88.2°
TOTAL DEPTH: 1200'

COLLAR COORDINATES:
N: 746,095.87 E: 847,729.96
STARTED: June 29, 2011
COMPLETED: July 7, 2011

COMMENTS: Survey @ 1000': az = 201.1° incl = -88.2°
corrected az = 190.1°

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	HM JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
980	1	1	2	1	5	1						1	2	3		1	2	2						5	7	3			980–985	94	N/S	N/S
	1	1	2	1	4	1						0	2	2		1	2	2						3	-	-			985–990	102		
990	1	1	2	1	6	1						1	2	3		1	2	2						5	-	4			990–995	102		
	1		1		2	1							2	1		7	2	2						5	7	3			995–1000	94		
1000	1	1			2	1							1	1		2	2	2						3	5	-			1000–1005	90		
	1	1			3								2	3		-	-	3						2	-	-			1005–1010	90		
1010					4								3	3		-	-	3						5	-	-			1010–1012	25		
					6	2							3	2		2	2	2						5	6	-			1012–1017	96		
1020					6								3	2		3	2	3						5	8	-			1017–1020.5	97		
		1			7	1						1	1	2		1	1	1						5	7	-			1020.5–1026	82		
	1	1			7	1						1	2	2		1	1	1						5	6	-			1026–1030	95		
1030	2	1	2		5	2						1	3	2		2	2	2						5	-	-			1030–1035	102		
	2	1	2		4	1						1	3	2		1	2	2						5	5	3			1035–1040	100		
1040	0	0	0		6	1						1	2	4		0	1	3						5	-	3			1040–1045	102		
1050					6	1						1	3	4		0	1	3						5	-	3			1045–1050	100		

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

881.5–1007.3' QMP

980–982.5' fault bx; large fragments & gouge w/ trace Cu clay. 30° TCA bottom contact
982.5–985' QMP as above; Qtz+ksp+bio, w/ minor Cu clay after plag.
985–990' same QMP — alt. mainly present as veins & assoc. envelopes.
987.5' ~2" x 0.5" clot of secondary biotite.
988.5–988.8' stronger clay alt; w/ mod. Cu clay
990–995' shattered fault breccia w/ milled frags & gouge; streaky clay, FeOx, & chl. Minor Cu clay. Shears are ~35° TCA. Difficult to see any alteration, so used codes from the interval immediately above.
995–1000' same QMP
995.1' end of fault zone, bottom contact @ 45° TCA.
1000–1000.5' common Cu on fractures
1000.5–1000.6' bx zone ~2cm wide
1002.5' 1-2cm band of blue-green Cu clay; looks like a thin bx zone. ~40° TCA.

1007.3–1012' Mixed QMP + Tgdp

Rock is faulted & well broken; strong FeOx-clay overprint. Fault ~50° TCA.

1012–1017' Tgdp

SIDEWINDER FAULT ZONE 1010 — 1095

Plag is partially replaced by Cu clay
Core is sheared & very soft.

1017–1026' Mixed QMP + Tgdp

Common Cu clay after plag.
1019.6–1020.5' swirls of irregular Cu clay
1019.9' minor component of clasts of Ta
1020.5–1026' common tenorite & chrysocolla, esp. 1022–1022.5'

1026–1057' QMP

1026–1030' common chrys & tenorite.
1030–1035' fault breccia, all frags are QMP. Patches of Cu clay, w/ minor chrys & ten locally. Slightly more competent at bottom of interval, not milled bx.
1031.5' strong tenorite in sheared zone; streaks are over 2" wide
1035–1038.5' same harder QMP as above, QMP w/ strong clay
1038.5–1057' fault zone w/ much gouge; streaky FeOx

1040–1045' all frags <2", shears ~25° TCA.

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-05
SHEET 10 OF 12

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: D. Russin / M. Sieber
SCALE: 1" = 10'

ELEVATION: 1475' approx
BEARING: 205.3°
INCLINATION: -88.3°
TOTAL DEPTH: 1200'

COLLAR COORDINATES:
N: 746,095.87 E: 847,728.96
STARTED: June 29, 2011
COMPLETED: July 7, 2011

COMMENTS: Survey @ 1100': az = 216.3° incl = -88.3°
corrected az = 205.3°

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		MT JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION: GEO., MINERAL, ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
1050					6	1							1	3	3		0	1	3						5	-	-			1026-1057' QMP — SIDEWINDER FAULT ZONE 1010-1095' cont. from above; milled fault bx.	1050 5	100	N/S	N/S
					6	1							1	2	2		0	1	3						5	-	-			1057-1065.2' Ta — contact rubblized 1057-1061.5 cont. fault bx. Quite porphyritic; white plag up to ~5mm. Rock is rich red-brown. 5YR 3/4 still very broken w/ abundant grey-green clay	1055 5	96		
1060					5	0							0	1	0		0	0	3						5	-	-				1060 5	104		
					6								1	2	3		0	1	2						5	-	-			1065.2-1074.1' QMP — contact irregular, but ~25° TCA. Back into same fault bx 1066.5' 4" clast w/ strong chrys + Cu clay Shears @ ~40° TCA; much gouge + frags are <1".	1065 5	98		
1070					6								1	1	3		0	1	3						5	-	5				1070 5	102		
					6								0	4	3		1	1	2						5	-	-			1074.1-1078' Mixed QMP + Tgdp — contact brecciated Fault bx w/ abundant Ta fragments. Mostly Tgdp, w/ mod Cu mineralization; chrys & tur locally abundant.	1075 5	98		
1080					5								1	2	2		0	1	3						4	6	-			1078-1200' QMP — contact brecciated 1080-1085' shattered QMP, not milled bx. Heavy clay overprint w/ v. little Cu.	1080 5	100		
		1	1		5	1	1						1	4	3		0	1	3						5	-	3			1085-1085.6' same 1085.6-1086' light blue clay gouge; 25° TCA. Mod. Cu clay. 1086-1089.5' shattered, well oxidized QMP w/ strong clay overprint. 1089.5-1090' milled bx + gouge. shears ~65° TCA.	1085 5	98		
1090					N	O	R	E	C	O	V	E	R	Y														?	?	1090-1095' recovered 0.6' of milled bx as above. All in shoe, tube was empty.	1090 5	12		
	1	1	1		3	1	1						0	2	2		0	2	2						3	2	-			1095-1100' reasonably competent QMP, sheeted fxs ~45° TCA. Weak Cu clay after plag. Clay seams up to ~1/4" locally. Weakly altered; only small vlts of qtz + ksp + bio.	1095 5	100		
1100	1	1	2		1	1								2	2		2	2	2						2	6	-			1101.7' CuOx on fractures	1100 3.5	83		
	1	1	1		2	1								2	2		2	2	2						3	7	-			1106.5-1108' moderate development of bio in QMP.	1103.5 5	94		
1110	1	1			3	1								1	1		2	2	2						3	-	-			1110.7-1111.5' brecciated zone w/ v. abundant FeOx.	1108.5 5	96		
	2	2			2	1								1	1		2	2	2						4	6	-			1113.5-1119' competent QMP. Strong clay after plag; very little ksp as well. Rock is quite light in color. Considerable biotite.	1113.5 5.5	89		
1120																																		

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-05
SHEET 11 OF 12

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: M. Sieber / D. Russin
SCALE: 1" = 10'

ELEVATION: 1475' APPROX
BEARING: 205.3°
INCLINATION: -88.3°
TOTAL DEPTH: 1200'

COLLAR COORDINATES: NAD83
N: 746095.87 E: 847729.96
STARTED: June 29, 2011
COMPLETED: July 7, 2011

FOOTAGE	ALTERATION: ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		OXIDE: LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	SULFIDE: MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY
1120					NO			RECOVERY																				?	?
	1	2	1		2	1								2	1		2	2	2	1					4	7	-		
	1	2	1		2	1								1	1		2	2	2						3	-	-		
1130	1	2	1		2	1								1	1		2	-	2						2	8	-		
	1	2			4	1								2	2		3	-	3						4	8	-		
1140	1	2			5	1								2	1		2	2	2						3	6	5		
	1	2			3	1							1	2	2		3	3	3						4	7	-		
1150	1				2	1							1	2	2		3	2	3						4	6	-		
					NO			RECOVERY																				?	?
1160					NO			RECOVERY																					
	4	1	2		3	1							0	2	1		1	1	2						3	5	-		
	2	1	2		3	1							1	3	2		2	3	2						1	4	-		
1170	2	3	3		4	1	1						1	3	2		1	2	2						3	3	-		
	1	2	1		3	0	0						0	2	1		1	2	4	1		1			1	5	-		
1180	2	1	2		4	1							0	2	1		1	1	2	0		0			3	4	-		
	4	2	4		3	0							0	1	1		1	1	2						2	4	-		
1190																													

AVG. CORE REC'Y/HOLE

COMMENTS:

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

1078-1200' QMP

1122.5' ~2"x2" fragment of fine-grained diorite (?)
Cu clay locally on fractures
1127.4-1127.8' bright white zeolite (?) in irregular fractures, ~50° TCA
1126-1129' CuOx on fxs & in plag
1129-1134' a couple ~1/2" qtz veins
little to no Cu clay in plag sites
1134-1139' numerous qtz-ksp vns @ ~60° TCA.
1136.5-1138' strong hematite stain
1141.3-1141.7' gouge zone; ~45° TCA.
1142.5-1143' common greenish Cu clay on fxs
1144-1149' streaky FeOx + bio alt
1147.9' ~1" vein of solid hematite
1149-1150.7' strong hem stain
1152.5-1153.5' greenish yellow clay; Cu + jarosite?
1154-1160' no recovery
1160-1164' low-grade, reasonably competent QMP. Top 6" is redrilled fragments.
1162.5' shattered 3" zone of strong ksp alt; pink-tan color w/ relict igneous texture. V. little Cu.
1163.5-1164' several tiny fxs w/ spots of chrys.
1164-1169' hard QMP w/ deep red feldspars
1164-1166' 3/8" clay vein, 10° TCA. Mod. Cu, some chrys in w/ clay. various orientations
1166-1167' strong silicification; v. hard rock w/ deep red ksp + common chrys veins, tr. tenorite.
1169-1170' shattered zone; mod. bio alt strong FeOx overprint
1170-1172.5' same as 1160-1164' above. Large ksp phenos are partially converted to biotite.
1172.5-1174' shattered; slight increase in Cu.
1174-1179' hard QMP; uniform trace Cu in plag.
1174.8' 4" frag of diorite (?), fine bio + plag; salt + pepper appearance.
1175.2-1179' very uniform. Trace pyr/cc @1177.7'
1179-1183' same weakly mineralized QMP. Locally shattered w/ abundant clay.
1181.5' several hairline vlts w/ chrysocolla; various orientations.
1191-1193' 1/8" vein of white clay w/ hem specks + streaks; wanders across core
1183-1188' hard QMP; dead rock. V. little oxides & no visible sulfides.
1186' 2" thick ksp vein (aplite dike??), ~20° TCA, trace chrys in nearby veins, w/ qtz + glassy limonite.
Tr. Cu clay.

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
1119 5	62	N/S	N/S
1124 5	98		
1129 5	96		
1134 5	94		
1139 5	92		
1144 5	98		
1149 5	98		
1154 5	0		
1160 4	85		
1164 5	100		
1169 5	100		
1174 5	98		
1179 4	78		
1183 5	102		
1188			

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-05
SHEET 12 OF 12

CONTRACTOR: DABO
CORE SIZE: PQ
LOGGED BY: D. Russin
SCALE: 1" = 10'

ELEVATION: 1475' approx
BEARING: 205.0°
INCLINATION: -88.4°
TOTAL DEPTH: 1200'

COLLAR COORDINATES:
N: 746,095.87 E: 847,729.96
STARTED: June 29, 2011
COMPLETED: July 7, 2011

COMMENTS: Survey @1200': az = 216.0° incl. = -88.4°
corrected az = 205.0°

AVG. CORE REC'Y/HOLE

FOOTAGE	ALTERATION: ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		OXIDE: LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	SULFIDE: MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION: GEO., MINERAL, ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
1190°	1	3	2		3	1							0	1	1		0	1	2							2	4	-			1078-1200' QMP same as above; hard, trace Cu, relict sulfides present in some quartz veins	5	92	N/s	N/s
	1	1	2		3	1							0	1	1		0	1	4			1				3	2	-			1191.1' 2" bx/gouge, 75° TCA. 1192.5' 4" blob of bio alteration 1193-1197.5' same; very uniform and boring. Numerous fks ~15° TCA.	1193 4.5	113		
	2	4	2		3	1							0	2	1		1	1	2			0				3	2	-			1197.5-1200' same. Strong bio alt. last 1.5'. Still showing traces of CuOx. No sulfides.	1197.5 2.5	100		
1200																																				

T.D. @1200'; out of drill rods. Sulfide zone was expected to be ~1150'.

Geology logging by SRK Consulting
427-462.5' Mike Sieber
462.5-532' Danny Russin
532-573' Mike Sieber
573-660' Katie Noonan
660-715' Mike Sieber
715-769' Danny Russin
769-830' Mike Sieber
830-905' Danny Russin
905-920' Mike Sieber
920-995' Danny Russin
995-1030' Mike Sieber
1030-1100' Danny Russin
1100-1160' Mike Sieber
1160-1200' Danny Russin

Downhole Surveys

456'	201.1°	-88.7°
503.5'	165.8°	-88.8°
606'	166.9°	-88.7°
700'	178.3°	-88.9°
800'	No survey	
900'	181.9°	-88.8°
1000'	190.1°	-88.2°
1100'	205.3°	-88.3°
1200'	205.0°	-88.4°

azimuths are corrected.

Met Zones
427-1200' Oxide
Trace Sulfides encountered in the last 30'; nearing the sulfide zone but did not reach it.

Core Recovery
All: 90.4%
QMP: 90.8%
Tgdp: 97.2%
Mixed: 84.8%
Ta: 67.7%
Diabase: 100%

Lithology
427-440' QMP
440-446' Mixed
446-457.5' Tgdp
457.5-670' QMP
670-675' Mixed
675-759' QMP
759-774.3' Diabase
774.3-858.5' QMP
858.5-881.5' Tgdp
881.5-1007.3' QMP
1007.3-1012' Mixed
1012-1017' Tgdp
1017-1026' Mixed
1026-1057' QMP
1057-1065.2 Ta
1065.2-1074.1 QMP
1074.1-1078' Mixed
1078-1200' QMP

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMPW-05
SHEET 1 OF 12

CONTRACTOR: [redacted]
CORE SIZE: BQ
LOGGED BY: M. Sieber / D. Russin
SCALE: 1" = 10'

ELEVATION: 1975' Approx.
BEARING: 201.1° @ 456'
INCLINATION: -88.7°
TOTAL DEPTH: 1200'

COLLAR COORDINATES:
N: 746,095.87* E: 847729.96*
STARTED: June 29, 2011
COMPLETED: July 7, 2011

COMMENTS: Survey @456': az = 212.1° incl. = -88.7°
corrected az = 201.1°

AVG. CORE REC'Y/HOLE: 90.4%

FOOTAGE	ALTERATION: ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		OXIDE: JM JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	SULFIDE: MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.		SAMPLE INTERVAL
	-1	-1	-1	-1	-1						N	O		S	A	M	P	L	E					-1	-1	-1	-1	-1								
427			1		2	2								3	1		3	-	3							2	5	-			427 3	40	N/S		N/S
430					2	1								2	1		3	-	3							1	5	-			430 5	98			
			1		3									3	1		3	-	3							5	4	4			435 5	96			
440			1		4									3			3	3	3							3	3	-			440 6	83			
			2		4									2	1		-	3	3							2	-	-			446 5	88			
450			2		3									1			-	3	3							2	-	-			451 5	14			
							N	O			R	E	C	O	V	E	R	Y										?	?					
			2		2									1	1		-	-	3							4	-	-			456.5 1	40			
			1		3	1								1			-	2	2							2	-	-			457.5 5	54			
460							N	O			R	E	C	O	V	E	R	Y										?	?					
			1		4	1							1	3	2		0	2	2							4	4	2			462.5 5.5	89			
470					5	1							2	2	2		0	1	3							4	-	-			468 2	100			
			1		3	1							1	2	2		0	1	3							4	4	-			470 3.5	94			
			1		4	1							2	0	2		0	2	2							4	3	-			473.5	80			
	1		1		5								2	2	2		1	2	2							5	6	7			475 5	96			
480			1		5	2							1	2	2		1	3	2							4	-	-			480 5	82			
	1		1		5	2							1	2	2		1	2	2							5	-	-			485 5	100			
490																															490				

DESCRIPTION: GEO., MINERAL., ALT, STRUCT.

0-427' Casing through basin-fill sediments. Top of bedrock is unknown, first run of core is in QMP. Mud rotary drilling.
Collar coordinates are NAD 83, not state plane (NAD 27) as in older holes.
NAD 27 coords: 746039.99 N, 647950.60 E

427-440' QMP
429.2-430' leached cap - hematite w/ considerable clay
433.5-434' yellow stains; jarosite?
435.8 + 436.5' Thin parallel faults, 40° TCA.
Considerable quartz; phenocrysts? silicification?

440-446' Mixed QMP + Tgdp

446-457.5' Tgdp
449.2-450.2' hard, silicified
451-452' hard, silicified
452-456.5' No recovery
456.5-457.5' some

457.5-670' QMP
458-458.5' breccia w/ some clay
458.6-460' Cu clays after plagioclase
464' 1/4" gouge zone @ 20° TCA; separates competent from broken rock. CuOx in clays above this seam; none below. Fault breccia below 464'; 95% QMP, 5% Tgdp. Abundant FeOx.
468-470' very broken; FeOx occurs as streaks of different colors. Shattered breccia is not milled. Trace Cu clay, no CuOx!
470-473.5' slightly more competent rock, poorly mineralized as above.
472-473' shattered.
473.5-475' same as above, slight increase in Cu clay, w/ associated jarosite. Very broken
475-477.5' competent rock w/ salmon-colored kspar (strong color). Rock appears fairly fresh, w/ no obvious alteration or mineralization.
477.5-479' fault w/ layered gouge + breccia. 60° TCA
479-480' shattered QMP w/ blood-red ksp + abundant Cu clay in feldspars, + on fractures.
480-485' shattered QMP.
481.5-481.7, 489.5-490' milled breccia
Streaky FeOx + CuOx
485-490' milled fault breccia, w/ clasts of QMP embedded in shattered milled QMP.
Gouge zones @ various orientations (30°, 55°, 70°; appears to be random)

HDI CURIS

LOCATION: FLORENCE
HOLE ID: QMP11-05
SHEET 2 OF 12

CONTRACTOR: CA
CORE SIZE: PQ
LOGGED BY: D. Rossin/M. Sieber
SCALE: 1" = 10'

ELEVATION: 1475' Approx
BEARING: 165.8° @ 503.5'
INCLINATION: -88.8°
TOTAL DEPTH: 1200'

COLLAR COORDINATES: (NAD83)
N: 746095.87 E: 847729.96
STARTED: June 29 2011
COMPLETED: July 7, 2011

COMMENTS: Survey @ 503.5': az = 176.8° incl. = -88.8°
corrected az = 165.8°

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	DIM JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
490	1	1	1		6	2	1						1	2	2		1	2	2						5	-	-	490–5	100	N/S	N/S
	1	1	0		5	2	1						1	2	2		1	1	2						5	-	-	495–3.5	94		
500	0	0	1		4	1	0						1	2	1		0	1	2						3	8	-	498.5–5	96		
	1	1	2		3	1							0	1	1		0	2	2						3	4	-	503.5–3	100		
	1	1	1		5	1							1	2	2		0	2	2						4	5	8	506.5–3.5	100		
510	3	1	3		4	0	1						1	3	2		1	2	2						3	4	-	510–5	102		
	4	1	3		3	1	0						1	2	3		0	2	2						5	4	4	515–3	73		
520	3	2	3		2	2							0	2	1		2	2	1						3	5	-	518–4	88		
	3	2	4		3	2	2						0	2	2		0	1	3						3	6	-	522–5	98		
	2	2	3		3	1	1						1	2	2		0	1	3						2	6	-	527–3	110		
530	1		1		4	1							0	1	2		0	0	3						5	-	1	530–2	95		
			1		4	1								1			0	3	3						4	5	-	532–5	90		
540	2	2	1		1	3								2	1		3	0	3						2	6	-	537–5	92		
		1	1		1	2								1	1		0	0	3						4	6	-	542–5	96		
550	1	2	1		1	2								1			3	3	3						3	7	-	547–5	92		
		2			1	2								2	1		3	3	3						5	6	8	552–5	98		
560		1	1			3								2	1		0	0	3						5	8	8	557–5	66		

FRACTURING

GEOLOGY

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

457.5-670' QMP

490-498.7' continued fault breccia. Gouge seams in multiple orientations. Very abundant clay w/ local jarosite.

495-498.5' same fault bx. ~1/16" chrys. vein @ 497.5'; 35° TCA.

497.5' 1/16" chrys. vein, 35° TCA.

498.7'-501' shattered QMP w/o rotation (no milling)

501-503.5' competent QMP; pale blue-green in plag + hem on fxs

503.5-506.5' same

506' 3" of shattered breccia, completely disaggregated. No jarosite + very little goethite.

504' 3/8" qtz-bio vein, 55° TCA.

506.5-509' solid QMP, same as 501-503.5'

509-510.5' shattered, ~3" zone of gouge/bx @ 509-509.3', 75° TCA. Gouge contains traces of Cu clay.

510.5-513.5' solid QMP as above; low-grade w/ minor Cu clay after plag.

513.5-515.8' shattered fault breccia.

514.5' 2" vein of ksp+bio+qtz, 75° TCA.

515-515.7' intensely altered fault breccia, all Tgdp w/ strong ksp→qtz alt.

515.7-518' same QMP

517.5' minor tenorite on fractures.

519.5-522' moderate qtz-ksp-bio alteration w/ tenorite + minor chrys. Well-broken.

522-527' hard barren QMP as common above. Very little clay; bio → chl+ep (completely; it is very green)

523-523.5' ~6" silicified zone w/ w/ ghostly biotite patches.

527-527.2' shattered gouge bx; 65° TCA.

527.2-529.3' QMP as above; slightly more fractured w/ abundant FeOx on fxs.

530-532' milled breccia w/ clay gouge. 65° TCA.

532.2-532.5' chunk of fine-grained light pink rock; aplite?

533-533.1' clay w/ some breccia, some Cu clay after plag.

537-537.8' abundant hematite.

537-542' abundant chlorite after biotite

539.5-540' sheared zone w/ abundant yellow FeOx

as above

549.8-552' common Cu clay after plag

abundant chl after biotite

THIS FAULT CORRESPONDS W. RATTLESNAKE FAULT 559.5 to at least 660'

559.5-561' fault breccia w/ cobbles + clay

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-05
SHEET 3 OF 12

CONTRACTOR: CASI
CORE SIZE: PQ
LOGGED BY: M. Sieber/K. Noonan
SCALE: 1" = 10'

ELEVATION: 1475' APPROX
BEARING: 166.9° @ 600'
INCLINATION: -88.7°
TOTAL DEPTH: 1200'

COLLAR COORDINATES: NAD83
N: 746095.87 E: 847729.96
STARTED: June 29, 2011
COMPLETED: July 7, 2011

COMMENTS: Survey @ 600'; az = 177.9°, incl. = -88.7°
corrected az = 166.9°

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		LIMONITE	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION: GEO., MINERAL, ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
560	-1	-1	-1	-1			N	O			R	E	C	O	V	E	R	Y							-1	-1	-1	-1	?	?	457.5-670' QMP continued from above (RATTLESNAKE FAULT ~559.5-660')	5		N/S	N/S
																										5					562-562.5' all ~2cm gravel.	562.5	100		
																															562.5-562.7' fault breccia (total 559.5-562.7')				
	1		1		1	2								2			3	-	3							5	8	7			562.7-568' much larger fragments, + stronger alteration	5.5	91		
																															568-573' fault breccia w/ frags up to ~4-6".	568			
570					4												3	2	3							5	-	-			571.1-573' Tgdp; all sheared fault breccia. Common Cu clay.	5	94		
																															573-573.3' strong chrys in one fx; ~1-3cm crackled rock w/ chrys cement.	573			
					5	1							1	4	2		1	1	3							5	-	4			573-578' all fault bx w/ milled frags.	5	100		
																															578-580.5' fault bx, 50° TCA? No visible Cu.	578			
					5	1							1	3	1		-	-	3							5	-	5				2.5	80		
580																															580.5-583' very abundant ksp; rock is nearly all pink. No visible Cu; fxs ~35° TCA.	580.5			
					1	1							1	2	1		-	-	3							1	4	7			580.5-580.7' bx w/ abundant FeOx; ~70° TCA.	2.5	96		
																															583-588' very high FeOx; minor Cu visible of fxs.	583			
					1	1							1	5	3		1	-	3							5	4	4			585.7-586', 583-583.2', 584.8-585.2' fault bx, ~40° TCA.	5	98		
																															rock is fairly hard between them ↗				
					1	1							1	2	1		1	1	2							4	-				585-590' Cu increases downward; rock is very well broken.	588 2	100		
590	-1	-1	-1	-1			N	O			R	E	C	O	V	E	R	Y							-1	-1	-1	-1	?	?	590-591.5' no recovery	590 2.5	40		
					4	1							1	3	1		1	1	2							5	-	-			591.5-592.5' fault bx w/ gouge 591.5-591.7'.				
																															592.5-597.5' high Cu clay + CuOx; minor tenorite. Biotite flooding @ bottom of the interval	592.5			
		2			3	1							1	4	2		2	2	2							5	-	-			594.3-596.3' fault breccia; w/ gouge (minor) + possible pieces of Tgdp. No ∠ measurable.	5	96		
																															597.5-602.5' breccia w/ gouge; as above. Cu clay is conspicuous throughout the interval.	597.5			
600	1	2			5	1							1	3	1		1	2	2							5	-	6			597.5-598' biotite flooding as seen above. ~40x40mm ksp phenos embedded in bio. Fault ~60° TCA.	5	100		
																															602.5-607.5' more competent QMP, scattered Fe/CuOx.	602.5			
					3	1							1	4	1		1	1	2							4	-	-			irregular fractures very common, w/ ↗, minor clay + chrys.	5	100		
																															607.5-610' very broken but not milled bx.	607.5			
					2	1							1	1	1		2	2	2							5	-	-			609.6-610' high Cu, some chrys. on fxs w/ slickensides.	2.5	104		
610																															609-611' 2mm-wide vein of CuOx; 20° TCA. Full of light green clays, w/ tenorite on the sides. Rock is brecciated below this vein; thin fault?	610			
					2	1							1	1	1		2	2	2							5	-	1			613-615' back into fault breccia	5	100		
																															615-620' entirely fault breccia, w/ large fragments surrounded by FeOx-rich matrix.	615			
					1	1							1	1	1		1	1	2							5	-	-				5	100		
620																															620-628' very fractured w/ intermittent breccia, little gouge. CuOx on fractures oriented ~50-70° TCA.	620			
					4	1							1	3	2		3	3	2							5	-	4				5	100		
																															625-630' very fractured as above, could not clean core from 628.5-629.5'	625			
					4	1							1	4	2		1	1	2							5	-	3			627.2-627.5', 628.5-629.5' fault breccia w/ gouge in lower zone, ~25° TCA. some Cu clay in fault gouge.	5	100		
630																																				

COLLAR COORDINATES:	ELEVATION: 1475' approx.	CONTRACTOR: CAJO	HDI CURIS
N: 746,095.87 E: 847,729.96	BEARING: 166.9° @ 60°	CORE SIZE: PQ	LOCATION: FLORENCE
STARTED: June 29, 2011	INCLINATION: -88.7°	LOGGED BY: K. Noonan / M. Sieber	HOLE ID: CMP11-05
COMPLETED: July 7, 2011	TOTAL DEPTH: 1200'	SCALE: 1" = 10'	SHEET 4 OF 12

FOOTAGE	700	690	680	670	660	650	640	630
ALTERATION: ORTHO	1	1	1	1				
BIO	1	2	2	1	1			
QTZ	1	1	1	1	1			
SER								
CLAY	1	1	1	1	2	1	3	3
CHL	1	1	1	1	1	1	2	2
EPID								
CARB								
GYPS								
ANHY								
MAG								
OXIDE: ~~LIM~~ JAR					1	1	1	1
HEM	1	1	1	2	2	3	3	4
GOE	1	1	1	1	2	3	3	2
CU GRAPHIC								
CUOX 1	2	2	2	2	1	1	2	1
CUOX 2	2	2	2	2	2	1	2	1
SULFIDE: MET ZONE	2	2	2	2	2	2	2	2
PY								
CPY								
CC								
BN								
MO								
FRACT INT	2	3	2	4	5	4	5	5
FRACT DIP	8	8	7	6	7	5	6	6
FAULT DIP	-	-	-	-	2	-	3	-
FRACTURING								
GEOLOGY								

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

457.5-670' QMP continued from above

630-635' fault bx; very crumbly; can't wash 632.8-633.2'. Minor chrysocolla on fds, very little gouge.

635-640' similar to above; fault bx; seems to be ~30° TCA.

638.9-640' high-grade Cu; rich Cu clay (sectoon green)

639' 2x2cm bio patch → chlorite; ~2x2cm of Tgdp (?)

640-645' similar fault bx; discontinuous zones of breccia separated by shattered QMP.

640-640.2' solid Cu clay

644.2-644.5' gouge

645-650' shattered QMP.

646.3-646.5', 646.9-647.1', 648.8-649', 649.2-649.4' thin intervals of milled bx. ~50° TCA.

649-649.4' olive-green patches of clay.

650-655' fault bx, little gouge. Low Cu.

655-660' some shattered rock; low Cu + intermittent thin breccia zones.

658.5-660' biotite flooding

660.5-661.4' Cu clay after plag.

661.7-663.5' 1cm vein of CuOx / Cu clay, ~10° TCA.

Rock has strong clay-chlorite overprint

668.3-668.4' ~1.5" qtz vein, ~70° TCA.

670-675' Mixed QMP + Tgdp

Mostly Tgdp; well broken w/ abundant goethite. Little Cu.

675-759' QMP

675.9-680' Cu clay after plag

675-675.9 Tgdp; contact w/ QMP @ 675.9' is ~70°.

676.1-676.3' brecciated

680-685' minor Cu clay in plag sites, as above

~3% bio → chl.

Fairly uniform rock, streaks of goethite + minor Cu clay after plag.

685-700' increase in hematite

DRILLING INTERVAL	630 5	635 5	640 5	645 5	650 5	655 5	660 5	665 5	670 5	675 5	680 5	685 5	690 5	695 5
% CORE RECOVERED	100	100	94	98	88	102	84	100	96	94	92	94	88	92
RECOVERY % BY A.I.	N/S													
SAMPLE INTERVAL	N/S													

COMMENTS:

AVG. CORE REC'Y/HOLE

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-05
SHEET 5 OF 12

CONTRACTOR: CASCO
CORE SIZE: PQ
LOGGED BY: M.Sieber/D.Russin
SCALE: 1" = 10'

ELEVATION: 1475' APPROX
BEARING: 178.3° @ 700'
INCLINATION: -88.9°
TOTAL DEPTH: 1200'

COLLAR COORDINATES:
N: 746,095.87 E: 847,729.96
STARTED: June 29, 2011
COMPLETED: July 7, 2011

COMMENTS: Survey @ 700': az = 189.3° incl. = -88.9°
corrected az = 178.3°

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	LIM JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY
700–705	1		1		1	1							1			2	2	2						1	8			
705–710	1		1		1	1							2			2	2	2						3	6	-		
710–715	1	1	1		1	1							2	1		2	2	2						3	6	-		
715–720	2	1	1		3	1						1	1	2		1	2	2						3	5	-		
720–725	3	1	3		3	1	1					1	2	2		1	2	2						2	6	-		
725–730	4	2	5		3	1	1					1	2	2		1	3	2						2	8	-		
730–735	2	1	3		3	1	1					1	3	2		1	3	2						1	7	-		
735–740	2	2	4		3	1	0					1	3	2		2	2	2						1	7	-		
740–744	2	1	3		3	1						1	3	2		3	2	2						1	3	-		
744–749	3	2	4	1	3	1						1	2	1		2	2	1						1	7	-		
749–754	3	2	3	2	4	1						1	2	1		4	3	1						1	3	-		
754–759	3	1	5	1	5	1	1					1	2	2		2	3	1						5	4	4		
759–764	0	0	3	2	1	1	0					0	1	0		1	0	2						3	7	-		
764–769	NO RECOVERY																										?	?

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

675-759' QMP continued from above

700-705' very hard competent rock.
702.1-705' Cu in plag sites & on fractures.

708' minor tenorite + hematite plates Cu

712.4 + 714.2'

715-720' blown out of tube halfway w/o plug. Well-fractured but intact QMP. Blood-red hematite common in plag; minor Cu clay present throughout the interval.

715.5-716' streaks of tenorite up to ~1cm wide. Irregular.

720-725' competent core w/ decent RQD. Abundant qtz veins w/ hem pseudomorphs after py+/cpy.

725-730' patches of quartz flooding; several 1/4-1/2" qtz vns (w/ hem after sulfides) with ~1" qtz-bio envelopes. ~45° TCA.

733.5' crackled qtz w/ tiny (<1mm) hem on fxs
730-735' similar to above; slightly less intense qtz-ksp-bio alt. Common hem + Cu clay in plag sites
734.5-734.7' shattered zone.

735-740' same as previous interval
736.5' 1" qtz-tenorite vein, ~40° TCA. Abundant thin (<2mm) fxs w/ chrys. Common cu clay after plag.
741; 1" qtz-ten vn w/ ~1.5" (on each side) qtz-ksp-bio envelope. Abundant jarosite + greenish clay

744.6-745.1' abundant qtz veins <1cm, w/ chrys + hem after plag. Jarosite is common in plag sites. A few small thin sericite envelopes (?) visible in ksp grains.

750.1-750.6' streaks + irregular clots of tenorite. Good grade
751.5' 1" vein of qtz+chrys+tenorite w/ hem + goe. ~30° TCA.
751.5-754' common ~1cm veins of chrys + Cu clays.

756-756.4' solid qtz w/ some chrys + ten on fxs. Silicified zone, not vein quartz.
756.4-757' milled fault bx. 35° TCA; abundant jarosite + Cu clay.
758-759' strong Cu clay w/ minor chrys. in fxs.

759-774.3' Diabase ← contact sheared; ~60° TCA.

Medium gray slightly porphyritic diabase. Abundant quartz veins w/ thin sericite envelopes, largest vein is ~7mm. Most are 50-70° TCA. Not much Cu mineralization.

764-769' recovered 0.4' of brecciated diabase + gray-brown gouge.

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
700–705	92	N/s	N/s
705–710	86		
710–715	98		
715–720	94		
720–725	94		
725–730	106		
730–735	98		
735–740	88		
740–744	93		
744–749	98		
749–754	100		
754–759	96		
759–764	96		
764–769	8		

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-05
SHEET 6 OF 12

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: M. Sieber/D. Russin
SCALE: 1" = 10'

ELEVATION: 1475' approx
BEARING: 178.3° @ 800'
INCLINATION: -88.9°
TOTAL DEPTH: 1200'

COLLAR COORDINATES:
N: 746,095.87 E: 947,724.96
STARTED: June 29, 2011
COMPLETED: July 7, 2011

COMMENTS: Survey @ 800' = az = 189.3° incl. = -88.9°
corrected az = 178.3°

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		LIMONITE	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION: GEO., MINERAL, ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
770			3	3										2			2	-	2							5	-	8			759-774.3' Diabase continued from above; abundant qtz vns w/ sericite envelopes. 759-759.6' mostly clay w/ some diabase fragments. 772.7-773' 2cm vein of solid chrys; likely a former solid cpy vn.	769 5	96	N/S	N/S
	1	1	1		1									1	1		-	2	2							3	8	5			774.3-858.5' QMP ← contact is ~35° TCA; planar intrusive (?) fault? Similar to QMP seen above; strong FeOx + clay + bio → chlorite.	774 5	98		
780	1	1			1												-	2	2							3	6	-			782.6' several patches of tenorite.	779 5	98		
		1			3	1								3			-	2	2							5		3			787.2-788.2' fault breccia w/ abundant FeOx + little gouge.	784 5	96		
790		1			3	1								3			3	2	2							4	8	-			similar to above. 790.5-791' exceptionally strong clay alteration (ksp + plag → completely white clay)	789 5.5	89		
	-1	-1	-1	N	O		R	E	C	O	V	E	R	Y												-1	-1	-1	?	?	794.5-800' no recovery. THRASHER FAULT ZONE ~787-805' SHEARED, CLAY ALT, NO REC.	794.5 5.5	0		
800		1			2	1								2	1		3	2	2							3	-	6			800-805' similar to above; sheared QMP w/ strong clay alt. Minor Cu clay after plag.	800 5	90		
		1	1		1	1								2	1		3	2	2							3	6	-			805-810' similar to above. Yellow-green (jarosite + Cu clay?) in plag sites. Common qtz vns up to ~10mm.	805 5	96		
810	1		1		1	1											2	2	2							2					810.8-811.8' sheared + deformed orthoclase. 810-815' decent Cu mineralization of fractures + clays.	810 5	98		
	1		1		2	1								1	1		2	2	2							1	5				817.6-818' numerous clay-filled fractures	815 5	84		
820	1		1		1	1								2			2	2	2							1	7				823.4-825' mostly light green Cu clay in feldspars, fine hematite. 823.7-825' silicified. 826-826.3' breccia w/ clay	820 5	94		
	1				1	1								2			2	2	2							5	7	5			825.3-826.6' good Cu clay; one is light green.	825 5	94		
830	2	1	3	1	3	1								0	2	1	1	2	2							2	7	-			830-835' QMP w/ common qtz-biotite veins; possibly some sericite in the vein envelopes. Weak-mod Cu clay in plag sites.	830 5	92		
	1	0	2	1	4	1								0	1	1	1	2	2							2	7	-			835-840' very uniform rock; Cu clay partially rep'l. plag; streaks of hem + goe. Common Qtz vns up to ~1cm. 837.5' 1" qtz vein w/ weak ksp envelope.	835 5	80		
840																																				

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-05
SHEET 7 OF 12

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: D. Russin/M. Sieber
SCALE: 1" = 10'

ELEVATION: 1475' APPROX
BEARING: 181.9° @ 900'
INCLINATION: -88.8°
TOTAL DEPTH: 1200'

COLLAR COORDINATES:
N: 746,095.97 E: 847,729.96
STARTED: June 29, 2011
COMPLETED: July 7, 2011

COMMENTS: Survey @ 900'; az = 192.9° incl. = -88.8°
corrected az = 181.9°

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	HAL JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY
840					6	1						0	1	2		0	2	2						5	-	-		
	4	2	3	1	3	1						1	1	1		1	2	1						2	7	-		
	2	3	2	0	4	0						0	1	1		1	2	2						1	7	-		
950	3	2	3		4	1	1					0	3	2		1	2	2						3	6	6		
	2	1	3		5	1	1					0	2	3		1	3	2						5	5	5		
860	1	1	2	2	6	0	0					0	3	3		0	0	3						5	-	-		
	3	0	2	0	5							0	4	2		0	0	3						5	-	-		
870	3	0	2		4	1						1	2	3		0	0	3						4	-	-		
	3	1	3		4	1						0	2	2		0	1	3						4	-	3		
880	4	2	4		2	1						0	1	1		2	2	1						2	4	-		
	2	2	3		5	1						1	1	2		2	2	1						5	4	4		
890	1	2	1		5	1						0	1	2		3	2	1						5	-	-		
	0	0	0		6	1						1	3	2		0	2	1						5	-	-		
900					5	1						0	3	2		1	2	2						5	7	7		
910					5	1							3			1	2	2						5	7	-		

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

774.3-858.5' QMP cont. from above

840-843' milled bx + gouge. Weak Cu clay throughout, no measurable orientation.
844-845' slightly finer-grained QMP; largest ksp < 1cm. Similar alt/min to above.
843.8-844.5' abundant biotite veins + irregular patches.
844.3' 1/2" bio-chl vein.
848.6' ~3/8" qtz-ksp(?) vn w/ 1.5" bio-hem envelope. EDM vein? 848-850' wk Cu clay after plag.
852' 2" qtz-bio swath; pervasive alteration, not a vein.
854' 3" of gouge/bx; 60° TCA. Shattered bx below.
855-856' fault bx w/ gouge; 40° TCA. Strong Cu clay + minor chrys.
856.6' 3" sheared breccia, strong Cu clay.

858.5-881.5' Tgdp ← contact is broken; appears to be ~50° TCA.

Medium-light gray, locally altered (atz, ser, ksp)
860-865' fault breccia, all Tgdp. Milled fragments up to ~10cm. Some fragments have visible veining (qtz w/ ser(?) envelopes)
865-867' same breccia
867-873.5' very well broken but not milled. Possible abundant fine qtz veins, but hematite overprint makes it difficult to tell.
873.5-875' much more competent rock. Abundant qtz vns w/ ksp envelopes. Common jarosite on fxs. No Cu.
875-880' similar to above; shattered Tgdp. Heavy clay + FeOx overprint, makes veins difficult to identify.
876' 1/4" biotite vein, 25° TCA.
876, 878, 879' shears @ 30° TCA. QMP frag @ 880.5' (4" or so)

881.5-1007.3 QMP ← intrusive planar contact; 45° TCA.

hard QMP w/ strong qtz-ksp alt. Sheeted chrys + tenorite vlts, < 5mm, mostly ~35° TCA.
885-885.5' Tgdp w/ 2 1" EDM vns, both parallel @ ~40° TCA.
884.5-885' much CuOx; irregular mass? Broken up removing from the shoe.
885.5-910' QMP fault breccia. Abundant blotches of clays, tenorite, + Cu clay. Shears are ~35° TCA. Top contact is ~80° TCA.
890-895' extremely sticky core; stuck badly to splits + was mostly pulled apart.
890.3-890.8' very strong CuOx; tenorite + chrysocolla are nearly solid in small areas.
895-900' strong clay-FeOx overprint; detail is obscured.
900-905' slightly more competent.
903' ~2" of solid gouge; 65° TCA.
905' mod. Cu clay in plag. sites.
905-907.1
907.1-910' strong clay; core sticking to splits.

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
840 3	80	N/S	N/S
843 5	92		
848 2	100		
850 5	92		
855 5	96		
860 5	104		
865 5	102		
870 5	92		
875 5	92		
880 5	100		
885 5	92		
890 5	102		
895 5	88		
900 5	100		
905 5	84		

HDI CURIS

LOCATION: FLORENCE
HOLE ID: QMP11-05
SHEET 8 OF 12

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: M. Sieber / D. Russin
SCALE: 1" = 10'

ELEVATION: 1475' approx
BEARING: 181.9°
INCLINATION: -88.8°
TOTAL DEPTH: 1200'

COLLAR COORDINATES:
N: 746,095.87 E: 847,724.96
STARTED: June 24, 2011
COMPLETED: July 7, 2011

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	HM JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP
910					N	O		R	E	C	O	V	E	R	Y											
	1	1			1								1	1		-	2	2						3		
					5								1			-	2	2						4	-	-
	1	1	1		3	1										2	2	2						5	6	5
920	2	3	3		4	1	1						0	2	1	1	2	2						2	7	-
	4	1	2		4	1	1						1	3	1	0	2	2						2	7	-
930	2	2	3		4	1	1						1	3	2	1	2	2						3	4	-
	1	1	2		5	1	1						1	3	3	1	2	2						5	3	3
940	3	2	4		6	1	1						0	2	2	0	2	2						5	-	-
	3	2	4		6	1	1						0	2	2	0	2	2						5	-	-
950	1	1	1	2	3	1	0						1	2	1	0	2	2						2	4	-
	1	0	1	4	4	0							0	4	1	0	1	3						4	4	-
960	1	2	1	2	5	1							2	1	2	0	2	2						5	-	3
	5	1	4	0	4	1							1	2	1	0	2	2						3	4	7
970	1	0	2		4	1							2	2	1	0	3	2						3	5	-
980	2	2	3	1	5	1							1	3	3	1	2	2						5	-	-

FRACTURING: ? GEOLOGY: ?

COMMENTS:

AVG. CORE REC'Y/HOLE

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

881.5-1007.3' QMP

~910-912' no recovery

915-915.3' redrilled pebbles

916.9-917.5' fault zone, ~45° TCA.
Minor Cu clay after plagioclase

917 & 918.5' chunks of bio-rich ro ; looks almost like clasts but is probably alteration. Strong Cu clay associated with them.
Abundant qtz veins w/ associated qtz-ksp-bio envelopes (thin)

925-930' similar to above, not very interesting. Fewer qtz vns & bio than previous interval
Lots of ksp; flooding (?) 927-927.8'.

930-932.8' same; most qtz veins are ~70° TCA.
932.5-933' strong qtz (+bio+ksp) alt; w/ Cu clay & minor chrys; epidote common in bio sites.
933.5-934' shattered zone; seams of breccia (milled) are < ½".

935-940' some weakly mineralized QMP.
936.5-937' gouge/bx; no measurable angle.
938-939.5' gouge/bx; 25° TCA. Minor Cu clay & common jarosite.

940-945' fault bx; shattered & locally milled. Some low-grade QMP.
numerous qtz-ksp vns w/ bio; various orientations.

945-950' same

950.3' begin competent QMP. Same rock, just not faulted. Abundant <1mm fis w/ hem.
953-955' sheeted fis; ~30° TCA. Abundant hem @ bottom of the run; very red color.

955-956.5' same
956.5-959' strong sericite alt (?); looks almost etched. Intense hem; sheeted fis ~40° TCA.
Looks leached.
959-960' back into weakly altered, low grade QMP.
960-964.1' shattered & milled breccia
963' 4" slot of biotite; altered diabase fragment?
964.1' 25° TCA top of gouge zone. Abundant goethite & jarosite in bx.
965-968' same QMP
968-969.8' v. strong qtz-ksp alt (or aplitic dike?); no orientation visible. Fractured & original texture of QMP is gone.
969' 1" gouge w/ Cu; 65° TCA.
969-970' increase in Cu; more competent rock.
970-973' same?; sheeted fe w/ hem coating; 10° TCA.
972.5' ~1" of yellow-stained clay; ~50° TCA.
973-975' shattered; possibly milled but difficult to see. Abundant hematite.
975-980' recovered 4'; all fault breccia w/ fairly large fragments. Little milling, or just v. large pieces? Abundant Clay, Cu clay, & FeOx

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
910 5	42	N/S	N/S
915 1.5	67		
916.5 3.5	91		
920 5	92		
925 5	98		
930 5	102		
935 5	94		
940 5	90		
945 5	94		
950 5	100		
955 5	94		
960 5	98		
965 5	96		
970 5	100		
975 5	74		

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMPU-05
SHEET 9 OF

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: D. Russin/M. Sieber
SCALE: 1" = 10'

ELEVATION: 1475' APPROX
BEARING: 190.1° @ 1,000'
INCLINATION: -88.2°
TOTAL DEPTH: 1000'

COLLAR COORDINATES:
N: 746,095.87 E: 947,729.96
STARTED: June 29, 2011
COMPLETED: July 7, 2011

COMMENTS: Survey @ 1000': az = 261.1° incl = -88.2°
corrected az = 190.1°

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		HM JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY
980	1	1	2	1	5	1							1	2	3		1	2	2							5	7	3		
	1	1	2	1	4	1							0	2	2		1	2	2							3	-	-		
990	1	1	2	1	6	1							1	2	3		1	2	2							5	-	4		
	1		1		2	1								2	1		7	2	2							5	7	3		
1000	1	1			2	1								1	1		2	2	2							3	5	-		
	1	1			3									2	3		-	-	3							2	-	-		
1010					4									3	3		-	-	3							5	-	-		
					6	2								3	2		2	2	2							5	6	-		
1020					6									3	2		3	2	3							5	8	-		
		1			7	1							1	1	2		1	1	1							5	7	-		
	1	1			7	1							1	2	2		1	1	1							5	6	-		
1030	2	1	2		5	2							1	3	2		2	2	2							5	-	-		
	2	1	2		4	1							1	3	2		1	2	2							5	5	3		
1040	0	0	0		6	1							1	2	4		0	1	3							5	-	3		
1050					6	1							1	3	4		0	1	3							5	-	3		

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

881.5-1007.3' QMP

980-982.5' fault bx; large fragments & gouge w/ trace Cu clay. 30° TCA bottom contact
982.5-985' QMP as above; Qtz+ksp+bio, w/ minor Cu clay after plag
985-990' same QMP ↳ alt. mainly present as veins & assoc. envelopes.
987.5' ~2" x 0.5" clot of secondary biotite.
988.5-988.8' stronger clay alt; w/ mod. Cu clay
990-995' shattered fault breccia w/ milled frags + gouge; streaky clay, FeOx, + chl. Minor Cu clay. Shears are ~35° TCA. Difficult to see any alteration, so used codes from the interval immediately above.
995-1000' same QMP
995.1' end of fault zone, bottom contact @ 45° TCA.
1000-1000.5' common Cu on fractures
1000.5-1000.6' bx zone ~2cm wide
1002.5' 1-2cm band of blue-green Cu clay; looks like a thin bx zone. ~40° TCA.

1007.3-1012' Mixed QMP + Tgdp

Rock is faulted + well broken; strong FeOx-clay overprint. Fault ~50° TCA.

1012-1017' Tgdp

SIDEWINDER FAULT ZONE 1010 — 1095

Plag is partially replaced by Cu clay
Core is sheared + very soft.

1017-1026' Mixed QMP + Tgdp

Common Cu clay after plag.
1019.6-1020.5' swirls of irregular Cu clay
1019.9' minor component of clasts of Ta
1020.5-1026' common tenorite + chrysocolla, esp. 1022-1022.5'

1026-1057' QMP

1026-1030' common chrys + tenorite.
1030-1035' fault breccia, all frags are QMP. Patches of Cu clay w/ minor chrys + ten locally. Slightly more competent at bottom of interval, not milled bx.
1031.5' strong tenorite in sheared zone; streaks are over 2" wide
1035-1038.5' same harder QMP as above, QMP w/ strong clay
1038.5-1057' fault zone w/ much gouge; streaky FeOx

1040-1045' all frags <2", shears ~25° TCA.

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
980 5	94	N/S	N/S
985 5	102		
990 5	102		
995 5	94		
1000 5	90		
1005 5	90		
1010 2	25		
1012 5	96		
1017 3.5	97		
1020.5 5.5	82		
1026 4	95		
1030 5	102		
1035 5	100		
1040 5	102		
1045 5	100		

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-05
SHEET 10 OF 12

CONTRACTOR: CARO
CORE SIZE: PQ
LOGGED BY: D. Russin / M. Sieber
SCALE: 1" = 10'

ELEVATION: 1475' approx
BEARING: 205.3°
INCLINATION: -88.3°
TOTAL DEPTH: 1200'

COLLAR COORDINATES:
N: 746,095.87 E: 847,728.96
STARTED: June 29, 2011
COMPLETED: July 7, 2011

COMMENTS: Survey @ 1100': az = 216.3° incl = -88.3°
corrected az = 205.3°

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	LIM JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
1050					6	1						1	3	3		0	1	3						5	-	-			1050–1055: 5	100	V/S	N/S
					6	1						1	2	2		0	1	3						5	-	-			1055–1060: 5	96		
1060					5	0						0	1	0		0	0	3						5	-	-			1060–1065: 5	104		
					6							1	2	3		0	1	2						5	-	-			1065–1070: 5	98		
1070					6							1	1	3		0	1	3						5	-	5			1070–1075: 5	102		
					6							0	4	3		1	1	2						5	-	-			1075–1080: 5	98		
1080					5							1	2	2		0	1	3						4	6	-			1080–1085: 5	100		
		1	1		5	1	1					1	4	3		0	1	3						5	-	3			1085–1090: 5	98		
1090					N	O		R	E	C	O	V	E	R	Y												?	?	1090–1095: 5	12		
	1	1	1		3	1	1					0	2	2		0	2	2						3	2	-			1095–1100: 5	100		
1100	1	1	2		1	1							2	2		2	2	2						2	6	-			1100–1103.5: 3.5	83		
	1	1	1		2	1							2	2		2	2	2						3	7	-			1103.5–1108.5: 5	94		
1110	1	1			3	1							1	1		2	2	2						3	-	-			1108.5–1113.5: 5	96		
	2	2			2	1							1	1		2	2	2						4	6	-			1113.5–1119: 5.5	89		
1120																																

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

SIDEWINDER FAULT ZONE 1010 – 1095'

1026-1057' QMP
cont. from above; milled fault bx.

1057-1065.2' Ta ← contact rubblized
1057-1061.5 cont. fault bx.
Quite porphyritic; white plag up to ~5mm. Rock is rich red-brown, 5YR 3/4
still very broken w/ abundant gray-green clay

1065.2-1074.1' QMP ← contact irregular, but ~25° TCA.
Back into same fault bx
1066.5' 4" clast w/ strong chrys + Cu clay
Shears @ ~ 40° TCA; much gouge & frags are <1".

1074.1-1078' Mixed QMP + Tgdp ← contact brecciated
Fault bx w/ abundant Ta fragments. Mostly Tgdp, w/ mod Cu mineralization; chrys & ten locally abundant.

1078-1200' QMP ← contact brecciated
1080-1085' shattered QMP, not milled bx. Heavy clay overprint w/ v. little Cu.
1085-1085.6' same
1085.6-1086' light blue clay gouge; 25° TCA. Mod. Cu clay.
1086-1089.5' shattered, well oxidized QMP w/ strong clay overprint.
1089.5-1090' milled bx & gouge. Shears ~65° TCA.
1090-1095' recovered 0.6' of milled bx as above. All in shoe, tube was empty.
1095-1100' reasonably competent QMP, sheared fxs ~15° TCA. Weak Cu clay after plag.
Clay seams up to ~1/4" locally. Weakly altered; only small vlts of qtz + ksp + bio.
1101.7' CuOx on fractures
1106.5-1108' moderate development of bio in QMP.
1110.7-1111.5' brecciated zone w/ v. abundant FeOx.
1113.5-1119' competent QMP. Strong clay after plag; very little ksp as well. Rock is quite light in color.
Considerable biotite.

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-05
SHEET 11 OF 12

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: M. Siebert / D. Rusin
SCALE: 1" = 10'

ELEVATION: 1475' Approx
BEARING: 205.3°
INCLINATION: -88.3°
TOTAL DEPTH: 1200'

COLLAR COORDINATES: NAD83
N: 746095.87 E: 847729.96
STARTED: June 29, 2011
COMPLETED: July 7, 2011

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
					C	O		R	E	C	O	V	E	R	Y																		
1120																														1119			
	1	2	1		2	1								2	1		2	2	2	1					4	7	-			5	62	N/S	N/S
	1	2	1		2	1								1	1		2	2	2						3	-	-			1124 5	98		
1130	1	2	1		2	1								1	1		2	-	2						2	8	-			1129 5	96		
	1	2			4	1								2	2		3	-	3						4	8	-			1134 5	94		
1140	1	2			5	1								2	1		2	2	2						3	6	5			1139 5	92		
	1	2			3	1							1	2	2		3	3	3						4	7	-			1144 5	98		
1150	1				2	1							1	2	2		3	2	3						4	6	-			1149 5	98		
					N	O		R	E	C	O	V	E	R	Y													?	?	1154 5	0		
1160					N	O		R	E	C	O	V	E	R	Y															1	0		
	4	1	2		3	1							0	2	1		1	1	2						3	5	-			1160 4	85		
	2	1	2		3	1							1	3	2		2	3	2						1	4	-			1164 5	100		
1170	2	3	3		4	1	1						1	3	2		1	2	2						3	3	-			1169 5	100		
	1	2	1		3	0	0						0	2	1		1	2	4	1		1			1	5	-			1174 5	98		
1180	2	1	2		4	1							0	2	1		1	1	2	0		0			3	4	-			1179 4	78		
	4	2	4		3	0							0	1	1		1	1	2						2	4	-			1183 5	102		
1190																														1188			

COMMENTS:

AVG. CORE REC'Y/HOLE

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

1078-1200' QMP

1122.5' ~2"x2" fragment of fine-grained diorite (?)
Cu clay locally on fractures
1127.4-1127.8' bright white zeolite (?) in irregular fractures, ~50° TCA.
1126-1129' CuOx on fxs & in plag
1129-1134' a couple ~½" qtz veins
little to no Cu clay in plag sites
1134-1139' numerous qtz-ksp vns @ ~60° TCA.
1136.5-1138' strong hematite stain
1141.3-1141.7' gouge zone; ~45° TCA.
1142.5-1143' common greenish Cu clay on fxs
1144-1149' streaky FeOx + bio alt.
1147.9' ~1" vein of solid hematite
1149-1150.7' strong hem stain
1152.5-1153.5' greenish yellow clay; Cu + jarosite?
1154-1160' no recovery
1160-1164' low-grade, reasonably competent QMP. Top 6" is rectilled fragments.
1162.5' shattered 3" zone of strong ksp alt; pink-tan color w/ relict igneous texture. V. little Cu.
1163.5-1164' several tiny fxs w/ spots of chrys.
1164-1169' hard QMP w/ deep red feldspars
1164-1166' 3/8" clay vein, 10° TCA. Mod. Cu, some chrys in w/ clay. ⇒ various orientations
1166-1167' strong silicification; v. hard rock w/ deep red ksp + common chrys veins, tr. teronite.
1169-1170' shattered zone; mod. bio alt strong FeOx overprint
1170-1172.5' same as 1160-1164' above. Large ksp phenos are partially converted to biotite.
1172.5-1174' shattered; slight increase in Cu.
1174-1179' hard QMP; uniform trace Cu in plag.
1174.8' 4" frag of diorite (?), fine bio + plag; salt + pepper appearance.
1175.2-1179' very uniform. Trace pyr/cc @1172.7'
1179-1183' same weakly mineralized QMP. Locally shattered w/ abundant clay.
1181.5' several hairline vlts w/ chrysocolla; various orientations.
1181-1183' ⅛" vein of white clay w/ hem specks + streaks; wanders across core
1183-1188' hard QMP; dead rock. V. little oxides & no visible sulfides.
1186' 2" thick ksp vein (aplite dike??), ~20° TCA, trace chrys in nearby veins, w/ qtz + glassy limonite.
Tr. Cu clay.

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-05
SHEET 12 OF 12

CONTRACTOR: DABO
CORE SIZE: PQ
LOGGED BY: D. Russin
SCALE: 1" = 10'

ELEVATION: 1475' approx
BEARING: 205.0°
INCLINATION: -88.4°
TOTAL DEPTH: 1200'

COLLAR COORDINATES:
N: 716,095.87 E: 847,729.96
STARTED: June 29, 2011
COMPLETED: July 7, 2011

COMMENTS: Survey @1200': az = 216.0° incl. = -88.4°
corrected az = 205.0°

AVG. CORE REC'Y/HOLE

FOOTAGE	ALTERATION: ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	OXIDE: LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	SULFIDE: MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION: GEO., MINERAL, ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
1190	1	3	2		3	1						0	1	1		0	1	2						2	4	-			1078-1200' QMP same as above; hard, trace Cu, relict sulfides present in some quartz veins	5	92	N/s	N/s
	1	1	2		3	1						0	1	1		0	1	4			1			3	2	-			1191.1' 2" bx/gouge, 75° TCA. 1192.5' 4" blob of bio alteration 1193-1197.5' same; very uniform and boring. Numerous fxs ~15° TCA.	1193 4.5	113		
	2	4	2		3	1						0	2	1		1	1	2			0			3	2	-			1197.5-1200' same. Strong bio alt. last 1.5'. Still showing traces of CuOx. No sulfides.	1197.5 2.5	100		
1200																																	

T.D. @1200'; out of drill rods. Sulfide zone was expected to be ~1150'.

Geology logging by SRK Consulting
427-462.5' Mike Sieber
462.5-532' Danny Russin
532-573' Mike Sieber
573-660' Katie Noonan
660-715' Mike Sieber
715-769' Danny Russin
769-830' Mike Sieber
830-905' Danny Russin
905-920' Mike Sieber
920-995' Danny Russin
995-1030' Mike Sieber
1030-1100' Danny Russin
1100-1160' Mike Sieber
1160-1200' Danny Russin

Met Zones
427-1200' Oxide
Trace Sulfides encountered in the last 30'; nearing the sulfide zone but did not reach it.

Core Recovery
All: 90.4%
QMP: 90.8%
Tgdp: 97.2%
Mixed: 84.8%
Ta: 67.7%
Diabase: 100%

Downhole Surveys

456'	201.1°	-88.7°
503.5'	165.8°	-88.8°
600'	166.9°	-88.7°
700'	178.3°	-88.9°
800'	No survey	
900'	181.9°	-88.8°
1000'	190.1°	-88.2°
1100'	205.3°	-88.3°
1200'	205.0°	-88.4°

azimuths are corrected.

Lithology
427-440' QMP
440-446' Mixed
446-457.5' Tgdp
457.5-670' QMP
670-675' Mixed
675-759' QMP
759-774.3' Diabase
774.3-858.5' QMP
858.5-881.5' Tgdp
881.5-1007.3' QMP
1007.3-1012' Mixed
1012-107' Tgdp
1017-1026' Mixed
1026-1057' QMP
1057-1065.2 Ta
1065.2-1074.1 QMP
1074.1-1078' Mixed
1078-1200' QMP

HDI CURIS

CONTRACTOR: [redacted] LOCATION: FLORENCE
CORE SIZE: PQ HOLE ID: CMP 11-05
LOGGED BY: A. SKELLY/D. ALWSON SHEET 1 OF 13
SCALE:

ELEVATION: [redacted]
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED: 6-29-11
COMPLETED:

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		LIMONITE	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY
430			1		2	2							1	2			3	3	3							2	5	-		
					2	1							1	2			3	2	3							1	5	-		
			1		3								1	3			3	-	3							5	4	4	40° 40°	
440			1		4									3			3	3	3							3	3	-		
			2		4								1	2			1	3	3							2	-			
450			2		3									1			-	3	3							2				
					NO RECOVERY														451-456											
			2		2								1	1			-	-	3							4	-	-		
			1		3	1								1			-	2	2							2	-	-		
460						NO RECOVERY													-											
			1		4	1							1	3	2		0	2	2							4	4	2		
					5	1							2	2	2		0	1	3							4	-	-		
470			1		3	1							1	2	2		0	1	3							4	4	-		
			1		4	1							2	0	2		0	2	2							4	3	-		
480	1		1		5								2	2	2		1	2	2							5	7	6		

COMMENTS:
456' - 80 m
AZ 212.1° - 88.7° incl
Core 201.1

AVG. CORE REC'Y/HOLE

DESCRIPTION: GEO., MINERAL., ALT, STRUCT.

BASINFILL
CASING TO 426.5

427-440 Ygm

429.2-430 LEACHED CAP - HEMATITE w/ CONSIDERABLE CLAY
433.5-434 YELLOW STAINS - Limon

435.8 & 436.5 2 THIN PARALLEL FAULTS 40°
CONTAINS RARE QTZ PHENO CRYSTS
440-446 Ygm - Tgdp - MIXED

446-457.5 Tgdp

449.2-450.2 HARD SILICIFIED SECTION
QTZ PHENOCRYSTS
SILICA ATTACK - HARD

AS ABOVE
457.5 - Ygm
458-458.5 CLAY w/ some BRECCIA 458.6-460 FELDSPAR → Cu

464' 1/4" gouge zone separates competent from broken rock. CuOx in clays above, none below.
fault breccia below 464; 95% QMP, 5% Tgdp abundant FeOx
466-470' v. broken, streaks of different FeOx. Sheared but not milled by Tiger Cu clay, no CuOx1
470-473.5' more competent QMP; purely mineralized, only trace Cu clay in plag. sheared 472-473'.
473.5-475' same as above. slightly increased cu in clays w/ jarosite. v. well broken
475-480' QMP
475-477.5' competent w/ salmon bsp; little Cu or obvious alt.
477.5-479' fault; layered quartz + milled bx; 60° TCA.
479-480' sheared QMP; well-red bsp + abundant Cu clay in plag sheared fr surfaces.

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
427 3			
430 5			
435 5			
440 6			
446 5			
451			
457 MR			
456			
457.5 3.5			
460			
462.5 5.5'			
468			
470 3.5			
473.5'			
475 5			
480			

DRAFT

HDICURIS

COLLAR COORDINATES: N: ____ E: ____ ELEVATION: ____
STARTED: ____ BEARING: ____
COMPLETED: ____ INCLINATION: ____
TOTAL DEPTH: ____

CONTRACTOR: ____ LOCATION: FLORENCE
CORE SIZE: ____ HOLE ID: ____
LOGGED BY: ____ SHEET 2 OF 12
SCALE: ____

DRAFT

FOOTAGE	ALTERATION: ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		OXIDE: ~~LIM~~ JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	SULFIDE: MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	COMMENTS: / DESCRIPTION: GEO., MINERAL., ALT, STRUCT.	AVG. CORE REC'Y/HOLE	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
480			1		5	2							1	2	2		1	3	2							4	-	-			480-485' Shattered QMP; only locally milled (481.5-481.7, 489.5-490') Strooky CuOx + FeOx		480 5			
490		1	1		5	2							1	2	2		1	2	2							5	-				485-490' milled fault breccia. Clast of QMP in shattered milled QMP. Several orientations of gouge (30°, 55°, 70°)		490 5			

START SHEETS ON 70' INCREMENTS

HDICURIS

LOCATION: FLORENCE
HOLE ID:
SHEET 3 OF 13

CONTRACTOR:
CORE SIZE:
LOGGED BY:
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED:
COMPLETED:

COMMENTS: Survey @ 503.5' 152m
1760.8" ~88.8
CUR 165.8

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		LIM JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION: GEO., MINERAL., ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
490																																— QMP	490			
	1	1	1		6	2	1						1	2	2		1	2	2							8	-	-				completely shattered milled fault bx. Gouge in multiple orientations. very abundant clay, w/ jarosite locally.	5			
495																																495-498.5' same; gouge + breccia. ~1/16" chrms on @ 497.5'; 35° TCA	495			
	1	1	0		5	2	1						1	2	2		1	1	2							5	-	-					3.5			
500																																498.5-498.7' gouge + bx.	498.5			
	0	0	1		4	1	0						1	2	1		0	1	2							3	8	-				498.7-501' shattered QMP, no rotation. Strong clay alteration + abundant hem.	5			
																																501-503.5' competent QMP. pale blue-green plag + hem along <1mm vlts.				
505	1	1	2		3	1							0	1	1		0	2	2							3	4	-				503.5-506.5 same as above	503.5			
																																506' 3" of shattered breccia; completely disaggregated. very little goethite, no jar.	3			
	1	1	1		5	1							1	2	2		0	2	2							4	5	8				504' 3/8" qtz-bio vn, 55° TCA.	506.5			
																																506.5-509' solid QMP, sericite	3.5			
510																																509-510' shattered; ~3" gouge/bx 507-509.5', 75° TCA. Trace Cu clay in gouge/bx	510			
	3	1	3		4	0	1						1	3	2		1	2	2							3	4	-				510-510.5	5			
																																510.5'-513.5' solid QMP; low grade w/ minor Cu clay in plag.				
																																512.5-512.8' ~1" thick, near vertical, irregular hem-cemented breccia				
515																																513.5-515.8' fault breccia	515			
	4	1	3		3	1	0						1	2	3		0	2	2							5	4	4				514.5' 2" vein of ksp + bio + qtz. 75° TCA	3			
																																515-515.7' shattered, intensely altered fault breccia, all Tgdp → strong ksp-qtz alt.				
520	3	2	3		2	2							0	2	1		2	2	1							3	5	-				Rest of interval same QMP. Minor tenorite @ 517.5'.	518			
																																519.5-522' moderate ksp-qtz-bio alt w/ tenorite + minor chrys. Well broken.	4			
																																522-522.7' barren hard QMP; common Qtz vns + ksp alt. Bio → chl + ep (very green)	522			
525	3	2	4		3	2	2						0	2	2		0	1	3							2	6	-				v. little clay in QMP	5			
																																523-523.5' ~6" silicification w/ ghostly bio specks.				
	2	2	3		3	1	1						1	2	2		0	1	3							2	6	-				527-527.2' shattered gouge zone. 60° TCA.	527			
																																527.2-529.3' had QMP as above, mod. potassic alt. Moderately fractured w/ abundant FeO_x patches				
530	1		1		4	1							0	1	2		0	0	3							5	-	7				530-532 fault breccia, milled bx w/ clay gouge zone. 65° TCA	530.2			
																										4	5					532.2-532.5 LARGE PIECE of FINE GRAINED (APPL? ?) LT. STRONG CHLORITE	532			
535			1		4	1								1			0	3	3													533-533.1 CLAY W STRONG BRECCIATION SOME KSPAR → CU	5			
																																537-537.8 RED MINERAL - HEMATITE				
540	2	2	1		1	3							1	2			3	0	3							2	6	-				CONSIDERABLE CHLORITE - BIOTITE	537			
																																539.5 - 546 SHEARED MINERALIZED ZONE OF YELLOW STAINING	5			
545		1	1		1	2							1	1			0	0	3							4	6	-				AS ABOVE	542			
																																546.8 OPEN JOINTS, CLAY DISCOLORATION ON SURFACES	5			
550	1	2	1		1	2								1			3	2	3							3	7					549.8 - 552 K-SPAR → CU	547			
																																CLOSED FRACTURES STAINED W/ HEMATITE	5			
555		2			1	2							1	2			3	3	3							2	6					CONSIDERABLE BIOTITE → CHLORITE	552			
																																	5			
		1	1			3							1	2			0	0	3							5	8	8				559.5 - 561 BROKEN BRECCIA & CLAY COBBLES AT BOTTOM	557			
560																																				

DRAFT

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP 11-05
SHEET 1 OF 1

CONTRACTOR: C R D
CORE SIZE: R
LOGGED BY: M. Sirbu / K. Moore
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED:
COMPLETED:

COMMENTS: Survey at 600'
uncor az 177.9, incl -88.7
cor az 166.9

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
560							NO	RECOVERY							SOL	-		SOL											4			
																								5	-	-			561			
565	1		1		1	2							2			3	-	3						5	8	7	70		562.5 5.5			
570					4											3	2	3						4			70		568 5			
					5	1						1	4	2		1	1	3						5		4	40		573 5			
580					5	1						1	3	1		-	-	3						5		5	50		578 2.5			
					1	1						1	2	1		-	-	3						1	4	7	40		580.5 2.5			
					1	1						1	5	3		1	-	3						5		4	35		583 5			
					1	1						1	2	1		1	1	2						4	-				588 2			
590	NO			RE	C	O	V	E	R	Y				NO		R	E	C	O	V	E	R	Y				NR	?	590 2.5			
					4	1						1	3	1		1	1	2						5	-	?			592.5 5			
		2			3	1						1	4	2		2	2	2						5		?			597.5 5			
600	1	2			5	1						1	3	1		1	2	2						5		6			602.5 5			
					3	1						1	4	1		1	1	2						4	?	-			607.5 5			
610					2	1						1	1	1		2	2	2						5		?			610 5			
					2	1						1	1	1		2	2	2						5		1	10		615 5			
					1	1						1	1	1		1	1	2						5		?			620 5			
620					4	1						1	3	2		3	3	2						5		6	60		625 5			
					4	1						1	4	2		1	1	2						5		3	35					
630																																

DESCRIPTION: GEO., MINERAL., ALT, STRUCT.

SEE BELOW

571.1 QMP

562-562.5 broken QMP rock ~2cm pieces continued from 559.5 fault?

562.5-562.7 Fault breccia (559.5-562.7) 70°
THE REST OF CORE AT 562.5 W/ FEW FRACTURES

571.1-573 Tgdp contact 70°
R: IPA2 - clay - Cu, clay → Cu blue

573-578 QMP
Nice Cu at top of hole, bright teal on fractures
Lots of fault breccia w/ gouge and milled fragments, esp 275-277

578-580.5 QMP fault breccia ∠~50° (?), no visible Cu ox, not even any light grn clays

580.5-583 QMP, lots of kspar - almost all pink, 580.5-580.7 high Fe ox w/ breccia, ∠70° fractures at 35° deeper in core, still no visible Cu, pretty solid rock low gouge

583-588 QMP very oxidized - mostly Fe ox, some Cu ox visible on fractures
Rock is fairly competent, 585.7-586 zone of breccia w/ little gouge Faults at 30-40°
583-583.2 breccia w/ ~ no gouge, 584.8-585.2 breccia no gouge

588-590 - little Cu in first foot, more in bottom foot, rock pretty broken up
Cu ox are lt grn and teal, all QMP

590-592.5 lost 1.5 ft, 591.5-592.5 QMP breccia w/ gouge in first 2 inches, ∠(?)

592.5-597.5 QMP, 594.3-596.3 fault breccia w/ low gouge and chunk of Tgdp (?)
595.5-597.5 high Cu ox - clay, chrys, some tenorite, fault ∠(?), biotite foliation at bottom

597.5-602.5 QMP - lots of breccia w/ gouge (esp 597.5-598.5, 599.3-600.8, 601-602)
597.5-598 Bio foliation, Cu clay visible throughout interval
Fault angle ~60°
597.5-598 huge (40x40mm) Kspar surrounded by Bio

602.5-607.5 QMP, mostly solid last foot crumbly, evenly scattered Fe/Cu ox
Cu ox present but dispersed, irregular fractures x-crossing, entire core has some clay, some chrysocolla

607.5-610 QMP very broken up but does not look brecciated, fracture angle is irregular. first Cu in bottom 0.1 ft, lots of clay + some chry on fract w/ slickensides, 609-610 2mm wide Cu ox vein at 20°

610-615 QMP - pretty solid rock, 610-611 bottom of 2mm wide vein from previous interval, breccia on one side of vein so it's prob a fault ∠~10° here. Very full of lt grn clay w/ tenorite on sides, 613-615 more fault breccia, low gouge

615-620 QMP very fractured, but held up to scrubbing, whole thing looks like breccia, large chunks rimmed w/ Fe ox

620-625 QMP, very fractured and broken up, intermittent breccia, low gouge
Nice Cu ox on fractures 50-70°
620-620.2 solid green, some lt grn Cu clay, also dk grn (malachite?)

625-630 QMP very fractured as before, could not watch 628.5-629.5 b/c so brittle
627.2-627.5, 628.5-629.5 fault breccia, some gouge in lower zone
Fault ∠ 25° Some Cu ox clay on surface

DRAFT

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-05
SHEET 5 OF 13

CONTRACTOR: PQ
CORE SIZE:
LOGGED BY: Sieber/Nowacki/Fahrion
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED:
COMPLETED:

COMMENTS: 700' - 213m SURVEY
Az 189.3 - 88.9 core 178.3

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
630					3	2						1	4	2		1	1	2						5		?			630–635			
635					3	1						1	4	2		2	2	2						5	6	3	30		635–640			
640					4	2						1	3	3		2	3	2						4	?	?			640–645			
645					2	2						1	3	3		2	1	2						4	–	5	50		645–650			
650					3	1						1	3	3		1	1	2						5	–	?			650–655			
655		1			1	1						1	2	2		1	1	2						4	–	?			655–660			
660			1		2								2			1	2	2						5	7	2			660–665			
665	1	1	1		1	1							2			2	3	2						4	7	–			665–670			
670					1							1	3			0	0	3						4	5				670–675			
675			1		1							1	2			2	2	2						5	6	7			675–680			
680	1	1	1		1	1							1			2	2	2						4	6	–			680–685			
685	1	2	1		1	1						1	1			2	2	2						2	7	–			685–690			
690	1	2	1		1	1						1	1			2	2	2						3	8	–			690–695			
695	1	1	1		1	1						1	1			2	2	2						2	8	–			695–700			

DESCRIPTION: GEO., MINERAL., ALT, STRUCT.

630-635 QMP, very fractured and chunky, couldn't watch 632.8-633.2
Fault breccia 632-632.3, 632.5-632.3, 633.7-633.9, low gouge in all, ∠ (?)
Some chrysocolla on fractures
Difficult to wash 2nd side, but removed most of mud

635-640 QMP, fractured as before
Fault breccia 637.7-638, w/ 2in gouge, 638.7-639.2 w/ very little gouge, ∠ 30° (?)
Great Cu from 638.9-640 Hgm clay and bright seafoam grn on fractures at 55°
639 20x20mm chunk of BIO gone to CHL and 20x20mm chunk salt and pepper rock

640-645 QMP, very fractured
Intermittent fault breccia, gouge from 644.2-644.5, otherwise very little
640-640.2 ~ solid Cu clay

645-650 QMP totally fractured and broken
Fault breccia 646.3-646.5, 646.9-647.1, 648.8-649, 649.2-649.4
very little gouge in any zone, ∠ ~50
649-649.4 olive green clay blobs
650-655 almost entirely fault breccia, ∠ (?), low gouge
Not much Cu ox visible

655-660 broken up QMP w/ again, intermittent breccia w/ ~no gouge
Low Cu ox, BIO flooding 658.5-660, Fault ∠ (?)
661.7-663.5 LOW ANGLE FAULT/FRACTURE w/ 1 cm CU CLAY
660.5-661.4 K-SPAR → CLAY → CU

THROUGHOUT KSPAR-CLAY-CU
HEMATITE ON FRACTURES - BIOTITE/CHLORITE
670-675 MIXED Ygm - Tgdp
HEMATITE ON FRACTURES NO VISIBLE CU

675-700 Ygm
675.9-680 KSPAR - CU
675-675.9 Tgdp 675.9-680 Ygm CONTACT 70°
676.1-676.3 BRECCIA
681.5-685 K-SPAR → CU, CU IN FRACTURES

STRONG K-SPAR-CLAY-CU ~3% BIOTITE/CHLORITE
1-2cm SALMON FELDSPARS

K-SPAR - CU AS ABOVE

AS ABOVE
695-695.5 BRECCIATED PEBBLE SIZE

DRAFT

HDICURIS

LOCATION: FLORENCE
HOLE ID: CMP 11-05
SHEET 6 OF 12

CONTRACTOR: [illegible]
CORE SIZE: PQ
LOGGED BY: M. Gray / D. [illegible]
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED:
COMPLETED:

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY
708	1		1		1	1								1			2	2	2							1	8			
	1		1		1	1								2			2	2	2							3	6	-		
710	1	1	1		1	1							1	2			2	2	2							3	6	-		
	2	1	1		3	1							1	1	2		1	2	2							3	5	-		
720	3	1	3		3	1	1						1	2	2		1	2	2							2	6	-		
	4	2	5		3	1	1						1	2	2		1	3	2							2	8	-		
730	2	1	3		3	1	1						1	3	2		1	3	2							1	7	-		
	2	2	4		3	1	0						1	3	2		2	2	2							1	7	-		
740	2	1	3		3	1							1	3	2		3	2	2							1	3	-		
	3	2	4	1	3	1							1	2	1		2	2	1							1	7	-		
750	3	2	3	2	4	1							1	2	1		4	3	1							1	3	-		
	3	1	5	1	5	1	1						1	2	2		2	3	1							5	4	4		
760	0	0	3	2	1	1	0						0	1	0		1	0	2							3	7	-		
								N	O		R	E	C	O	V	E	R	Y												
770																														

DRAFT

COMMENTS:

AVG. CORE REC'Y/HOLE

DESCRIPTION: GEO., MINERAL., ALT, STRUCT.

700 - 7gM
CORE IS VERY HARD
702.1 - 705 K-SPAR - CU, CU IN FRACTURES

AS ABOVE 708 TENERITE/ACTINOLITE - PLATED COPPER

AS ABOVE
712.4 & 714.2 TENERITE/ACTINOLITE

715-720' half blown out v/o plug. Well broken but intact QMP. Common dood-red hem. in plag, common weak Cu clay in plag throughout interval.
715.5-716' streaks of tenorite in masses up to 1cm wide.
720-725' hard QMP, reasonable RQD'
abundant qtz vns w/ hem after cpy; qtz-ksp envs up to ~1"
725-730' quartz flooding; several ~1/4-1/2" vns (qtz hem after cpy) w/ ~1" qtz-bio envelopes. ~45° TCA.
733.5' cracked qtz w/ hem in tiny fracs column
similar to above; slightly less intense qtz-ksp-bio alt. Common hem in fellopes
734.5-734.7' shattered zone. Cu clay + FeOx in ↗
735-740' similar, hard QMP w/
736.5 1" qtz-ten vn, 40° TCA. Abundant thin (<2mm) fracs w/ chrys. common cu clay in plag sides
741' 1" vn of qtz + tenorite; ~1.5" on each side ksp-qtz-bio env. Abundant jarosite + green clay. Otherwise same as previous.
744.6 & 745.1' abundant qtz vns <1cm, w chrys after cpy.
Jarosite common in plag sites. A few small sericite (?) envelopes visible in ksp grains, throughout the interval.
750.1-750.6' streaks + irregular clots of tenorite; quite rich
751.5' 1" vn of qtz + chrys + ten; hem + goe as well. 30° TCA
751.5-754' common <1cm vns of chrys + Cu clays
756-756.4' solid qtz; w/ some chrys + ten. Silicified, not well
756.4-757' milled fault breccia, 35° TCA. Abundant jarosite + Cu clay in tex.
758-759' strong Cu clay w/ chrys in 4mm vns

759- Diabase
medium gray, porphyritic. Abundant qtz vns w/ v. thin sericite envelopes; largest vn ~2mm, most are 50-70° TCA. Very little mineralization
764-789 - recovered 0.4' of diabase fault breccia.

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
708 5			
705 5			
710 5			
715 5			
720 5			
725 5			
730 5			
735 5			
740 4			
744 5			
749 5			
754 5			
759 5			
764			

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP 11-05
SHEET 7 OF 13

CONTRACTOR: [illegible]BD
CORE SIZE: PQ
LOGGED BY: D. Russo, M. Sikes
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED:
COMPLETED:

COMMENTS:
SURVEY 800'
AZ 189.3° -88.9°
COR 178.3

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	LIM JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION: GEO., MINERAL., ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
770			3		3								2			2	—	2						5	-	8			798.9-774.3 Ydp DIABASE 769-769.6 CLAY w/ SOME DIABASE FRAGS ~1cm 772.7-773 796.9-774 DABASE ABUNDANT QTZ VEINS + SERICITE COPPER BAND 2 cm LOOKS LIKE TURQUOISE RIGHT BLUE	769 5			
	1	1	1		1							1	1			-	2	2						5	8	5			774.3 QMP SOME K-SPAR → CLAY - CU - BIOTITE	774 5			
780	1	1			1											-	2	2						3	6	-			782.6 SEVERAL PATCHES OF TENERITE SOME OF K-SPARS → CLAY → CU	779 5			
		1			3	1							3			-	2	2						5		3			785-786 K-SPAR - CLAY - CU 786-789 TENERITE 787.2-788.2 FAULT CLAY - HEATITE	784 5			
790		1			3	1							3			3	2	2						4	8	←			K-SPAR - CLAY - CU, TENERITE	789 5.5			
																														794.5 5.5			
800		1			2	1						1	2			3	2	2						5	-	6			800-800.5 RE-DRILL 802.4 & 803.4 PARALLEL FAULT MAJOR FRACTURES 50-60° TENERITE 800.7 805 - K-SPAR - CU	800 5			
		1	1		1	1						1	2			3	2	2						3	6	-			K-SPAR → CLAY → CU SOME TENERITE SALMON COLORED ORTHOCLASE	805 5			
810	1		1		1	1										2	2	2						2					K-SPAR - CU, CU ON FRACTURES, TENERITE 810.8-811.8 SHEARED - DEFORMED ORTHOCLASE GOOD CU FRACTURES - K-SPAR → CLAY → CU TENERITE	810 5			
	1		1		2	1						1	1			2	2	2						1	5	-			812.6-818. CLAY FILLED CLOCKSED FRACTURES TENERITE IN THIS AREA	815 5			
820	1		1		1	1							2			2	2	2						1	7	-			GOOD K-SPAR - CU & CU ON FRACTURES 823.4-825 MOSTLY LT GREEN - CU FINE HEMATITE	820 5			
	1				1	1							2			2	2	2						5	7	5			826-826.3 BRECCIA w/ SOME CLAY 825.3-826.6 CONSIDERABLE CU CORE IS LT GREEN	825 5			
830	2	1	3	1	3	1						0	2	1		1	2	2						2	7	-			830-835' QMP w/ common qtz/bio vns, possibly some sericite in envelopes wk-mod Cu clay in plag sites.	830 5			
840	1	0	2	1	4	1						0	1	1		1	2	2						2	7	-			very uniform; Cu clay after plag & streaks of hem & goe on fts. Qtz vns are common. 837.5' 1" qtz vn w/ minor secondary ksp	835			

NO RECOVERY

DRAFT

HDI CURIS

LOCATION: FLORENCE
HOLE ID:
SHEET 8 OF 10

CONTRACTOR:
CORE SIZE:
LOGGED BY:
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED:
COMPLETED:

COMMENTS: Survey @ 900': 192.9 core 18.19 -88.8

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION: GEO., MINERAL., ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
840					6	1						0	1	2		0	2	2						5	-	-			840-843' milled gouge + breccia, weak Cu clay throughout, no orientation visible	840 3			
	4	2	3	1	3	1						1	1	1		1	2	1						2	7	-			843-848' slightly fine-grained QWP, largest ksp < 1cm. Looks much the same as previous intervals; little Cu in plag, no Cu oxy.	843 5			
	2	3	2	0	4	0						0	1	1		1	2	2						1	2	-			843.8-848.6' abundant but see in vns + irregular patches. 848.3' 1/8" bo-ch vn. 848.6' ~3/8" qtz-ksp vn w/ 1.5" bo-hem envelope. EDM vn? 848-850 ↓ Cu clay after plag.	848 2			
850	3	2	3		4	1	1					0	3	2		1	2	2						3	6	6			852' 2" qtz-bo stwk; no unwelded. 854' 3" of gouge / bx; 60° TCA. shattered below. 850-855' little Cu as before; only present as faint blue clay in plag.	850 5			
	2	1	3		5	1	1					0	2	3		1	3	2						5	5	5			850-851' fault bx, w/ gouge; 40° TCA. Strong Cu clay + minor chrys. 851.6' 3" sheared breccia, strong Cu clay.	855 5			
860	1	1	2	2	6	0	0					0	3	3		0	0	3						5	-	-			Tgdp is grey, locally altered w/ qtz + ser + ksp. ↑ contact irregular + broken, ~30° TCA. 858.5. 860-865' fill fault bx, Tgdp. Clasts milled, up to ~10cm. qtz// ksp? vns visible in some fragments.	860 5			
	3	0	2	0	5							0	4	2		0	0	3						5	-	-			865-867' same. 867-870' very well broken, brecciated but not rotated. Looks like abundant fine qtz//ksp vlts, but coated in hem so difficult to tell.	865 5			
870	3	0	2		4	1						1	2	3		0	0	3						4	-	-			870-873.5 same as above, v. well broken. 873.5-875' more competent rock, many qtz//ksp vlts + jar on fos. Completely barren.	870 5			
	3	1	3		4	1						0	2	2		0	1	3						4	-	3			875-880' similar to above, shattered Tgdp, not milled, but heavy FeOx + clay overprint makes veins difficult to identify. 876, 1/4" bo vn, 25° TCA. 876, 4, 78, 879' shears @ 30° TCA. 4" frag of QWP @ 880.5'	875 5			
880	4	2	4		2	1						0	1	1		2	2	1						2	4	-			881.5-910 QWP ↑ contact intrusive, 45° TCA. bad QWP, strong qtz-ksp alt. Sheared fragx (chrys + ten) vlts, <5mm, mostly 35° TCA. 884.5-885' much Cu ox, irregular veins? Broken in shear.	880 5			
	2	2	3		5	1						1	1	2		2	2	1						5	4	4			885-885.5' Tgdp, 2 huge (1") EDM vns. Parallel, 40° TCA. 885.5-890 shattered fault breccia; all QWP. Abundant stretches of chrys, tenorite, + Cu clay. shears @ 35° TCA. ↑ contact 50° TCA @ top	885 5			
890	1	2	1		5	1						0	1	2		3	2	1						5	-	-			890-895' shattered clay-rich breccia, stuck badly to splits. Core is trashed. 890.3-890.8' very strong Cu-Ox; abundant tenorite + chrys. Almost solid locally.	890 5			
	0	0	0		6	1						1	3	2		0	2	1						5	-	-			895-900' shattered fault bx w/ gouge. Detail obscured, strong clay overprint.	895 5			
900					5	1						0	3	2		1	2	2						5	7	7			900-905' same. Slightly more competent. 903' sheared gouge, 65° TCA. 905' mod. Cu clay in plag sides.	900 5			
910					5	1							3			1	2	2						4	7	-			905 - 907.1 K-SPAR → CLAY → CU. 907.1 - 910 HIGH CLAY - CORE PULLED APART NON-INTERPRETIVE	905 5			

DRAFT

910

HDI CURIS

LOCATION: FLORENCE
HOLE ID: MAP 11-05
SHEET: 9 OF 13

CONTRACTOR:
CORE SIZE:
LOGGED BY:
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED:
COMPLETED:

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		LIM JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY
910													N	O	R						TR									
	1	1			1								1	1			1	2	2							3				
					5									1			1	2	2							4				
	1	1	1		2	1											2	2	2							5	6	5		
920																														
	2	3	3		4	1	1						0	2	1		1	2	2							2	7	-		
	4	1	2		4	1	1						1	3	1		0	2	2							2	7	-		
930																														
	2	2	3		4	1	1						1	3	2		1	2	2							3	4	-		
935																														
	1	1	2		5	1	1						1	3	3		1	2	2							5	3	3		
940																														
	3	2	4		6	1	1						0	2	2		0	2	2							5	-	-		
945																														
	3	2	4		6	1	1						0	2	2		0	2	2							5	-	-		
950																														
	1	1	1	2	3	1	0						1	2	1		0	2	2							2	4	-		
955																														
	1	0	1	4	4	0							0	4	1		0	1	3							4	4	-		
960																														
	1	2	1	2	5	1							2	1	2		0	2	2							5	-	3		
965																														
	5	1	4	0	4	1							1	2	1		0	2	2							3	4	7		
970																														
	1	0	2		4	1							2	2	1		0	3	2							3	5	-		
975																														
	2	2	3	1	5	1							1	3	3		1	2	2							5	-	-		
980																														

COMMENTS:

AVG. CORE REC'Y/HOLE

DESCRIPTION: GEO., MINERAL., ALT, STRUCT.

910 - Yqm

K-SPAR - CU TENORITE BIO SPHENOID OXO CLASO

913.3-913.5 RE DRILL 913.5-916.5 CLAYEY QMP KSPAR & CLAY - CU

916.9-917.5 LOW ANGL FAULT W/ CLAY & CU

Some K-SPAR-CLAY & CU BIOTITE

918-919.5 "chunks" of bio-rich, looks like clasts but is all. Strong Cu clay w/ bio abundant qtz vns w/ qtz-ksp-bio alt.

925-930' some minor Cu in QMP. Not very interesting. Fewer qtz vns & bio than above, but lots of ksp. Fluoring 927-927.8(?)

930-932.5' same, most qtz vns ~70° TCA

932.5-933' strong qtz-(bio+ksp) alt, w/ Cu clay & minor chrys, epid in bio sites

933.8-934' shattered zone, small breccia seams < 1/2".

935-940' some weakly mineralized QMP.

936.5-937' gouge/bx zone, no ∠ measurable.

938-939.5' gouge/bx, 25° TCA. Minor Cu clay & common jarosite.

940-945' fault bx, shattered & locally milled. Some low-grade QMP. numerous qtz-ksp vns w/ bio, fgs & veins various orientations.

945-950' exactly the same as above

950-953' hard QMP, looks the same but not milled. Weak Cu, only in plag sites. doubtful tiny sliver lm on fgs.

953-955' sheared fractures 30° TCA. Very red (hem) at bottom of the run

955-956.5 same

956.5-959' strongly ser(?) altered, looks etched. Intense hem development, sheared fgs 90° TCA looks almost leached.

957' 1" solid hem, 40° TCA.

959-960' Weakly altered/mineralized QMP w/ bio fine.

960-964.1' same?, shattered & locally milled

963' 4" chlot of bio-like alteration

964.1' 25° TCA top of gouge/bx zone. Abundant goe & jar in bx.

965-968' some low-grade QMP. Epidote common in bio sites.

968-969.9' v. strong qtz-kfs alteration (? dike of aplite?), no orientation visible. Fractured original QMP texture gone.

969' 1" gouge w/ Cu, 65° TCA

969-970' increase in Cu, hard rock

970-973' same?, sheared fgs w/ hem, ~10° TCA

972.5' ~1" of yellow-stained clay. ~90° TCA

973-975' shattered; pasty milled; hard to tell. Abundant hematite

975-980' lost 1' core somewhere... all fault bx w/ large frags. Little milling or just v. large frags(?)

Abundant clay & Cu clay, w/ FeOx

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
910			
2			
3			
913	1.5		
916.5			
3.5			
920			
5			
925			
5			
930			
5			
935			
5			
940			
5			
945			
5			
950			
5			
955			
5			
960			
5			
965			
5			
970			
5			
975			
5			
980			

DRAFT

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-05
SHEET 13 OF

CONTRACTOR:
CORE SIZE:
LOGGED BY:
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED:
COMPLETED:

COMMENTS:
Survey 1000 ft
43 20 0 +1 0
Corr 1000.1 INCL ~88.2

AVG. CORE REC'Y/HOLE

DESCRIPTION: GEO., MINERAL., ALT, STRUCT.

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	LIM JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY
980	1	1	2	1	5	1						1	2	3		1	2	2						5	7	3		
985	1	1	2	1	4	1						0	2	2		1	2	2						3	-	-		
990	1	1	2	1	6	1						1	2	3		1	2	2						5	-	4		
995	1		1		2	1						1	2			2	2	2						5	7	3		
1000	1	1			2	1						1	1			2	2	2						3	5			
1005		1	1		3								2			-	-	3						2	-			
1010					4								3			-	-	3						5	-			
1015					6	2						2	3			2	2	2						3	6	-		
1020					6							2	3			3	2	3						3	8	-		
1025			1		7	1										1	1	1						4	7	-		
1030	1	1			7	1										1	1	1						2	6	-		
1035	2	1	2		5	2						1	3	2		2	2	2						5	-	-		
1040	2	1	2		4	1						1	3	2		1	2	2						5	5	3		
1045	0	0	0		6	1						1	2	4		0	1	3						5	-	3		
1050					6	1						1	3	4		0	1	3						5	-	3		

DRAFT

980-992.5' fault zone; large frags & gouge w/ tr. Cu clay. 30° TCA @ bottom
992.5-995' QMP; similar to before. Qtz kap 1 bo alt, minor Cu clay in plag & fes (probably on cleavages)
995-990' QMP as before. Mod. alteration & weakly mineralized: Cu clay in plag sites.
997.5' 2"x0.5" of wispy secondary bio.
988.5' stronger clay alt (~4") w/mod. Cu clay
990-995' shattered fault zone; breccia, milled frags & gouge, streaky clay, FeOx, chlorite, minor Cu clay. Shears are 35° TCA. Difficult to identify alteration; same as above in codes.
995-1000 QMP CLAY ON SOME FRACTURES, CUOX ON FRACTURES
995-995.1 CLAY GOUGE @ 45°
1000-1000.5 CU ON FRACTURES & K-SPAR → CU
1000.5 BRECCIA ZONE 2 cm WIDE
1002.5 BAND 1-2 cm OF BLUE CU SOME TENORITE
1003.3-1012 Tgdp - Ygm MIXED
PINK PLAG PHEDCRYSTS
CORE IS SPLIT AT FAULT + 50° Tgdp CLAS QMP
1012-1017 Tgdp
EFCLASTS - CLAY - CU
CORE IS VERY SOFT K-SPAR IS SACRIFICED
1017-1020 Tgdp-Ygm mix
K-SPAR - CLAY - CU 1019.6-1020.0 CU-CLAY FOLDS/SWIRLS
1019.9 CLASTS OF Tg
1020.5-1020 - CORE IS BLUE CU W TENORITE
SOFT W/ CLAY
THIS IS SO ALTERED & ALTE NOT SURE OF ROCK TYPE
1020- Ygm
CORE IS BLUE-GREEN W/ TENORITE
1-2 cm SALMON ORTHOCLASE
1030-1035' fault breccia, all QMP. Patches of Cu clay + minor chrys + tenorite.
Slightly more competent @ bottom, not milled, but abundant clay + stronger cu in plag.
1031.5' strong tenorite in sheared zone, streaks over ~2"
1035-1038.5' same as above, QMP w/ strong fracturing + clay.
1038.5-1040' fault zone, 25° TCA @ top. Same as other fault zones, streaky FeOx + weak Cu in clay.
1040-1045' much gouge, milled frags all <2". QMP w/ weak Cu clay as before
shears 25° TCA
1045-1050 same.

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
980 5			
985 5			
990 5			
995 5			
1000 5			
1005 5			
1010			
1012 5			
1017 3.5			
1020.5 5.5			
1026 4			
1030 5			
1035 5			
1040 5			
1045 5			

HDI CURIS

LOCATION: FLORENCE
HOLE ID: Cmp 11-05
SHEET 11 OF 13

CONTRACTOR:
CORE SIZE:
LOGGED BY:
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED:
COMPLETED:

COMMENTS: Survey @1100': az 216.3° incl.-88.3° corrected az. 205.3°

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	HM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION: GEO., MINERAL, ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
1050					6	1							1	3	3		0	1	3						5	-	-			1050-1055' same, larger flags @ bottom	1050 5			
																													1055-1057' same	1055 5			
					6	1							1	2	2		0	1	3						5	-	-			1057-1065.2 Ta ← contact rubbled shattered gouge/bx 1057-1061.5	1060 5			
1060					5	0							0	1	0		0	0	3						5	-	-			quite porphyritic; white plag to 1mm. Rock is rich red brown, 5YR 3/4. still v. broken w/ gray-green clay.				
					6								1	2	3		0	1	2						5	-	-			1065.2- QMP ← contact irregular, ~25° TCA same fault bx as above 1066.5' 4" clast w/ strong CuOx min.	1065 5			
1070					6								1	4	3		0	1	3						5	-	5			1070-1074.1' same. Shears @ 40° TCA; much gouge + all flag < 1".	1070 5			
																													1074.1-1075.1 Ta-rich bx				
					6								0	4	3		1	1	2						5	-	-			1075.1-1078' mostly Tgdp; mod. Cu mineralization. chrys + tenorite locally abundant	1075 5			
																													1078-1080 all QMP bx + gouge				
1080					5								1	2	2		0	1	3						4	6	-			1080-1085' shattered QMP, not milled. Heavy clay overprint w/ v. little Cu. same as previous, just less gouge.	1080 5			
		1	1		5	1	1						1	4	3		0	1	3						5	-	3			1085-1095.6' same 1085.6-1086' tight blue clay gouge. 25° TCA. Mod. Cu clay. 1086-1089.5' shattered, well oxidized QMP w/ strong clay overprint. Same as above. 1089.5- milled QMP bx w/ gouge. Streaky FeOx. Shears 65° TCA	1085 5			
1090	-1	-1	-1	-1	-1					N	O	R	E	C	O	V	E	R	Y			-1	-1	-1	-1	-1	?	?	1090-1095' recovered 0.6' of milled bx. All in shoe, tube was empty.	1090 5			
		1	1	1	3	1	1						0	2	2		0	2	2						3	2	-			1095-1100' measurably competent QMP, sheeted fbs 15° TCA. Weak Cu clay min. in plag sites; clay seams up to ~1/4" are scattered. Seems only weakly altered; small ulcer of qtz + kfp + bio.	1095 5			
1100	1	1	2		1	1								2			2	2	2						2	6	-			1101.7 Cu on FRACTURE K-SPAR - CLAY - CU (SOME) GOOD Cu on FRACTURES 30 m² K-SPAR - CHPX → Cu	1100 3.5			
		1	1	1	2	1								2			2	2	2						3	7	-				1103.5 5			
1110		1	1		3	1							1	1			2	2	2						3	-	-			Cu on FRACTURES + K-SPAR - CLAY - CU 1110.5 - 113.5 JOINTS w CLAY + Cu	1108.5			
1120		2	2		2	1							1	1			2	2	2						4	6	-			Cu on FRACTURES - CLAY K-SPAR - CLAY - Cu + green CONSIDERABLE DIGITIK	1113.5 5.5			

DRAFT

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMD 11-05
SHEET 12 OF 13

CONTRACTOR: ____
CORE SIZE: ____
LOGGED BY: ____
SCALE: ____

ELEVATION: ____
BEARING: ____
INCLINATION: ____
TOTAL DEPTH: ____

COLLAR COORDINATES:
N: ____ E: ____
STARTED: ____
COMPLETED: ____

COMMENTS:

AVG. CORE REC'Y/HOLE

DESCRIPTION: GEO., MINERAL., ALT, STRUCT.

FOOTAGE	ALTERATION: ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		OXIDE: LIM JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	SULFIDE: MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY
1120																													
	1	2	1		<1									2			2	2	2	1					4	7	-		
	1	2	1		2	1								1			2	2	2						3				
1130	1	2	1		2	1								1			2	-	2						2	8	-		
	1	2			4	1								2			3	-	3						4	8	-		
1140	1	2			5	1							1	2			2	2	2						5	6	5		
	1	2			2	1								2			3	2	3						4	7	-		
1150	1				2	1											3	2	3						4	6	-		
	NO RECOVERY																											?	?
1160																													
	4	1	2		3	1							0	2	1		1	1	2						3	5	-		
	2	1	2		3	1							1	3	2		2	3	2						1	4	-		
1170	2	3	3		4	1	1						1	3	2		1	2	2						3	3	-		
	1	2	1		3	0	0						0	2	1		1	2	4			1			1	5	-		
1180	2	1	2		4	1							0	2	1		1	1	2			0			3	4	-		
	4	2	4		3	0							0	1	1		1	1	2						2	4	-		
1190																													

DRAFT

NEXT PAGE

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
1121			
1124			
5			
1129			
5			
1134			
5			
1139			
5			
1144			
5			
1149			
5			
1154			
5			
1159			
4			
1164			
5			
1169			
5			
1174			
5			
1179			
4			
1183			
5			
1188			
5			

1121 Yqm 2' NR

LT GREEN CuOx ON FRACTURES & SOME K-SPAR REPLACEMENT
1127.1 FINE PY-CHALCO

1126-1129 CuOx ON K-SPAR & FRACTURES

1133.7 - 1134 CLAY FRACTURE CuOx NO K-SPAR & CU
CORE LOOKS DARKER
CLAY FILLED FRACTURES W/ CU OX
QMA W/ SMALLER ORTHOCLASE & OTHER MINERALS
1141 - 1141.6 FAULT 50° W/ CU CLAY FILLED → CU, Z+ DARK GREEN
1142.3 - 1142.6 CLAY BRECCIA ZONE YELLOW 50° 0.3' THICK - HEMATITE ALSO

SOME - MINOR KSPAR - CLAY - CUOX CU ON FRACTURES
HEMATITE THIN VEIN THROUGHOUT
1152.3 - 1154 K-SPAR - CU LT GRN TENERITE
LOW COPPER

1160-1164' low-grade, reasonably competent QMP. Top 6" is redrilled fragments
1162.5' shattered 3" zone of strong ksp alt; pink-tan color w/ relict igneous tex.
v. little cu; 1163.5-1164 several chrs fms w/ chrys spots.
1164-1169 hard QMP. Deep red feldspar
1164-1166' 3/8" clay un. 10° TCA. Mod Cu, some chrys in clay.
1166-1167' strong qtz alt; v. hard w/ deep red kfs + common chrys vlts, tr. tenorite, various orientations
1169-1170' shattered, not milled, mod bio alt + strong FeOx overprint
1170-1172.5 same as above. Large ksp phenos are partially converted to biotite
1172.5-1174' shattered as . Slight increase in Cu.
1174-1177' hard QMP, uniform trace Cu in plags
1174.5' 4" frag of diorite(?) fine bio + plag.
1175.2-1179 very uniform. Trace pyr/cc @ 1172.7'

1179-1183' same weakly mineralized QMP. Locally shattered w/ abundant clay.
1181.5' several hairline vlts w/ chrysocolla
1181-1183' 1/8" vn of white clay w/ bar specks + streaks, venders across core
1183-1188. hard QMP; dead rock, v. little oxide + no sulf. Rare.
1186 2" thick ksper vein (albite of optical), 20° TCA, tr chrys in vns nearby. w/ qtz + glassy kfs.
1185'+1188' Trace Cu clay

COLLAR COORDINATES:
N: _____ E: _____
STARTED: _____
COMPLETED: _____

ELEVATION: _____
BEARING: _____
INCLINATION: _____
TOTAL DEPTH: _____

CONTRACTOR: _____
CORE SIZE: _____
LOGGED BY: _____
SCALE: _____

HDICURIS
LOCATION: FLORENCE
HOLE ID: _____
SHEET 13 OF 13

FOOTAGE	1200		1190
ALTERATION: ORTHO	2	1	1
BIO	42	1	32
QTZ	2	2	2
SER			
CLAY	3	3	3
CHL	1	1	1
EPID			
CARB			
GYPS			
ANHY			
MAG			
OXIDE: LIM	0	0	0
HEM	2	1	1
GOE	1		
CU GRAPHIC			
CUOX 1	1	0	0
CUOX 2	1	1	2
SULFIDE: MET ZONE	2	4	2
PY			
CPY			
CC	0	1	
BN			
MO			
FRACT INT	3	3	2
FRACT DIP	3	3	4
FAULT DIP	-	-	-
FRACTURING			
GEOLOGY			

DRAFT

COMMENTS:
1200 to 2160 survey
2160 rqm - 2050 - 88.4

DESCRIPTION: GEO., MINERAL., ALT., STRUCT.

- 1200' QTZ
Same as above, broad trace Cu, minor sulfides in brecciated zone.
1191.1' 2' sulfides, 50% TCA.
1192.5' 1' sulfides in alteration
1193-1197' Same very infrequent hairline sulfides 15% TCA.
1197.5-1200' same. Strong but 15% still showing traces of Cu(ox) + 2 No sulfides

TD @ 1200', out of rods.
Sulfides last supposed to be @ 1190'.

AVG. CORE REC'Y/HOLE

DRILLING INTERVAL	2.5 (1197.5)	4.5 (1193)	5
% CORE RECOVERED			
RECOVERY % BY A.I.			
SAMPLE INTERVAL			

CLIENT: FLORENCE COPPER PROJECT	Mon. Tue. Wed. Thur. Fri. Sat. Sun.	DATE: 9 / 13 /2011	**National** EXPLORATION · WELLS · PUMPS
JOB NAME: FLORENCE COPPER	RIG#: 180		DAILY ROTARY DRILL REPORT
JOB LOCATION: FLORENCE, AZ	NATIONAL JOB#: 401.030		

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
Day		PC Expl.										
		PC Expl.										
Night		PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total
NEWP Safety Meeting			
Drilling - Tri-Cone / Hammer			
Move Rig			
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
Condition Hole, Lost Circulation			
Reaming/Back Reaming			
Casing - Placing/Pulling			
Hole Abandonment			
Client Delays-Blast, Weather etc.			
Backhoe Work			
Surveying, Inclination Test			
Booster			
STAND BY	→	→	12
Maintenance			
Client Safety Meeting			
TOTAL HOURS	12		
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	NO	
PRE-SHIFT INSPECTION COMPLETED BY:	R6		

Description	Size	Product Name	Day (circle if chargeable)	Night (circle if chargeable)
Gel	50# Bag	SUPPLIED BY CLIENT.		
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag	→	2 BAGS	
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			
LCM(Explain)				
Wear Sleeve- Bladder Sub				
Bladder for Sub				
Diesel / Cost	Supplied by:	National / Client	Gal	
Gas		National / Client	Gal	
Water Haul	Miles		Loads	
Rental Equipment				
Casing Lost or Left in Hole	Size	Feet	Hole#	
Lost Tooling				

Bits	Serial Number	Size	Type (circle)	Depth In
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
	RITO GOMEZ	12	95	BRIAN REDFEARN	12	95	WILLIAM RIALS	12	95
Hours	From: To:	R6 Initials Verify Hrs & Breaks		From: To:	BK Initials Verify Hrs & Breaks		From: To:	WR Initials Verify Hrs & Breaks	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below)

Rig Days Off - From: / /2011 - To: / /2011

STAND BY WAITING ON BLAST CREW. 12HRS
RUN TRIM PIPE TO 334' TRIP OUT TRIM PIPE HOLE# CMP 11-05
BREAK HWT IN 40' SECTIONS 400' OF HWT
TOP OFF HOLE WITH CEMENT HOLE# CMP-11-06
DIG OUT 5' AROUND PWT ON HOLE# CMP11-01 CUT CASING AT 5'
BACKFILL BACK IN.
SET UP MIXER ON HOLE CMP11-05
WASH DOWN EQUIPMENT & PICK-UPS.

NEWP Supervisor: [signature] Client Signature: [signature]

Office Admin: E-FAX 800-878-4749 Invoiced:

CLIENT: Curis Resources	Mon. Tue. Wed. Thur. Fri. Sat. Sun.	DATE: 9 / 12 /2011	National EXPLORATION • WELLS • PUMPS
JOB NAME: Florence Abandonment 9:00	RIG#: 180		DAILY ROTARY DRILL REPORT
JOB LOCATION: Florence Az	NATIONAL JOB#: 401.030		

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
Day	Cmp 11-06	PC Expl.										
	Cmp 11-05	PC Expl.										
Night		PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total	Description	Size	Product Name	Day	Night
NEWP Safety Meeting	5:45	6:00	.25	Gel	50# Bag		circle if chargeable	circle if chargeable
Drilling - Tri-Cone / Hammer				Polymer	5 Gal			
Move Rig	10:00 /	11:00 /	2	Foam	Bucket			
Casing Advance/Symmetrix				Cement	94# Bag	Client Supplied		
Drill & Install Surface Casing				Abandonite	50# Bag			
Condition Hole, Lost Circulation				Hole Plug	50# Bag			
Reaming/Back Reaming				Calcium Chloride	50# Bag			
Casing - Placing/Pulling	6:00/11:30	7:00/1:00	2.5					
Hole Abandonment	1:00	2:30	1.5					
Client Delays-Blast, Weather etc.				LCM(Explain)				
Backhoe Work				Wear Sleeve- Bladder Sub				
Surveying, Inclination Test				Bladder for Sub				
Booster				Diesel / Cost	Supplied by:	National / Client / Gal		
Stand by (National)	9:00 /	10:00 /	1	Gas		National / Client / Gal		
Stand by (Client)	7:00/3:30	9:00 / 6:00	4.5	Water Haul	Miles	Loads		
Set up (grout)	11:00	11:30	.5	Rental Equipment				
Maintenance				Casing Lost or Left in Hole	Size	Feet	Hole#	
Client Safety Meeting				Lost Tooling				
TOTAL HOURS		12.25						
Lunch/Dinner								
Travel								
Any Injuries Reported Today	YES	NO						
PRE-SHIFT INSPECTION COMPLETED BY:	D. Macy			Casing Shoes				

Bits	Serial Number	Size	Type (circle)	Depth In
	—		Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
Days	Dan Macy	12.25	95	Andy Richmond	12.25	95	Dustin Stringer	12.25	95
Hours	From: 5:45am To: 6:00pm	Initials Verify Hrs & Breaks DM		From: 5:45am To: 6:00pm	Initials Verify Hrs & Breaks		From: 5:45am To: 6:00pm	Initials Verify Hrs & Breaks	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below) Rig Days Off - From: / /2011 - To: / /2011

5:45-6:00 Safety meeting / pre-op. 6:00-7:00 Cmp 11-5 pulled on PWT with air on. No progress. 7:00-9:00 Stand by for Clients decision. 9:00-10:00 stand by for decision from Nationals office. 10:00-11:00 move back to Cmp 11-6. 11:00-11:30 Set up to pump grout. 11:30-2:30 pulled PWT out of Cmp 11-6 and Abandoned hole with grout(335'). 2:30-3:30 moved back to Cmp 11-5. 3:30-6:00 Standby for ~~Newmans~~ NORMAN wireline eta Wednesday. Cmp 11-06 was abandoned with 565 gals of grout cement.

NEWP Supervisor: [signature] Client Signature: [signature]

Office Admin: E-FAX 800-878-4749 Invoiced:

CLIENT: Curis Resources	Mon. Tue. Wed. Thur. Fri. Sat. (Sun.)	DATE: 9 / 11 /2011
JOB NAME: Florence Abandonment	RIG#: 180	
JOB LOCATION: Florence Az	NATIONAL JOB#: 401.030	

National
EXPLORATION • WELLS • PUMPS
DAILY ROTARY DRILL REPORT

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
Day	Cmp 11-01	PC Expl.										
	Cmp 11-06	PC Expl.										
Night	Cmp 11-05	PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total
NEWP Safety Meeting	5:45	6:00	.25
Drilling - Tri-Cone / Hammer			
Move Rig	7:30/7:00	9:00/8:00	2
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
Condition Hole, Lost Circulation			
Reaming/Back Reaming			
Casing - Placing/Pulling			
Hole Abandonment	6:00/	7:30/	1.5
Client Delays-Blast, Weather etc.			
Backhoe Work			
Surveying, Inclination Test			
Booster			
Stand by	9:30	5:00	7.5
Stand by (Shot)	5:00/8:00	7:00/10:45	4.75
~~Secure site/clean up~~			
Maintenance			
Client Safety Meeting			
TOTAL HOURS		17	
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	(NO)	
PRE-SHIFT INSPECTION COMPLETED BY:	D. Macy		

Description	Size	Product Name	Day (circle if chargeable)	Night (circle if chargeable)
Gel	50# Bag			
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag	Client Supplied	4	
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			
LCM(Explain)				
Wear Sleeve- Bladder Sub				
Bladder for Sub				
Diesel / Cost	Supplied by:	National / Client	Gal	
Gas		National / Client	Gal	
Water Haul	Miles		Loads	
Rental Equipment				
Casing Lost or Left in Hole	Size	Feet	Hole#	
Lost Tooling				

Bits	Serial Number	Size	Type (circle)	Depth In
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
Days	Dan Macy	17	95	Andy Richmond ~~Stringer~~	17	95	Dustin Stringer	17	95
Hours	From: 5:45am To: 10:45pm	Initials Verify Hrs & Breaks DM		From: 5:45am To: 10:45pm AR	Initials Verify Hrs & Breaks		From: 5:45am To: 10:45pm	Initials Verify Hrs & Breaks	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below)

Rig Days Off - From: / /2011 - To: / /2011

5:45-6:00 Safety meeting/pre-op. 6:00-7:30 Topped off Cmp 11-01 with 4 bags of portland cement and 24 gals of water. 7:30-9:00 Moved equipment from Cmp 11-01 to Cmp 11-06. 9:00 to 9:30 set up to pull PVC casing out of Cmp 11-06. 9:30-5:00 Standby for blast crew. 5:00-7:00 standby for shot on Cmp 11-06, it was a success. 7:00-800 moved to hole # Cmp 11-5. 8:00-10:45 Stand by for shot, no progress. Secured site and cleaned up. Neil Hale was a tremendous help today. Thanks

NEWP Supervisor: Neil Hale

Client Signature:

Office Admin:

E-FAX 800-878-4749

Invoiced:

V

CLIENT: Curis Resource	Mon. Tue. Wed. Thur. Fri. Sat. Sun.	DATE: 9 / 10 /2011	**National** EXPLORATION • WELLS • PUMPS
JOB NAME: Florence Abandonment	RIG#: 180		DAILY ROTARY DRILL REPORT
JOB LOCATION: Florence Az	NATIONAL JOB#: 401.030		

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
Day	Cmp-11-05	PC Expl.										
	Cmp-11-06	PC Expl.										
Night	Cmp-11-01	PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total
NEWP Safety Meeting	5:45	6:00	.25
Drilling - Tri-Cone / Hammer			
Move Rig	6:00/10:00	7:00/11:00	2
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
Condition Hole, Lost Circulation			
Reaming/Back Reaming			
Casing - Placing/Pulling	7:00	10:00	3
Hole Abandonment	12:30	3:00	2.5
Client Delays-Blast, Weather etc.			
Backhoe Work			
Surveying, Inclination Test			
Booster			
Plugged pump	12:00	12:30	.5
Trimmy pipe in/out	11:00	11:45	[illegible]
Maintenance	3:00	6:00	3
Client Safety Meeting			
TOTAL HOURS		12.25	
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	NO	
PRE-SHIFT INSPECTION COMPLETED BY:	D. Macy		

Description	Size	Product Name	Day (circle if chargeable)	Night (circle if chargeable)
Gel	50# Bag			
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag	Client Supplied	56	
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			
LCM(Explain)				
Wear Sleeve- Bladder Sub				
Bladder for Sub				
Diesel / Cost	Supplied by:	National / Client	Gal	
Gas		National / Client	Gal	
Water Haul	Miles		Loads	
Rental Equipment				
Casing Lost or Left in Hole	Size	Feet	Hole#	
Lost Tooling				

Bits	Serial Number	Size	Type (circle)	Depth In
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
Days	Dan Macy	12.25	95	Andy Richmond	12.25	95	Dustin Stringer	12.25	95
Hours	From: 5:45am To: 6:00pm	DM Initials Verify Hrs & Breaks		From: 5:45am To: 6:00pm	AR Initials Verify Hrs & Breaks		From: 5:45am To: 6:00pm	DS Initials Verify Hrs & Breaks	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below) Rig Days Off - From: / /2011 - To: / /2011

5:45-6:00 Safety meeting /pre op. 6:00-7:00 move from Cmp 11-5 to Cmp 11-6. 7:00-10:00 pull on PUT casing with no progress. 10:00-11:00 move to Cmp 11-01. Tripped in trimmy pipe, pump was plugged with paper bag. fixed pump and grouted hole with 385gals of water and 56 bags of portland Cement. Cleaned Trimmy. 3:00-6:00 fixed pressure washer, broken bolt on hydro pump of Drill.

NEWP Supervisor: [signature] Client Signature: [signature]

Office Admin: E-FAX 800-878-4749 Invoiced:

CLIENT: Curis Resources	Mon. Tue. Wed. (Thur.) Fri. Sat. Sun.	DATE: 9 / 8 /2011	**National** EXPLORATION • WELLS • PUMPS
JOB NAME: Florence Abandonment	RIG#: 180		DAILY ROTARY DRILL REPORT
JOB LOCATION: Florence Az	NATIONAL JOB#: 401.030		

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
(Day)	Cmp 11-06	PC Expl.										
		PC Expl.										
Night	Cmp 11-05	PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total
(NEWP Safety Meeting)	5:45	6:00	(.25)
Drilling - Tri-Cone / Hammer			
(Move Rig)	8:00	9:00	(1)
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
Condition Hole, Lost Circulation			
Reaming/Back Reaming			
Casing - Placing/(Pulling)	6:00	5:45	(9.75)
Hole Abandonment			
Client Delays-Blast, Weather etc.			
Backhoe Work			
Surveying, Inclination Test			
Booster			
Stand by (Shot)	11:00	12:00	(1)
Maintenance			
Client Safety Meeting			
TOTAL HOURS		12	
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	(NO)	
PRE-SHIFT INSPECTION COMPLETED BY:	D. Macy		

Description	Size	Product Name	Day	Night
Gel	50# Bag		circle if chargeable	circle if chargeable
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag			
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			
LCM(Explain)				
Wear Sleeve- Bladder Sub				
Bladder for Sub				
Diesel / Cost 3.89	Supplied by:	(National) Client Gal	183	
Gas		National Client Gal		
Water Haul	Miles	Loads		
Rental Equipment				
Casing Lost or Left in Hole	Size	Feet	Hole#	
Lost Tooling				

Bits	Serial Number	Size	Type (circle)	Depth In
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
D	Dan Macy	12	95	Andy Richmond	12	95	Dustin Stringer	12	95
Hours	From: 5:45am To: 5:45pm	Initials Verify Hrs & Breaks: DM		From: 5:45am To: 5:45pm	Initials Verify Hrs & Breaks: AR		From: 5:45am To: 5:45pm	Initials Verify Hrs & Breaks: DS	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below)

Rig Days Off - From: / /2011 - To: / /2011

5:45-6:00 Safety meeting / Pre-op. 6:00-8:00 pulled on PWT Casing hole # Cmp 11-06 with no progress. 8:00-9:00 Rigged down and moved to hole # Cmp 11-05 Set up to pull HWT casing. 9:00-11:00 Pulled HWT with no progress. 11:00-12:00 Helped wire line rig up to shoot HWT. Shot was successful, Pulled 440' HWT out of hole # Cmp 11-5 12:00-2:00. Changed over to pull PWT at 2:00. Pulled on PWT hole # Cmp 11-05 from 2:00-5:30. Secured site left rig at 5:45pm.

NEWP Supervisor:	Client Signature:	
Office Admin:	E-FAX 800-878-4749	Invoiced:

CLIENT: Curis Resources

Mon. Tue. Wed. Thur. Fri. Sat. Sun.

DATE: 9 / 7 /2011

JOB NAME: Florence Abandonment

RIG#: 180

JOB LOCATION: Florence Az

NATIONAL JOB#: 401.030

National
EXPLORATION • WELLS • PUMPS
DAILY ROTARY DRILL REPORT

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
Day	Cmp11-06	PC Expl.										
		PC Expl.										
Night		PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total
NEWP Safety Meeting	4:00	4:30	.5
Drilling - Tri-Cone / Hammer			
Move Rig			
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
Condition Hole, Lost Circulation			
Reaming/Back Reaming			
Casing - Placing/Pulling	4:30	7:00	2.5
Hole Abandonment			
Client Delays-Blast, Weather etc.			
Backhoe Work			
Surveying, Inclination Test			
Booster			
Yard	11:00	2:00	3
Site Training	2:00	3:00	1
Set Up	3:00	4:00	1
Maintenance			
Client Safety Meeting			
TOTAL HOURS		8	
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	NO	
PRE-SHIFT INSPECTION COMPLETED BY:	D. Macy		

Description	Size	Product Name	Day (circle if chargeable)	Night (circle if chargeable)
Gel	50# Bag			
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag			
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			
LCM(Explain)				
Wear Sleeve- Bladder Sub				
Bladder for Sub				

Diesel	Cost		Supplied by:	National	Client	Gal
Gas				National	Client	Gal
Water Haul			Miles			Loads
Rental Equipment	Light Plant					
Casing Lost or Left in Hole	Size		Feet		Hole#	
Lost Tooling						

Bits	Serial Number	Size	Type (circle)	Depth In
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
D	Dan Macy	8	Ø	Andy Richmond	8	Ø	Dustin Stringer	8	Ø
Hours	From: 11:00am To: 7:00pm	Initials Verify Hrs & Breaks DM		From: 11:00am To: 7:00pm	Initials Verify Hrs & Breaks AR		From: 11:00am To: 7:00pm	Initials Verify Hrs & Breaks DS	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below)

Rig Days Off - From: / /2011 - To: / /2011

Went to Gilbert yard to meet with James and pick up 3 job sheets, 1 side inlet, 2 Air needles, 2 spring sets fo 60" wrench and Company Credit Card. Returned to site for Site trainging. Moved Equipment to pad, set up and tried to move PWT casing.

NEWP Supervisor:

Client Signature:

Office Admin:

E-FAX 800-878-4749

Invoiced:

CLIENT: FLORENCE COPPER PROJ.	Mon. Tue. (Wed.) Thur. Fri. Sat. Sun.	DATE: 6 / 29 /2011	**National** EXPLORATION • WELLS • PUMPS
JOB NAME:	RIG#: 180		DAILY ROTARY DRILL REPORT
JOB LOCATION: FLORENCE, AZ	NATIONAL JOB#: 401.030		

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
Day	ALF04	(PC) Expl.	90°	6¾ TRI-CONE	0'	428½			428½			
	CMP11-06	PC Expl.										
Night		PC Expl.										
		PC Expl.										

Hourly Distribution	From	To	Total
NEWP Safety Meeting / INSP	12:00	12:30	½
Drilling - (Tri-Cone) / Hammer	2:00pm	10:00pm	8
Move Rig SETTING UP	12:30	2:00	1½
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
(Condition Hole), Lost Circulation	10:00pm	11:00pm	1
Reaming/Back Reaming			
Casing - Placing/Pulling			
Hole Abandonment			
Client Delays-Blast, Weather etc.			
Backhoe Work			
Surveying, Inclination Test			
Booster			
TRIP OUT	11:00pm	12:00am	1
Maintenance			
Client Safety Meeting			
TOTAL HOURS	12		
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	NO	
PRE-SHIFT INSPECTION COMPLETED BY:			

Description	Size	Product Name	Day	Night
Gel	50# Bag		circle if chargeable	circle if chargeable
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag			
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			
LCM(Explain)				
Wear Sleeve- Bladder Sub				
Bladder for Sub				
Diesel — Cost $399	Supplied by:	(National) Client Gal	102.335 GAL	
Gas		National Client Gal		
Water Haul	Miles	Loads		
Rental Equipment				
Casing Lost or Left in Hole	Size	Feet	Hole#	
Lost Tooling				

Bits	Serial Number	Size	Type (circle)	Depth In
USED	06F171955	6¾	Hammer Carbide (Steel) Deephole	0'
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
	RITO C GOMEZ	12	95	BRIAN REDFEARN	12	95	WILLIAM RIALS	12	95
Hours	From: 12:00pm To: 12:00pm	R6 Initials Verify Hrs & Breaks		From: 12:00pm To: 12:00am	BR Initials Verify Hrs & Breaks		From: 12:00 To: 12:00	WR Initials Verify Hrs & Breaks	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below) — Rig Days Off - From: / /2011 - To: / /2011

CIRCULATE HOLE FOR AN HR.
DRILL MUD ROTARY 6¾ 0'-428½ FEET.
TRIP OUT - FROM 428-0'
1-BOX ~~GRASE~~ GREASE FITTING, 1-VITRA BIVESEALER, 1-1" RACLET STRAP, 1-2" RACHET STRAP, 1-FIRE EX WITH MOUNT, 1-SET OF WHEEL CHOCK, 3-5GAL Hydraulic 68, 1-6" MALE TO 4" MALE, 1-4" Elbow, 2-SAFETY CHAINS, 1-GROUNDING ROD, 1-50' WATER HOSE, 1-WATER HOSE NOZZLE,

NEWP Supervisor: NEIL HALE — Client Signature: [signature]

Office Admin: — E-FAX 800-878-4749 — Invoiced:

CLIENT: Florence copper project	Mon. Tue. (Wed.) Thur. Fri. Sat. Sun.	DATE: 4 / 30 /2011	**National** EXPLORATION • WELLS • PUMPS
JOB NAME:	RIG#: 180		DAILY ROTARY DRILL REPORT
JOB LOCATION: Florence	NATIONAL JOB#: 401.030		

Shift	Hole No.	Pre-Collar or Exploration	Angle	Bit Size & Type	FOOTAGE SUMMARY Drilling From	Drilling To	Reaming From	Reaming To	Total Footage Drilled	Total Footage Reamed	Total Casing in Hole Size	Total Casing in Hole Footage
Day		PC Expl.										
MIDNIGHT - NOON		PC Expl.										
Night	Alt 04	PC Expl.										
	CMP11-06	PC Expl.										

Hourly Distribution	From	To	Total
NEWP Safety Meeting	12:00	12:30	½
Drilling - Tri-Cone / Hammer	6:30	12:00 N	5½
Move Rig	~~1:30~~	~~4:30~~	~~3~~
Casing Advance/Symmetrix			
Drill & Install Surface Casing			
Condition Hole, Lost Circulation	5:45 am	6:30 am	45 min
Reaming/Back Reaming		5:45 AM	
Casing - Placing/Pulling	12:30	~~6:30~~	~~5½~~
Hole Abandonment			
Client Delays-Blast, Weather etc.			
Backhoe Work	8:30	9:30	1 hr
Surveying, Inclination Test			
Booster			
Maintenance			
Client Safety Meeting			
TOTAL HOURS		12	
Lunch/Dinner			
Travel			
Any Injuries Reported Today	YES	NO	
PRE-SHIFT INSPECTION COMPLETED BY:			

Description	Size	Product Name	Day (circle if chargeable)	Night (circle if chargeable)
Gel	50# Bag			
Polymer	5 Gal			
Foam	Bucket			
Cement	94# Bag			
Abandonite	50# Bag			
Hole Plug	50# Bag			
Calcium Chloride	50# Bag			
LCM(Explain)				
Wear Sleeve- Bladder Sub				
Bladder for Sub				
Diesel / Cost	Supplied by:	National / Client	Gal	
Gas / Cost	Supplied by:	National / Client	Gal	
Water Haul	Miles		Loads	
Rental Equipment				
Casing Lost or Left in Hole	Size	Feet	Hole#	
Lost Tooling				

Bits	Serial Number	Size	Type (circle)	Depth In
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
			Hammer Carbide Steel Deephole	
Casing Shoes				

Shift	DRILLERS	Hours	PD	DRILLING ASSISTANTS	Hours	PD	DRILLING ASSISTANTS	Hours	PD
M	Robert Wineman	12	95.00	Dustin Stringer	12	95.00	Andy Richmond	12	95.00
Hours	From: 1145 pm To: 12:00 pm	Initials Verify Hrs & Breaks		From: 11 45 To: 12:00	Initials Verify Hrs & Breaks		From: 11:45 To: 12:00	Initials Verify Hrs & Breaks	
Extra									
Hours	From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks		From: To:	Initials Verify Hrs & Breaks	

Remarks: (Note any Pre-Shift inspection problems below) Rig Days Off - From: / /2011 - To: / /2011

Get to ~~[illegible]~~ site @ 11:45, check out equip., set up to run casing, start casing @ 12:30, finished casing @ 6:30 AM, clean all equipment get packed up to move to next site
used 2⅞ to put pin plug & 2⅞ lifting plug

CASING shoe # 1A10276 (2A0) supplied by client

NEWP Supervisor: Client Signature:

Office Admin: E-FAX 800-878-4749 Invoiced:

HDI CURIS **Florence**

GEOTECHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
3	Planar-rough
4	Undulating-slickensided
5	Undulating-smooth
6	Undulating-rough
7	Stepped-slickensided
8	Stepped-smooth
9	Stepped-rough

Hole-ID CMP11-06

Page 1-5 of 5

Logged by R. Majalca, D. York

Signed

Box	Drill Run (ft)			Core Recovery		RQD		Intact Rock Strength				Joint
No.	From	To	Interval	TCR (ft)	TCR %	RQD (ft)	RQD %	Strong	Weak	Weak (ft)	Weak %	Condition
	429	431.5	2.5	1.7	68	0	0	R5	-	-	-	3
	431.5	436.5	5	4.7	94	3.6	76.59574	R5	R4	0.3	6.382979	3
	436.5	440	3.5	3.4	97.14286	2.5	73.52941	R4	R0	0.3	8.823529	6
	440	445	5	4.3	86	4	93.02326	R5	R0	0.9	20.93023	6
	445	450	5	4.6	92	4	86.95652	R4	R0	0.9	19.56522	1
	450	455	5	4.6	92	4.5	97.82609	R4	R0	1.5	32.6087	6
	455	460	5	4.9	98	4.7	95.91837	R5	-	-	-	1
	460	465	5	4.8	96	4.2	87.5	R4	R3	1.6	33.33333	6
	465	470	5	4.6	92	4.1	89.13043	R1	R0	0.3	6.521739	6
	470	475	5	5	100	5	100	R3	-	-	-	6
	475	480	5	4.7	94	4.3	91.48936	R4	R3	1.9	40.42553	3
	480	485	5	4.9	98	0.8	16.32653	R3	R0	0.3	6.122449	3
	485	490	5	4.9	98	1.8	36.73469	R3	R0	0.2	4.081633	3
	490	494	4	3.3	82.5	0	0	R#	R1	0.4	12.12121	3
	494	498	4	4.2	105	0.8	19.04762	R3	-	-	-	3
	498	500.5	2.5	2.4	96	1.2	50	R3	-	-	-	3
	500.5	505.5	5	4.9	98	1.3	26.53061	R3	R0	0.7	14.28571	3
	505.5	510	4.5	4.6	102.2222	0	0	R3	R1	1	21.73913	6
	510	515	5	4.6	92	0.4	8.695652	R4	R1	1.3	28.26087	3
	515	520	5	5.2	104	1.8	34.61538	R3	R0	0.4	7.692308	6
	520	525	5	4.9	98	0	0	R2	R0	0.8	16.32653	6
	525	530	5	4.7	94	2.6	55.31915	R3	-	-	-	5
	530	535	5	5	100	0	0	R2	R1	0.5	10	6
	535	540	5	5	100	0.8	16	R3	R1	1	20	6
	540	545	5	4.6	92	3.7	80.43478	R3	R1	0.2	4.347826	6
	545	550	5	4.3	86	3.9	90.69767	R3	R1	0.1	2.325581	6
	550	552	2	1.6	80	0	0	R3	R0	0.2	12.5	5
	552	557	5	4.5	90	1.7	37.77778	R3	R0	0.4	8.888889	6
	557	558	1	NR	NR	NR	NR	NR	NR	NR	NR	NR
	558	560	2	2	100	1	50	R4	R3	0.2	10	6
	560	565	5	4.8	96	4.5	93.75	R3	R1	1.2	25	2
	565	570	5	4.7	94	2	42.55319	R4	R0	0.3	6.382979	8
	570	575	5	5	100	1.4	28	R3	R2	2.6	52	6

HDI CURIS **Florence**

GEOTECHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
3	Planar-rough
4	Undulating-slickensided
5	Undulating-smooth
6	Undulating-rough
7	Stepped-slickensided
8	Stepped-smooth
9	Stepped-rough

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Logged by R. Majalca, D. York

Signed

Box	Drill Run (ft)			Core Recovery		RQD		Intact Rock Strength				Joint
No.	From	To	Interval	TCR (ft)	TCR %	RQD (ft)	RQD %	Strong	Weak	Weak (ft)	Weak %	Condition
	575	580	5	4.9	98	4	81.63265	R4	-	-	-	6
	580	585	5	4.8	96	4.4	91.66667	R3	-	-	-	5
	585	590	5	4.8	96	4	83.33333	R4	R3	0.5	10.41667	9
	590	595	5	4.7	94	4.2	89.3617	R2	R0	0.3	6.382979	3
	595	600	5	4.5	90	4	88.88889	R2	R1	1	22.22222	6
	600	605	5	4.8	96	4.3	89.58333	R3	R2	0.5	10.41667	6
	605	610	5	4.6	92	4	86.95652	R1	-	-	-	6
	610	615	5	5.2	104	1.8	34.61538	R3	R1	0.7	13.46154	6
	615	620	5	4.8	96	1.5	31.25	R3	R0	0.5	10.41667	6
	620	625	5	4.9	98	0	0	R3	R1	0.3	6.122449	3
	625	630	5	4.8	96	1.4	29.16667	R3	R0	0.2	4.166667	3
	630	635	5	4.8	96	0	0	R3	R0	0.3	6.25	9
	635	640	5	4.7	94	0	0	R3	R1	1.5	31.91489	9
	640	644	4	3.6	90	0.4	11.11111	R2	R0	1	27.77778	1
	644	648	4	3.4	85	0	0	R3	R0	0.2	5.882353	9
	648	651	3	2.7	90	0	0	R3	R0	0.6	22.22222	9
	651	656	5	5	100	0	0	R3	R2	2	40	3
	656	660	4	4	100	0	0	R2	R0	0.2	5	9
	660	664	4	3.9	97.5	0	0	R2	-	-	-	9
	664	669	5	4.6	92	3.8	82.6087	R2	R0	1	21.73913	9
	669	674	5	4.8	96	4.3	89.58333	R2	R0	0.2	4.166667	9
	674	679.5	5.5	4.9	89.09091	3.1	63.26531	R2	-	-	-	2
	679.5	684.5	5	4.8	96	4.2	87.5	R3	R0	0.3	6.25	6
	684.5	690	5.5	4.9	89.09091	4	81.63265	R3	R0	1.2	24.4898	2
	690	695	5	4.6	92	3.4	73.91304	R4	R0	0.1	2.173913	1
	695	700	5	4.6	92	3.6	78.26087	R4	-	-	-	8
	700	703.5	3.5	3.5	100	1	28.57143	R4	-	-	-	6
	703.5	708	4.5	3.8	84.44444	0.8	21.05263	R4	-	-	-	6
	708	710	2	2	100	1.5	75	R4	-	-	-	3
	710	715	5	4.8	96	1.5	31.25	R4	-	-	-	3
	715	720	5	4.5	90	1.8	40	R3	-	-	-	3
	720	725	5	4.8	96	0.9	18.75	R3	R1	0.3	6.25	6
	725	730	5	3.7	74	0.4	10.81081	R3	-	-	-	6

HDI CURIS **Florence**

GEOTECHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
3	Planar-rough
4	Undulating-slickensided
5	Undulating-smooth
6	Undulating-rough
7	Stepped-slickensided
8	Stepped-smooth
9	Stepped-rough

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Logged by R. Majalca, D. York

Signed

Box	Drill Run (ft)			Core Recovery		RQD		Intact Rock Strength				Joint
No.	From	To	Interval	TCR (ft)	TCR %	RQD (ft)	RQD %	Strong	Weak	Weak (ft)	Weak %	Condition
	730	735	5	5.1	102	0	0	R3	-	-	-	3
	735	740	5	4.9	98	0	0	R3	-	-	-	3
	740	745	5	5	100	0	0	R3	R0	0.3	6	6
	745	749	4	3.7	92.5	0	0	R3	R0	0.5	13.51351	9
	749	751	2	1.5	75	0	0	R3	-	-	-	6
	751	755	4	3.5	87.5	0	0	R3	-	-	-	3
	755	758	3	1.4	46.66667	0	0	R3	R0	0.1	7.142857	6
	758	761.5	3.5	3.5	100	1.2	34.28571	R3	R0	0.4	11.42857	3
	761.5	766.5	5	4.7	94	2.9	61.70213	R4	-	-	-	6
	766.5	771.5	5	4.8	96	2.4	50	R4	R0	0.2	4.166667	1
	771.5	777	5.5	4.8	87.27273	2.5	52.08333	R3	R1	1	20.83333	6
	777	782	5	4.2	84	3.9	92.85714	R2	R0	0.9	21.42857	6
	782	787	5	4.6	92	3.8	82.6087	R3	R1	0.1	2.173913	3
	787	792	5	4.8	96	4.2	87.5	R4	R1	0.6	12.5	6
	792	797	5	5	100	2.2	44	R3	R1	0.7	14	3
	797	800	3	2.4	80	0	0	R3	R0	0.1	4.166667	3
	800	805	5	4.9	98	0	0	R3	R0	1.2	24.4898	6
	805	810	5	4.8	96	1	20.83333	R3	R0	0.2	4.166667	6
	810	815	5	4	80	0	0	R3	R0	0.3	7.5	9
	815	820	5	5	100	0.4	8	R3	R2	1	20	6
	820	825	5	5.1	102	0	0	R3	-	-	-	3
	825	830	5	5	100	0.6	12	R3	R2	0.2	4	3
	830	835	5	5	100	0	0	R3	R2	1.1	22	9
	835	840	5	4.3	86	3.4	79.06977	R3	R0	0.8	18.60465	3
	840	845	5	4.4	88	2.9	65.90909	R2	R0	2.8	63.63636	6
	845	846	1	1.3	130	1.2	92.30769	R1	R0	0.3	23.07692	-
	846	850	4	3.5	87.5	3.5	100	R2	R0	1.1	31.42857	6
	850	855	5	4.5	90	4.2	93.33333	R2	R1	2	44.44444	6
	855	860	5	4.5	90	3.7	82.22222	R1	-	-	-	6
	860	865	5	4.3	86	4	93.02326	R0	-	-	-	3
	865	870	5	3.9	78	3.5	89.74359	R3	R0	1.3	33.33333	3
	870	875	5	4.4	88	3.8	86.36364	R2	-	-	-	3
	875	880	5	4.4	88	3.2	72.72727	R3	R0	0.1	2.272727	6

HDI CURIS **Florence**

GEOTECHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
3	Planar-rough
4	Undulating-slickensided
5	Undulating-smooth
6	Undulating-rough
7	Stepped-slickensided
8	Stepped-smooth
9	Stepped-rough

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Logged by R. Majalca, D. York

Signed

Box	Drill Run (ft)			Core Recovery		RQD		Intact Rock Strength				Joint
No.	From	To	Interval	TCR (ft)	TCR %	RQD (ft)	RQD %	Strong	Weak	Weak (ft)	Weak %	Condition
	880	885	5	4.9	98	3.4	69.38776	R4	R3	1.4	28.57143	2
	885	890	5	4.6	92	1.3	28.26087	R4	-	-	-	3
	890	895	5	3.2	64	0.4	12.5	R2	R0	0.2	6.25	2
	895	900	5	4.7	94	2.8	59.57447	R3	R)	0.3	6.382979	6
	900	905	5	5	100	0	0	R3	R0	0.4	8	3
	905	910	5	5	100	0	0	R3	R1	1.3	26	3
	910	915	5	4.8	96	0	0	R3	R1	0.2	4.166667	3
	915	920	5	4.8	96	1.5	31.25	R3	R0	0.6	12.5	3
	920	925	5	4.7	94	0	0	R2	R1	0.6	12.76596	9
	925	930	5	4.4	88	0.5	11.36364	R4	R3	2	45.45455	6
	930	935	5	5	100	0.7	14	R3	R0	2	40	3
	935	940	5	5	100	1	20	R3	R0	0.3	6	3
	940	945	5	5	100	0	0	R3	R0	0.4	8	3
	945	950	5	4.7	94	2.8	59.57447	R3	R0	0.3	6.382979	3
	950	955	5	5.2	104	1.2	23.07692	R3	R0	0.2	3.846154	3
	955	960	5	5	100	0	0	R3	R0	0.2	4	6
	960	965	5	4.8	96	4.8	100	R3	-	-	-	3
	965	970	5	4.9	98	4.7	95.91837	R3	-	-	-	3
	970	975	5	1.7	34	0.7	41.17647	R3	-	-	-	3
	975	980	5	5.1	102	0.6	11.76471	R3	R0	3.6	70.58824	6
	980	985	5	5.2	104	0	0	R3	R1	0.9	17.30769	3
	985	990	5	3.4	68	2.8	82.35294	R3	R0	0.2	5.882353	2
	990	995	5	4.7	94	3.7	78.7234	R3	R0	0.5	10.6383	3
	995	1000	5	4.7	94	4.4	93.61702	R3	-	-	-	2
	1000	1005	5	4.3	86	2.8	65.11628	R3	R0	0.1	2.325581	2
	1005	1010	5	4.7	94	4.6	97.87234	R3	R0	0.4	8.510638	3
	1010	1014.5	4.5	4.3	95.55556	3.9	90.69767	R3	R2	0.4	9.302326	6
	1014.5	1020	5.5	4.9	89.09091	2.8	57.14286	R3	R0	0.6	12.2449	2
	1020	1025	5	4.4	88	3.9	88.63636	R3	R2	0.1	2.272727	5
	1025	1030	5	4.8	96	2.8	58.33333	R4	-	-	-	3
	1030	1035	5	4.7	94	2.9	61.70213	R4	-	-	-	6
	1035	1040	5	4.9	98	3.9	79.59184	R4	R3	1.5	30.61224	6
	1040	1045	5	4.9	98	0	0	R$	R1	0.9	18.36735	3

HDI CURIS **Florence**

GEOTECHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
3	Planar-rough
4	Undulating-slickensided
5	Undulating-smooth
6	Undulating-rough
7	Stepped-slickensided
8	Stepped-smooth
9	Stepped-rough

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Logged by R. Majalca, D. York

Signed

Box	Drill Run (ft)			Core Recovery		RQD		Intact Rock Strength				Joint
No.	From	To	Interval	TCR (ft)	TCR %	RQD (ft)	RQD %	Strong	Weak	Weak (ft)	Weak %	Condition
	1045	1050	5	4.9	98	0.4	8.163265	R3	R0	0.3	6.122449	3
	1050	1055	5	4.6	92	2	43.47826	R3	R0	0.7	15.21739	2
	1055	1060	5	4	80	0	0	R4	R0	0.6	15	9
	1060	1065	5	5	100	0	0	R4	-	-	-	9
	1065	1070	5	5.1	102	0	0	R0	R0	0.2	3.921569	3
	1070	1075	5	5	100	0	0	R1	-	-	-	9
	1075	1080	5	4.7	94	0	0	R0	R0	0.3	6.382979	9
	1080	1085	5	3	60	0	0	R1	R0	0.4	13.33333	9
	1085	1088	3	5	166.6667	0	0	R2	R0	0.8	16	9
	1088	1090	2	1.7	85	0	0	R3	R0	1.5	88.23529	9
	1090	1095	5	4.5	90	0	0	R3	R)	0.9	20	9
	1095	1100	5	4.4	88	3.6	81.81818	R2	R0	0.2	4.545455	6
	1100	1105	5	4.4	88	3.9	88.63636	R2	-	-	-	6
	1105	1110	5	4.9	98	4.2	85.71429	R3	-	-	-	1
	1110	1115	5	4.8	96	4.8	100	R3	-	-	-	6
	1115	1118	3	2.5	83.33333	2.4	96	R2	-	-	-	6
	1118	1120	2	1.8	90	1.1	61.11111	R1	-	-	-	3
	1120	1125	5	4.7	94	4.4	93.61702	R2	-	-	-	3
	1125	1130	5	4.7	94	4.4	93.61702	R2	R0	1	21.2766	3
	1130	1135	5	4.7	94	0	0	R4	-	-	-	9
	1135	1140	5	4.8	96	2.2	45.83333	R4	-	-	-	3
	1140	1145	5	5.2	104	3	57.69231	R4	-	-	-	3

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Florence Project

GEOTECHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
3	Planar-rough
4	Undulating-slickensided
5	Undulating-smooth
6	Undulating-rough
7	Stepped-slickensided
8	Stepped-smooth
9	Stepped-rough

Hole-ID CMP11-06

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Logged by _____

Signed _____

Box No.	Drill Run (ft)			Core Recovery		RQD		Intact Rock Strength				Joint
	From	To	Interval	TCR (ft)	TCR %	RQD (ft)	RQD %	Strong	Weak	Weak (ft)	Weak %	Condition
	429	431.5		1.7		0		R5	—	—		3
	431.5	436.5		4.7		3.6		R5	R4	0.3		3
	436.5	440		3.4		2.5		R4	R0	0.3		6
	440	445		4.3		4.0		R5	R0	0.9		6
	445	450		4.6		4.0		R4	R0	0.9		1
	450	455		4.6		4.5		R4	R0	1.5		6
	455	460		4.9		4.7		R5	—	—		1
	460	465		4.8		4.2		R4	R3	1.6		6
	465	470		4.6		4.1		R2	R0	0.3		6
	470	475		5.0		5.0		R3	—	—		6
	475	480		4.7		4.3		R4	R3	1.9		3
	480	485		4.9		0.8		R3	R0	0.3		3
	485	490		4.9		1.8		R3	R0	0.2		3
	490	494		3.3		0		R3	R1	0.4		3
	494	498		4.2		0.8		R3	—	—		3
	498	500.5		2.4		1.2		R3	—	—		3
	500.5	505.5		4.9		1.3		R3	R0	0.7		3
	505.5	510		4.6		0		R3	R1	1.0		6
	510	515		4.6		0.4		R4	R1	1.3		3
	515	520		5.2		1.8		R3	R0	0.4		6
	520	525		4.9		0		R2	R0	0.8		6
	525	530		4.7		2.6		R3	—	—		5
	530	535		5.0		0		R2	R1	0.5		6
	535	540		5.0		0.8		R3	R1	1.0		6
	540	545		4.6		3.7		R3	R1	0.2		6
	545	550		4.3		3.9		R3	R1	0.1		6
	550	552		1.6		0		R3	R0	0.2		5
	552	557		4.5		1.7		R3	R0	0.4		6
	557	558		—		—		—	—	—		—
	558	560		2.0		1.0		R4	R3	0.2		6
	560	565		4.8		4.5		R3	R1	1.2		2
	565	570		4.7		2.0		R4	R0	0.3		8

HDI CURIS **Florence Project** GEOTECHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
3	Planar-rough
4	Undulating-slickensided
5	Undulating-smooth
6	Undulating-rough
7	Stepped-slickensided
8	Stepped-smooth
9	Stepped-rough

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Logged by

Signed

Box No.	Drill Run (ft) From	Drill Run (ft) To	Interval	Core Recovery TCR (ft)	TCR %	RQD RQD (ft)	RQD %	Intact Rock Strength Strong	Weak	Weak (ft)	Weak %	Joint Condition
	570	575		5		1.4		R3	R2	2.6		6
	575	580		4.9		4.0		R4	—	—		3
	580	585		4.8		4.4		R3	—	—		5
	585	590		4.8		4.0		R4	R3	0.5		9
	590	595		4.7		4.2		R2	R0	0.3		3
	595	600		4.5		4.0		R2	R1	1.0		6
	600	605		4.4		4.3		R3	R2	0.5		6
	605	610		4.6		4.0		R2	—	—		6
	610	615		5.2		1.8		R3	R1	0.7		6
	615	620		4.8		1.5		R3	R0	0.5		6
	620	625		4.9		0		R3	R1	0.3		3
	625	630		4.8		1.4		R3	R0	0.2		3
	630	635		4.8		0		R3	R0	0.3		9
	635	640		4.7		0		R2	R1	1.5		9
	640	644		3.6		0.4		R3	R0	1.0		1
	644	648		3.4		0		R3	R0	0.2		9
	648	651		2.7		0		R3	R0	0.6		9
	651	656		5.0		0		R3	R2	2.0		3
	656	660		4.0		0		R2	R0	0.2		9
	660	664		3.9		0		R2	—	—		9
	664	669		4.6		3.8		R2	R0	1		9
	669	674		4.8		4.3		R2	R0	0.2		9
	674	679.5		4.9		3.1		R2	—	—		2
	679.5	684.5		4.8		4.2		R3	R0	0.3		6
	684.5	690		4.9		4.0		R3	R0	1.2		2
	690	695		4.6		3.4		R4	R0	0.1		1
	695	700		4.6		3.6		R4	—	—		8
	700	703.5		3.5		1.0		R4	—	—		6
	703.5	708		3.8		0.8		R4	—	—		6
	708	710		2.0		1.5		R4	—	—		3
	710	715		4.8		1.5		R4	—	—		3
	715	720		4.5		1.8		R3	—	—		3

HDI CURIS

Florence Project

GEOTECHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
3	Planar-rough
4	Undulating-slickensided
5	Undulating-smooth
6	Undulating-rough
7	Stepped-slickensided
8	Stepped-smooth
9	Stepped-rough

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Box No.	Drill Run (ft) From	To	Interval	Core Recovery TCR (ft)	TCR %	RQD (ft)	RQD %	Intact Rock Strength Strong	Weak	Weak (ft)	Weak %	Joint Condition
	720	725		4.8		0.9		R3	R1	0.3		6
	725	730		3.7		0.4		R3	–	–		6
	730	735		5.1		0		R3	–	–		3
	735	740		4.9		0		R3	–	–		3
	740	745		5.0		0		R3	R0	0.3		6
	745	749		3.7		0		R3	R0	0.5		9
	749	751		1.5		0		R3	–	–		6
	751	755		3.5		0		R3	–	–		3
	755	758		1.4		0		R3	R0	0.1		6
	758	761.5		3.5		1.2		R3	R0	0.4		3
	761.5	766.5		4.7		2.9		R4	–	–		6
	766.5	771.5		4.8		2.4		R4	R0	0.2		1
	771.5	777		4.8		2.5		R3	R1	1.0		6
	777	782		4.2		3.9		R2	R0	0.9		6
	782	787		4.6		3.8		R3	R1	0.1		3
	787	792		4.8		4.2		R4	R1	0.6		6
	792	797		5		2.2		R3	R1	0.7		3
	797	800		2.4		0		R3	R0	0.1		3
	800	805		4.9		0		R3	R0	1.2		6
	805	810		4.8		1.0		R3	R0	0.2		6
	810	815		4.0		0		R3	R0	0.3		9
	815	820		5.0		0.4		R3	R2	1.0		6
	820	825		5.1		0		R3	–	–		3
	825	830		5.0		0.6		R3	R2	0.2		3
	830	835		5.0		0		R3	R2	1.1		9
	835	840		4.3		3.4		R3	R0	0.8		3
	840	845		4.4		2.9		R2	R0	2.8		6
	845	846		1.3		1.2		R1	R0	0.3		–
	846	850		3.5		3.5		R2	R0	1.1		6
	850	855		4.5		4.2		R2	R1	2		6
	855	860		4.5		3.7		R1	–	–		6
	860	865		4.3		4.0		R0	–	–		3

Without Sp-lits

HDICURIS **Florence Project** GEOTECHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
3	Planar-rough
4	Undulating-slickensided
5	Undulating-smooth
6	Undulating-rough
7	Stepped-slickensided
8	Stepped-smooth
9	Stepped-rough

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Box No.	Drill Run (ft) From	Drill Run (ft) To	Interval	Core Recovery TCR (ft)	TCR %	RQD RQD (ft)	RQD %	Intact Rock Strength Strong	Weak	Weak (ft)	Weak %	Joint Condition
	865	870		3.9		3.5		R3	R0	1.3		3
	870	875		4.4		3.8		R2	–	–		3
	875	880		4.4		3.2		R3	R0	0.1		6
	880	885		4.9		3.4		R4	R3	1.4		2
	885	890		4.6		1.3		R4	–	–		3
	890	895		3.2		0.4		R2	R0	0.2		2
	895	900		4.7		2.8		R3	R0	0.3		6
	900	905		5.0		0		R3	R0	0.4		3
	905	910		5.0		0		R3	R1	1.3		3
	910	915		4.8		0		R3	R1	0.2		3
	915	920		4.8		1.5		R3	R0	0.6		3
	920	925		4.7		0		R2	R1	0.6		9
	925	930		4.4		0.5		R4	R3	2.0		6
	930	935		5.0		0.7		R3	R0	2.0		3
	935	940		5.0		1.0		R3	R0	0.3		3
	940	945		5.0		0		R3	R0	0.4		3
	945	950		4.7		2.8		R3	R0	0.3		3
	950	955		5.2		1.2		R3	R0	0.2		3
	955	960		5.0		0		R3	R0	0.2		6
	960	965		4.8		4.8		R3	–	–		3
	965	970		4.9		4.7		R3	–	–		3
	970	975		1.7		0.7		R3	–	–		3
	975	980		5.1		0.6		R3	R0	0.6		6
	980	985		5.2		0		R3	R1	0.9		3
	985	990		3.4		2.8		R3	R0	0.2		2
	990	995		4.7		3.7		R3	R0	0.5		3
	995	1000		4.7		4.4		R3	–	–		2
	1000	1005		4.3		2.8		R3	R0	0.1		2
	1005	1010		4.7		4.6		R3	R0	0.4		3
	1010	1014.5		4.3		3.9		R3	R2	0.4		6
	1014.5	1020		4.9		2.8		R3	R0	0.6		2

HDI CURIS **orence Project** GE TECHNICAL LOG

Intact Rock Strength	
Code	Definition
R0	Extremely weak
R1	Very weak
R2	Weak
R3	Medium Strong
R4	Strong
R5	Very Strong
R6	Extremely Strong

Joint Condition	
Code	Definition
1	Planar-slickensided
2	Planar-smooth
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4	Undulating-slickensided
5	Undulating-smooth
6	Undulating-rough
7	Stepped-slickensided
8	Stepped-smooth
9	Stepped-rough

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Box No.	Drill Run (ft)			Core Recovery		RQD		Intact Rock Strength				Joint
	From	To	Interval	TCR (ft)	TCR %	RQD (ft)	RQD %	Strong	Weak	Weak (ft)	Weak %	Condition
	1020	1025		4.4		3.9		R3	R2	0.1		5
	1025	1030		4.8		2.8		R4	—	—		3
	1030	1035		4.7		2.9		R4	—	—		6
	1035	1040		4.9		3.9		R4	R3	1.5		6
	1040	1045		4.9		0		R3	R1	0.9		3
	1045	1050		4.9		0.4		R3	R0	0.3		3
	1050	1055		4.6		2.0		R4	R0	0.7		2
	1055	1060		4.0		0		R4	R0	0.6		9
	1060	1065		5.0		0		R0	—	—		9
	1065	1070		5.1		0		R1	R0	0.2		3
	1070	1075		5.0		0		R0	—	—		9
	1075	1080		4.7		0		R3	R0	0.3		9
	1080	1085		3.0		0		R1	R0	0.4		9
	1085	1088		5.0		0		R2	R0	0.8		9
	1088	1090		1.7		0		R3	R0	1.5		9
	1090	1095		4.5		0		R3	R0	0.9		9
	1095	1100		4.4		3.6		R2	R0	0.2		6
	1100	1105		4.4		3.9		R2	—	—		6
	1105	1110		4.9		4.2		R3	—	—		1
	1110	115		4.8		4.8		R3	—	—		6
	1115	1118		2.5		2.4		R2	—	—		6
	1118	1120		1.8		1.1		R1	—	—		3
	1120	1125		4.7		4.4		R2	—	—		3
	1125	1130		4.7		4.4		R2	R0	1.0		3
	1130	1135		4.7		0		R4	—	—		9
	1135	1140		4.8		2.2		R4	—	—		3
	1140	1145		5.2		3.0		R4	—	—		3

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Memo

To:	Mel Lawson	**Date:**	October 6, 2011
Company:	Curis Resources Ltd.	**From:**	Daniel Russin
Copy to:	Bob Cluff	**Project #:**	204400.05
Subject:	Drill Hole Summary – CMP11-06, PQ Diameter Core		

Type: 0-429' 6.25" Rotary, cased to 429'
429-1145' PQ, 5' split barrel
Started: July 15, 2011 (diamond)
Completed: July 23, 2011
Total Depth: 1145 feet
Collar Coordinates: N: 746,166.58; E: 847,659.27 (UTM NAD 83 ft)
Ground Elevation: 1474.8 ft amsl (approx.)
Drilling Contractor: National (Rotary), Cabo Drilling Corp. (PQ Core)

1 Executive Summary

CMP11-06 was drilled to obtain large samples of core for metallurgical testing. Core was logged at the drill site and placed into plastic tubes for storage and transport to the analytical lab. Rotary drilling at this site was completed by National several weeks before the core drilling began.

2 Downhole Survey

Downhole surveys were measured by Cabo and digitally recorded at approximately 100-foot increments below the top of bedrock. A subtraction of 11 degrees was made to the recorded azimuth to account for magnetic declination; note the declination calculators and charts range from a deviation of 10.3 to 11 degrees for this area. The measurements were recorded at the rig by Curis and SRK personnel.

Depth (ft)	Dip	Azimuth	Corrected Azimuth
450	-89	121	110
500	-88.9	104.2	93.2
600	-89.3	3.3	352.3
700	-89.4	97.9	86.9
800	-89.4	97	86
900	-89.5	60.8	49.8
1000	-89.8	143	132
1100	-89.7	165.5	154.5

3 Geologic Summary

A summary of footages for rock type contacts is listed below. Contact angles are provided with respect to the core axis (TCA) and an indication if the contact is an intrusive or fault contact where known. It was not possible to assess fault or contact angle in core that was heavily broken or where core loss occurred.

Depth (ft)	Rock Type	Contact
0-429	Rotary – no recovery	
429-687	Yqm	Yqm → Tgdp, Fault contact, in breccia
687-758	Tgdp	Tgdp → Yqm, Contact rubblized
758-815	Yqm	Yqm → Tgdp, Contact in lost core
815-818.5	Tgdp	Tgdp → Yqm, Intrusive contact, 40°
818.5-1048.7	Yqm	Yqm → Ta, Fault contact, 30°.
1048.7-1060.4	Ta	Ta → Yqm, Intrusive (?) contact, 85°
1060.4-1079.1	Yqm	Yqm → Tgdp, Fault contact, 60°
1079.1-1081.5	Tgdp	Tgdp → Yqm, Rubblized contact
1081.5-1145	Yqm	

3.1 Rock Types

Chip samples were not collected during mud rotary drilling of the basin-fill formations and bedrock to 429 feet. The depth to the top of bedrock is unknown, since rotary drilling and casing penetrated the contact.

Precambrian Quartz Monzonite (Yqm) constitutes 87.6% of the drill hole. This rock type consists of equigranular to coarsely porphyritic monzonite with an original texture of 25-35% quartz, 30-35% potassium feldspar, 20-25% plagioclase, and 5-8% biotite. The rock is broadly porphyritic in nature with large K-feldspar in a matrix of smaller quartz, plagioclase, and biotite. Most of the original texture has been overprinted by clay alteration and oxidation minerals (iron and manganese oxides), and has been disrupted by abundant fault breccia and gouge. Large, euhedral crystals of potassium feldspar exist at 0.5-3 cm across. Quartz crystals are 0.5-2 cm, plagioclase crystals are 2-10 mm, and biotite crystals are 1-10 mm in size.

Tertiary Granodiorite Porphyry (Tgdp) constitutes 11% of the drill hole. The rock contains 1-5 mm feldspar phenocrysts, mostly plagioclase, in an olive gray aphanitic matrix. Biotite phenocrysts compose ~10% of the rock. The geology logging did not attempt to segregate the granodiorite intercepts into Types 1, 2, and 3 as defined by Conoco.

Tertiary Andesite (Ta) constitutes 1.4% of the hole. This rock type is a dark olive grey with an aphanitic texture. It contains some areas of intense copper oxide clay. Chrysocolla and tenorite are also present in some zones.

3.2 Structure

Numerous fault structures, breccia zones, and fault planes were noted as described below. The breccia varies from crumbly, broken rock with no discernible breccia fragments or fault contact angles to well-milled breccia fragments in fine-grained gritty iron-stained matrix. Fault gouge consisting of clay and fine rock particles with or without slickensides was noted in many intervals typically less than one foot in thickness.

Depth (ft)	Fault Zones
429-450	Heavily fractured zone with small faults at various orientations
465-470	Fault zone, 70°
500.5-525	Fault zone, gouge in various orientations
530-585	Heavily shattered material with several fault zones, gouge in various orientations
600-700	Fault zone, gouge in various orientations
800-818.5	Fault zone, bottom contact @ 40°
875-945	Heavily shattered material with several fault zones, gouge in various orientations
1042.5-1088	Fault zone, gouge in various orientations
1110-1128	Fault zone, gouge in various orientations

3.3 Alteration

The rock is dominated by potassic alteration of low to moderate intensity. Quartz veins and associated secondary K-feldspar are common; secondary biotite is locally present. Pervasive argillic

alteration (mostly supergene) obscures much of the hypogene detail. Sericitic and propylitic alteration are locally observed. Sericitic alteration was likely more abundant than was evident, however it was strongly overprinted by supergene iron oxides and clay and was thus difficult to observe.

3.4 Metzone

Metallurgical zones (Metzone) codes were recorded for each sample interval. The codes for the Oxide Zone designate the interval in terms of whether the interval is dominated by copper oxides/silicates (code 1), mixed copper and iron oxides (code 2) , or shows high concentration of iron oxides with little or no copper oxides (code 3). No transition or sulfide material was seen.

Depth (ft)	Metallurgical Zone
429-1145	Intermingled zones of mixed copper and iron oxides and high-iron zones

3.5 Mineralization

There are pervasive copper oxides on fractures and in clay sites throughout the oxide zone. Copper oxides are consistently present from 429-1200 feet, with the exception of the very slightly mineralized Tgdp from 687-758 feet. The most common copper oxide is a copper-bearing clay that replaces plagioclase; other copper oxides present are chrysocolla and tenorite/wad. No copper oxides were present in the sulfide zone. Iron oxides (hematite, goethite, and jarosite) occur at mostly low abundances (1-5%) throughout the hole.

4 Geotechnical Summary

Average total core recovery (TCR) was over 90% for the hole. Average rock quality (RQD) was below 50%.

MetZone	Oxide
Depth	429-1145
Total Feet	716
Average TCR (%)	93.1
Average RQD (%)	44.8

4.1 Fracture Intensity

Core was collected in a split-tube barrel in order to ensure the highest integrity of intact conditions. Mechanical fractures caused by handling or placing the materials in the core box were discounted during the fracture intensity review.

The fracture intensity is low to moderate for the majority of the hole, with abundances of 0-15 fractures per foot. Areas near fault zones are substantially more fractured.

4.2 Core Recovery

Statistics on the core recovery in CMP11-06 are presented below. Recovery averaged 95.2% with the lowest recovery in Ta (23.3) and the highest recovery in Yqm (93.5%). RQDs range from 19.3% to 47.3%; these numbers are almost certainly skewed high. No handling of the core was permitted, so determining RQD is less precise.

Rock Type	Drill Run Interval (ft)	TCR %	RQD %
Yqm	627.5	93.5	47.3
Tgdp	78.5	90.8	19.3
Ta	10	86	23.3
CMP11-06 Totals	716	93.1	44.8

5 Sampling and Analysis

No assay samples were taken from CMP11-06, since the material was to be used in metallurgical tests. As of September 2011, metallurgical testing on this material is ongoing. The companion HQ hole (CMH11-06) was sampled on-site and assayed by Skyline Assayer and Laboratories in Tucson.

CMP11-06
431.5 -436.5

CMP11-06
440 -445

CMP11-06
445-450

CMP11-06
431.5 -436.5

CMP11-06
436.5 -440

CMP11-06
445-450

CMP11-06
429 -431.5

CMP11-06
436.5 -440

CMP11-06
440 -445

CMP11-06
455-460

CMP11-06
460-465

CMP11-06
470-475

CMP11-06
450-455

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460-465

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465-470

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455-460

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485-490

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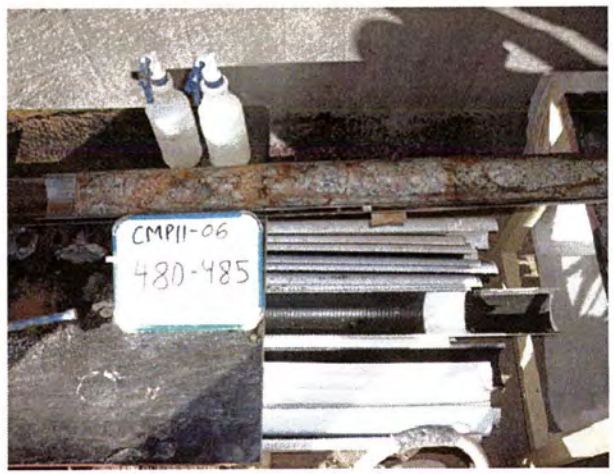
490-494

CMP11-06
475-480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485-490

CMP11-06
498 - 500.5

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505.5-510

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510 - 515

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494-498

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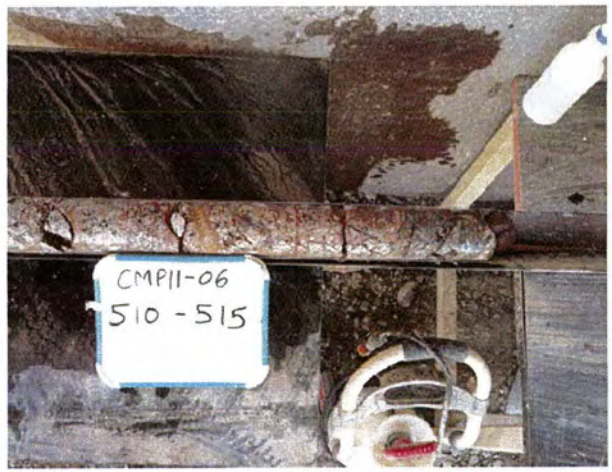
500.5 - 505.5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558 -560
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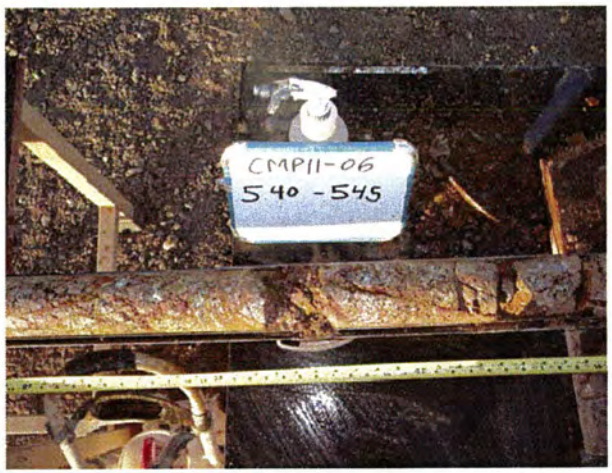
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644 - 648

CMP11-06
625 - 630

CMP11-06
635 - 640

CMP11-06
640 - 644

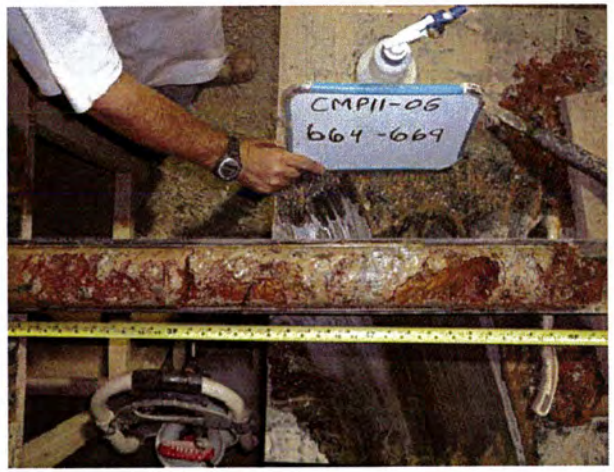
CMP11-06
651 -656

CMP11-06
660 -664

CMP11-06
664 -669

CMP11-06
651 -656

CMP11-06
656 -660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664 -669

CMP11-06
648 -651

CMP11-06
656 -660

CMP11-06
660 -664

CMP11-06
674-679.5

CMP11-06
679.5-684.5

CMP11-06
690-695

CMP11-06
669-674

CMP11-06
679.5-684.5

CMP11-06
684.5-690

CMP11-06
669-674

CMP11-06
674-679.5

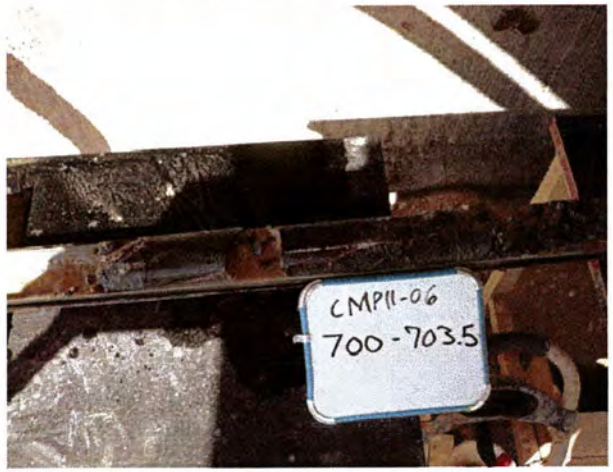
CMP11-06
684.5-690

CMP11-06
695-700

CMP11-06
703.5-708

CMP11-06
7.0-7.5

CMP11-06
695-700


CMP11-06
700-703.5

CMP11-06
690-695

CMP11-06
700-703.5

CMP11-06
703.5-708

CMP11-06
715-726

CMP11-06
725-730

CMP11-06
730-735

CMP11-06
715-720

CMP11-06
720-725

730-735

CMP11-06
710-715

CMP11-06
720-725

CMP11-06
725-730

CMP11-06
740-745

CMP11-06
745-749

CMP11-06
735-740

CMP11-06
745-749

CMP11-06
735-740

CMP11-06
740-745

CMP11-06
749-751

HDI CURIS

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: M. Siebey / K. Norman
SCALE: 1" = 10'

LOCATION: FLORENCE
HOLE ID: CMP11-06
SHEET 1 OF 11

ELEVATION: 1474.8
BEARING: 110° @ 450'
INCLINATION: -89° @ 450'
TOTAL DEPTH: 1145'

COLLAR COORDINATES:
N: 746,166.58 E: 847,659.27
STARTED: 7-15-11
COMPLETED: 7-23-11

COMMENTS: Survey 450' AZ 121.0 COR 110.0 -89.0

AVG. CORE REC'Y/HOLE: 93.1%

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION: GEO., MINERAL., ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
420																															0-429' Rotary drilling; no samples taken Top of bedrock unknown; first core is QMP. All angles measured relative to core axis (TCA) Collar Coordinates are NAD 83, not state plane (NAD 27) as in older holes. NAD 27 Coords: 746,110.70 N, 647,879.91 E			N/S	N/S
430	1	1			2	1								1			-	2	2							5	-	8			429-687' QMP 429-429.4' fine-grained gray-brown rock; contact 80° TCA w/ QMP below. Aplite?	429 2.5	68		
	1	2			3	1								1			2	2	2							4	-	-			very fractured, w/ variable orientations. 431.5-432.2' fractures filled w/ clay; decent Cu on fxs + in plag sites	431.5 5	94		
	1	2	1		4	1								1	1		2	2	2							5	1	6			439.6-440' fault zone; abundant clay + bx w/ considerable biotite. plag → Cu clay. Some CuOx on fxs.	436.5 3.5	97		
440	1	2			5	1									1		2	2	2							5	-	5			444-445' fault zone w/ abundant clay; 45° TCA. Good Cu clay on fxs.	440 5	86		
	1	1			4	1								1	1		2	2	2							5	8	8			445.4-446.4' fault w/ clay gouge; 80° TCA. Sheared orthoclase.	445 5	92		
450	0	0			6	1								4	1		-	2	2							3	-	-			450-450.3' fine breccia + clay. 452.7-453' bleached white area, vuggy qtz	450 5	92		
	1	2	1		3	1								2	1		2	2	2							3	8	-			Good Cu on fxs + in plag sites, some tenorite on fxs. considerable biotite.	455 5	98		
460	1	2	1		4	1								3	1		3	2	2							3	7	-			463.8-464' large orthoclase decrease in Cu from above. Abundant hematite.	460 5	96		
	1	1			4									4	1		3	3	3							5	-	7			469.5-470' fault zone w/ gouge + breccia - 70° TCA.	465 5	92		
470	1	2	1		2									4			-	2	3							2	-	-			Salmon-colored orthoclase; 1-2cm streaks of hematite throughout, w/ tenorite. Some Cu in plag sites.	470 5	100		
	1	2	1		1									3	1		-	3	3							2	8	-			475-476.1' some shearing w/ hematite in matrix Cu after plag. Very hard core; silicified?	475 5	94		
480	1	2	-		3	3							1	3	2		3	3	2							2	-	-			480-485' well fractured but competent enough to clean Qtz-bio-clay vein runs the entire length of the core (vertical)	480 5	98		
	-	-			3	2							1	2	2		1	1	2							4	3	7			485-485.2' fault breccia, ~70° TCA. 485.6-485.7, 488.2-488.5' 487' 1" wide "vein" of hematite, 30° TCA.	485 5	98		
490																																	490			

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-06
SHEET 2 OF 11

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: Moran
SCALE: 1" = 10'

ELEVATION: 1474.8'
BEARING: 93.2° @ 500'
INCLINATION: -88.9° @ 500'
TOTAL DEPTH: 1145'

COLLAR COORDINATES:
N: 746,166.58 E: 847,659.27
STARTED: 7-15-11
COMPLETED: 7-23-11

COMMENTS: Survey @ 500': az = 104.2° incl = -88.9°
corrected az = 93.2°

AVG. CORE REC'Y/HOLE

FOOTAGE	ALTERATION: ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		OXIDE: LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	SULFIDE: MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY
490	-	2	-		1	2							1	2	2		1	1	2							3	-	-		
					1	1							1	2	2		1	2	2							3	3	-		
					1	1							1	1	2		1	1	2							2	-	-		
500					5	1							1	3	3		1	4	2							5	-	4		
	1	4			2	3							1	3	4		1	1	3							5	7	7		
510	1	-			2	2							1	3	3		1	1	3							5	-	-		
	1	1	1		2	1							1	3	3		1	2	2							5	-	5		
520	-	1	-		4	1							1	4	3		1	2	3							5	-	7		
	-	2	1		1	2							1	1	3		1	1	2							1	7	-		
530	-	1	1		5	1	1						1	4	3		3	5	2							5	-	4		
		1	1										1	3	3		1	1	2							5	-	4		
540	1	1			3									3	1		3	2	3							4	-	-		
	1		1		2									3	1		-	2	2							3	8	-		
550	1	1			1									3			-	2	2							4	-	-		
	1		1		5	1								3			-	-	2							5	-	-		
					N	O		R	E	C	O	V	E	R	Y		N	O		R	E	C	O	V	E	R	Y		?	?
560	1				1	1								2			-	-	2							5	-	-		

COMMENTS: 429-687' QMP cont. from above
490-494' well fractured but not crumbly
490.4-490.9' patches of biotite flooding
494' chrys. on fxs
494.494.4' surfaces covered w/ light green clay
451.1, 451.6' thin zones of breccia; ~25° TCA. v. little gouge
kspar ~ 30x30 mm.
506.5-506.5' abundant hem/goe on fxs
502.3-502.7' fault bx; little gouge, ~40° TCA.
504-504.2'
504.9-505.5' all Cu clay after plag; very soft.
505.5-510' very fractured w/ lots of breccia; little gouge.
509.5' fx/fault, 70° TCA. Zones of chl replacing bio.
Low Cu; most fractures filled w/ FeOx.
510-515' similar to above; abundant breccia w/ little gouge. Angle varies.
Fine-grained matrix w/ abundant milled fragments, large kspar is conspicuous.
514.5-515' all black & white; probably a small fragment/dike of Tqdp
515-520' same; abundant fault bx w/ little to no gouge. Slips @ ~50° TCA.
Large (~20x20mm) milled fragments embedded in goethite.
520-525' similar to above; fault bx w/ slips ~70° TCA.
520-520.6' hematite-clay zone
523.7-524.2' goe in fractures.
525-530' QMP w/ v. little fracturing + little clay. Fractures ~70° TCA.
526-527' patches of biotite; partially altered to chl.
527-529' intense goethite development;
528.5' 5-10 mm qtz vein, 60° TCA.
529.2' fracture w/ Cu clay & bio @ 80° TCA.
530-535' >50% fault bx; ~35° TCA. Very strong Cu mineralization.
531.6-532' bands of goe
532-533.5' strong CuOx; veins of bright blue @ 50° TCA 532.3-532.5'
533.8-534.2' band of hem @ 50° TCA.
535-536.5' fault breccia w/ little gouge, ~40° TCA
Abundant FeOx w/ low Cu.
Fault breccia; strongly sheared & core is a sticky mess.
common CuOx in fxs & plag sites.
↳ chrys. & tenorite.
545-550' similar to above.
chrys. & tenorite in fxs, some Cu clay after plag.
well-fractured & sheared, not much Cu.
552.7-553.7' fault breccia w/ milled frags & minor clay gouge.
553.7-557' well fractured; lighter colored & finer grained. Not porphyritic.
No Cu & only minor hematite. Aplite? Sericitic alteration more likely.
557-558' no recovery
well fractured; 1-3 cm fragments.

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
490 4	83	N/S	N/S
494 4	105		
498 2.5	96		
500.5 5	98		
505.5 4.5	102		
510 5	92		
515 5	104		
520 5	98		
525 5	94		
530 5	100		
535 5	100		
540 5	92		
545 5	86		
550 2	80		
552 5	90		
557 NR	0		
558 2	100		
560			

COLLAR COORDINATES:	ELEVATION: 1474.8	CONTRACTOR: CABO	HDI CURIS
N: 746,166.58 E: 847,659.27	BEARING: 352.3° @ 600'	CORE SIZE: PQ	LOCATION: FLORENCE
STARTED: 7-15-11	INCLINATION: -89.3° @ 600'	LOGGED BY: Noonan / Sieber	HOLE ID: CMP11-06
COMPLETED: 7-23-11	TOTAL DEPTH: 1145'	SCALE: 1" = 10'	SHEET 3 OF 11

FOOTAGE	560	570	580	590	600	610	620	630
ALTERATION: ORTHO	1		1	1	1	1	1	
BIO	1	1	1	1	2	1	1	1
QTZ			1				1	1
SER								
CLAY	3	2	5	1	3	6	4	5
CHL	1	1				1	1	1
EPID								
CARB								
GYPS								
ANHY								
MAG								
OXIDE: LIM							1	1
HEM	4	1	4	2	3	8	4	3
GOE	1	1	1	1	1	1	4	2
CU GRAPHIC								
CUOX 1	1	1	2	2	2	1	1	1
CUOX 2	2	2	2	2	2	3	2	1
SULFIDE: MET ZONE	2	2	2	2	2	3	3	2
PY								
CPY								
CC								
BN								
MO								
FRACT INT	4	5	4	3	2	5	4	5
FRACT DIP	1	1	1	1	1	1	1	6
FAULT DIP	1	1	1	1	1	1	3	4
FRACTURING								
GEOLOGY								

COMMENTS: 600'
Az 3.3° -89.3°
COR 352.3°

AVG. CORE REC'Y/HOLE

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

429-687' QMP cont. from above.

560-562.5' fault bx w/ 2-3 cm clasts; abundant hematite in matrix.

562.5-565' Cu clay after plag

565.5-567.4' pale fine-grained unit; aplite? Clasts of QMP.

567.4-568.1' QMP as above

568.1-569' aplite (?) as above

569-573.3' QMP.

573.3-575' mixed QMP + Tgdp. Tgdp has strong Cu clay after plag. QMP has strong hematite alteration.

575.4-576.2 + 577.2-579' aplite? Decent CuOx + Cu clay in QMP.

583.6' narrow fault zone, 60° TCA. Cu clay after plag; some tenorite.

589.5-590' Tgdp; plag → cu clay

590.4-594.4' breccia/sheared zone w/ hematite matrix. some tenorite + Cu after plag

593.5-594.5 Tgdp w/ Cu clay after plag

595.4-597.7' Good Cu clay; abundant biotite

600-604.4' sheared w/ abundant hem

604.4-605' Tgdp

605-609' sheared/brecciated QMP w/ milled frags up to ~4 cm

609-610' Tgdp

610-610.6' fault bx w/ gouge; 30° TCA. Fractures @ ~50° TCA.

611.6' + 612.8' qtz + kspar veins

615-616.2' competent QMP w/ ~2mm qtz veins

616.2-618' fault breccia w/ ~50% gouge, 40° TCA.

620-621.6' fault bx w/ sandy matrix; no gouge, ~40° TCA.

621.7' + 621.9' bands of biotite, 90° TCA.

625-630' very fractured, fxs ~55° TCA

627.2-627.6' fault breccia, no gouge, ~70° TCA.

628.7-628.9 ↗, ~88° TCA.

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
560	96	N/S	N/S
565	94		
570	100		
575	98		
580	96		
585	96		
590	94		
595	90		
600	96		
605	92		
610	104		
615	96		
620	98		
625	96		

HDICURIS

COLLAR COORDINATES: N: 746,166.58 E: 847,659.27
STARTED: 7-15-11
COMPLETED: 7-23-11

ELEVATION: 1474.8'
BEARING: 86.9° @ 700'
INCLINATION: -89.4 @ 700'
TOTAL DEPTH: 1145'

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: Newman/Sicker
SCALE: 1" = 10'

LOCATION: FLORENCE
HOLE ID: QMP11-010
SHEET 4 OF 11

COMMENTS: 700' Survey
AZ 97.9° Incl -89.4
Cor 86.9°

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
630		1			4	1							1	3	3		1	1	3							5	-	5			630 5	96	N/S	N/S
		1			2	1							1	2	3		2	2	2							5	-	-			635 5	94		
640		-			4	1							1	3	2		2	2	2							5	-	8			640 4	90		
					3	1							1	3	3		1	1	3							5	-	-			644 4	85		
650					5	1							1	3	3		1	3	2							5	-	-			648 3	90		
					2	1							1	5	5		1	2	3							5	-	6			651 5	100		
					4	1							1	5	5		1	1	3							5	-	6			656 4	100		
660					3	1							1	5	5		1	3	3							5	-	-			660 4	98		
	1				4	1								5			-	2	3							5	-	4			664 5	92		
670	1				5									5			3	2	3							5	-	-			669 5	96		
	1	1			5									5	2		3	2	3							5	-	-			674 5.5	89		
680	1	1			3									2	1		2	2	2							3	8	-			679.5 5	96		
	1				4												3	2	2							5	-	7			684.5 5.5	89		
690			1		1									2			2	-	2							4	-	-			690 5	92		
700														2				-								4	-	-			695 5	92		

429-687' QMP

cont. from above

630-635' mostly fault breccia w/ little gouge, ~50° TCA. Core is difficult to clean.
634-634.4' high clay content

635-640' fault breccia, no gouge, very friable. Angle not visible.
nothing else noteworthy

640-644' fault breccia, sandy zones 642-644, w/ some clay. ~75° TCA.
640.3' slickensided Cu/FeOx

644-648' fault breccia as above, v. little clay. No measurable angle
646.8-647.2' some clay

648-651' fault breccia w/ milled fragments + abundant gouge. No measurable angle
high Cu in clay-rich zones.

651-656' fault breccia, ~60° TCA. Subrounded large milled fragments, w/ goe/hem matrix; no gouge, matrix is sandy.

656-660' fault breccia, ~60° TCA. Milled fragments as above, sandy matrix.
658.7-660' some gouge.

660-664' fault breccia, no measurable angle.
660-661.6' almost solid FeOx w/ some milled fragments of QMP.
661.6-661.9 + 662.4-662.9' almost solid white + pale green clay, ~20° TCA.

664-664.4' fault breccia
664.4-665.2' fault, ~40° TCA.
some Cu clay after plag.

669-670.8' brecciated zone w/ considerable hematite.
670.8-671.8' Cu in fractures & clays.
671.9-679' no visible Cu
673.3' fault zone, ~45° TCA.

674-679.5 fault bx.
676.7-677' ~3" qtz vn w/ strong chrys, hem, + tenorite.

679.5-684.5' solid core w/ little clay or hematite, green CuOx on fxs
Coarse orthoclase + biotite

684.8-685.2' Tgdp, w/ abundant hematite, fracturing, and qtz veins
685.2-685.7' QMP
685.7-686.2 Tgdp; 686.2-687' QMP.

687-758' Tgdp

contact irregular, in fault breccia.

690-695' Tgdp w/ crossing qtz veins
hematite + CuOx on fractures
Abundant quartz veins.

Similar to above

697-697.8' clay-hematite zone

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-06
SHEET 5 OF 11

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: Noonan/Sieber
SCALE: 1" = 10'

ELEVATION: 1474.8'
BEARING: 86.9° @ 700'
INCLINATION: -89.4° @ 700'
TOTAL DEPTH: 1145'

COLLAR COORDINATES:
N: 746,166.58 E: 847,659.27
STARTED: 7-15-11
COMPLETED: 7-23-11

FOOTAGE	ALTERATION: ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		OXIDE: LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	SULFIDE: MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP
700	1	3	2	1	2	1							0	1	1		1	0	2						3	3	-
	3	3	3	1	2	0							0	1	1		1	1	2						3	8	-
	2	3	3	0	1								0	2	1		1	0	2						1	9	-
710	1	3	5	4	1								0	2	2		1	0	2						5	-	5
	2	3	3	4	1	1	1						0	2	2		1	0	2						2	4	-
720	3	1	3	5	1	1	0						0	2	2		0	1	3						3	7	-
	2	0	2	5	2	1	1						0	1	2		0	0	3						2	5	-
730	2	1	2	5	2	1	0						0	2	2		0	0	3						2	4	-
	2	1	4	4	2	1							0	2	2		0	1	3						2	4	-
740	2	1	2	3	3	1							1	4	2		0	1	2						3	6	-
	2	1	3	3	4	1							0	4	3		0	0	3						4	-	-
750	1	0	1	2	1	1							0	2	1		1	1	2						2	6	-
	1	1		1										2	1		1	1	2						4	-	-
		2		1										3	1		0	0	3						4	-	-
760	1		1		2									2	2		2	2	2						4	-	-
	2	1	1		2	1								4	2		2	2	2						4	-	-
770	2	1	2		2	1								3	2		3	2	2						4	-	-

FRACTURING

GEOLOGY

COMMENTS:

AVG. CORE REC'Y/HOLE

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

687-758' Tgdp

700-703.5' nearly barren Tgdp. Dark gray w/ trace CuOx (chrys.) on fxs. Abundant secondary biotite (recrystallized bio phenos). hem in <1mm fxs, w/ minor white clay.
703.5-708' same as above, w/ several ½-inch qtz-ksp veins.
708-710' same as above. Numerous small qtz veins w/ various orientations.
708-714' nearly vertical ½"-1" qtz vein
712-712.5' swarm of thin qtz veins w/ sericitic envelopes up to ~1" wide.
714-715' fault zone w/ abundant gouge. ~50° TCA.
715-720' same rock. Common qtz veins w/ thin sericite envelopes; secondary bio common as well.
718-719.5' swath of strong sor+chl+epid alt, ~25° TCA.
719' Tgdp changes to lighter gray w/ much larger (up to ~1cm) plag phenos
717' 1.5" qtz+chrys+tenorite vein, no visible envelope, ~30° TCA.
719' 1"
720-725' same lighter-colored Tgdp. Increased FeOx, still only trace CuOx. Abundant qtz veins ~75° TCA. Streaks of FeOx. Sericite envelopes are common on qtz veins. Biotite is locally recrystallized. Patches of sericite flooding @ 721.5, 724-725'
725-730' same Tgdp; nearly universal moderate sericite alteration. Some fresh biotite, and a few qtz veins w/ sericite envelopes, w/ some ksp(?). goethite > hematite. ↳ 2mm phenos (?)
730-735' same Tgdp; barren.
732.3' 3mm EDM vein, 50° TCA.
↳ width includes envelope
735-740' same as above
very common qtz(±ser±ksp) veins w/ ser envelopes (±ksp?)
738.5-740' patches of strong sericite alt. Trace Cu clay.
740.2' ¼" Cu clay vein, ~70° TCA.
741-741.8' Cu clay in plagioclase.
742.2' ½" qtz-ksp vein, ~70° TCA.
742.7-743' shattered zone w/ abundant hematite
746-749' shattered, not milled breccia.
same rock & alteration as previous interval. No visible Cu.
749-751' increased hem. staining in gm & feldspar sites. Similar to above.
751-755' same; hem staining + no visible Cu.

758-815 QMP ← contact rubblized/lost.

758-758.5' good Cu, pieces up to ~2-3cm. Less Cu further down.
Hard core w/ Cu clay after plag. Some tenorite. Hem/goe stain on fxs + around feldspars
Considerable qtz; as above w/ Cu clay after plag.

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
700 3.5	100	N/S	N/S
703.5 4.5	84		
708 2	100		
710 5	96		
715 5	90		
720 5	96		
725 5	74		
730 5	102		
735 5	98		
740 5	100		
745 4	93		
749 2	75		
751 4	88		
755 3	47		
758 3.5	100		
761.5 5	94		
767.5 5	96		

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-016
SHEET 6 OF

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: Sieber/Noonan
SCALE: 1" = 10'

ELEVATION: 1474.8'
BEARING: 86.0° @ 800'
INCLINATION: -89.4 @ 800'
TOTAL DEPTH: 1145'

COLLAR COORDINATES:
N: 746,166.58 E: 947,659.27
STARTED: 7-15-11
COMPLETED: 7-23-11

COMMENTS: Survey @ 800'
AZ 97.0 incl. -89.4
COR 86.0°

AVG. CORE REC'Y/HOLE

FOOTAGE	ALTERATION: ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		OXIDE: LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	SULFIDE: MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION: GEO., MINERAL, ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
770				C	O	N	T	I	N	U	E	D		F	R	O	M		A	B	O	V	E								758-815' QMP	5		N/S	N/S
																																771.5			
	3		3		3	1								3	2		2	2	2							3	-				Large orthoclase + quartz Good Cu on fractures & replacing plag. 777.7-778.8' brecciated/sheared phenocrysts w/ abundant hem + clay.	5.5	87		
																																777			
780	1		1		4									4	1		3	2	2							3	-	-			778.8' more Cu clay + less hematite. 783-784.4' considerable hematite + clay (w/ Cu)	5	84		
																																782			
	1		1		5									3	1		2	2	2							4	-	-			784.4-787' typical QMP; Cu clay after plag + some tenorite.	5	92		
																																787			
790	2		2		4	1								3	1		-	2	2							4	-	-			787-788.2' some Cu after plag 788.2-790' sheared w/ abundant clay + hematite. 790-792' harder, no shearing, same as 787-788.2'.	5	96		
																																792			
	2	1	2		2	1								3	1		3	2	2							3	-	-			792-797' most of the run was blown out of the splits. flooded w/ silica, some Cu clay after plag	5	100		
																																797			
	-	1	-		4	1							1	2	2		1	2	2							2	-	6			797-800' well fractured, typical QMP. 797.7-797.8' gouge/breccia zone, 60° TCA.	3	80		
800																																800			
		1			3	1							1	5	2		1	3	2							5	-	-			800-805' abundant fault bx, no measurable angle(s) 800.6-801.3' solid hem w/ good CuOx; bright blue chrys followed by breccia to 802.' mostly sandy material w/ little gouge	5	98		
																																805			
		-			3	1							-	3	2		2	2	2							5	-	-			808.6-804.4' gravelly breccia. 806.4-808.2' fault bx w/ ~2 inches gouge. Good Cu in clay (plag sites) + on fractures; mostly light green clay w/ some chrys. flecks.	5	96		
810																																810			
		1			4	1							1	3	3		1	2	2							5	-	5			810-814' alternating fault breccia w/ solid intervals (still well fractured), ∠ ~45° TCA. A few areas of secondary biotite, esp. 808-809'. ~5cm pieces of Tgdp @ ~810 + 814'.	5	80		
		N	O		R	E	C	O	V	E	R	Y				N	O		R	E	C	O	V	E	R	Y			?	?					
																															815-818.5' Tgdp ↖ contact in lost core Tgdp w/ extensive sericitic alteration + kspar-qtz veins. Barren.	815 5	100		
	1	-	1		2	1							-	2	3		1	1	3							5	-	4			818.5-1048.7' QMP ↖ contact @ 40° TCA				
820																																820			
	-		-		1	1							1	2	2		1	3	2							2	5	-			818.5-820' QMP as before; crumbly + difficult to clean. 820-825' best Cu mineralization thus far in this drillhole. Extensive replacement of plag w/ CuOx; veins of CuOx @ 820.9°, 30° TCA. Fractures ~45° TCA; rock appears competent but crumbles easily if handled.	5	102		
		1			1	1							1	2	2		1	3	2							2	3	-			825-830' similar to previous interval, good mineralization. Fractures @ ~30° TCA.	825 5	100		
830																																830			
		-			1	1							1	2	2		1	2	2							2	-	-			830-835' same; slightly less Cu + more friable.	5	100		
																																835			
	2				1	1								2	1		1	2	2							3	-	-			835-840' same as previous	5	86		
840																																840			

COLLAR COORDINATES:	ELEVATION: 1474.8'	CONTRACTOR: CABO	HDI CURIS
N: 746,166.58 E: 847,659.27	BEARING: 49.8° @ 900'	CORE SIZE: PQ	LOCATION: FLORENCE
STARTED: 7-15-11	INCLINATION: -89.5° @ 900'	LOGGED BY: Sieber/Noonan	HOLE ID: CMP11-06
COMPLETED: 7-23-11	TOTAL DEPTH: 1145'	SCALE: 1" = 10'	SHEET 7 OF 11

FOOTAGE	ORTHQ	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY
840	1		1		3	1							1			2	2	2						5	-	-		
845	1		1		4	1							4	4		1	2	2						2	-	-		
850	1	3	1		5	1							4	4		2	2	2						3	-	-		
855	1	1			6								4	3		2	2	2						2	-	-		
860	1	1			5	1							2	3		2	2	2						3	-	-		
865	1	1			5	1							3	3		2	2	2						2	-	-		
870	1	1			5	1							4	2		2	2	2						2	-	-		
875	1	1			5	1							3	2		2	2	2						4	-	-		
880	1		1		4	1							4	1		3	2	2						4	-	8		
885	2	1	2		2	1							4	1		3	2	2						4	-	-		
890	2	1	2		2	1							4	1		2	2	2						5	-	-		
895	2		3		3								4	2		2	2	2						2	-	-		
900	2		1		4	1							2	1		2	2	2						4	-	-		
905	1	2			4	1							3	4		2	2	3						5	-	-		
910		2			3								4	4		2	2	3						4	-	5		

ALTERATION: ORTHQ, BIO, QTZ, SER, CLAY, CHL, EPID, CARB, GYPS, ANHY, MAG

OXIDE: LIM, HEM, GOE, CU GRAPHIC, CUOX 1, CUOX 2

SULFIDE: MET ZONE, PY, CPY, CC, BN, MO

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

818.5-1048.7' QMP

842.8-843.3' ~0.5' of fault gouge + breccia, w/ clay

843.3-845' good Cu clay + tenorite

840.5-841' cu clay + tenorite

846-850' strongly sheared minerals w/ abundant goethite. Cu clay after plag.

850-855' sheared + brecciated w/ hem + goe; Considerable biotite + good Cu.

Abundant clay; core is difficult to clean.

Same as above, CuOx on thin fractures

Same as above

Same as above, weak rock.

875-876' less Cu clay, clearly visible qtz + kspar.

876-880' strongly sheared w/ little clay

880-885' core pumped out w/o splits - a big mess. hematite abundant on fractures fairly fresh amp; some Cu clay after plag.

885-890' core is coming out of splits when pumping the tube... very broken up again. abundant kspar (flooding) + very little Cu.

891.3-891.7' fault zone w/ greenish Cu clay. 60° TCA. Cu clay after plag.

895-897.5' good CuOx, w/ tenorite. Large kspar phenocrysts.

903.1-903.5' fault bx, no measurable angle; mostly sand w/ some clay.

904.5-905' fault bx w/ ~50:50 clay/sand, no measurable angle. Low CuOx; crumbly and difficult to clean.

905-910' very fractured + crumbly w/ zones of sandy breccia. Very little Clay or CuOx. Fault zones ~50° TCA, very difficult to clean the core.

COMMENTS: Survey @ 900' Az 60.8° Incl.-89.5° Cor 49.8°

AVG. CORE REC'Y/HOLE

FOOTAGE	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
840	5	88		
845	1	130		
846	4	88		
850	5	90		
855	5	90		
860	5	86		
865	5	78		
870	5	88		
875	5	88		
880	5	98		
885	5	92		
890	5	64		
895	5	94		
900	5	100		
905	5	100		
910				

M/S

M/S

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMDD1-050
SHEET 8 OF 11

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: Noonan/Bussin
SCALE: 1" = 10'

ELEVATION: 1474.8'
BEARING: 49.8° @ 900'
INCLINATION: -89.5° @ 900'
TOTAL DEPTH: 1145'

COLLAR COORDINATES:
N: 746,166.58 E: 847,659.27
STARTED: 7-15-11
COMPLETED: 7-23-11

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY
910–915		1	1		1	1							1	3	3		1	1	3						3	5	-		
915–920		1	-		1	1							1	3	4		1	2	3						4	-	4		
920–925		1	1		2	1							-	4	5		1	1	3						5	-	8		
925–930		2			1	2							1	5	3		1	1	3						4	5	-		
930–935		1			2	1							1	3	3		1	3	2						5	-	5		
935–940	1	2	1		1	2							1	3	3		1	1	3						5	-	4		
940–945	-	1	1		1	1							-	3	3		1	1	3						4	-	6		
945–950		1	1		2	1								2	2		1	3	2						2	-	6		
950–955		1	-		1	1							1	2	2		1	1	2						3	4	4		
955–960		1			1	1							-	2	2		1	2	2						4	7	-		
960–965														2	2		1	1	2						2	-	-		
965–970	0	1	2	0	3	1	1						0	1	2		1	2	2						1	6	-		
970–975	1	0	2	1	3	2	0						0	1	2		1	2	2						1	6	-		
		N	O		R	E	C	O	V	E	R	Y			N	O		R	E	C	O	V	E	R	Y			?	?
975–980	0	0	0	0	3	1	0						0	1	1		2	3							4	8	9		

COMMENTS:

AVG. CORE REC'Y/HOLE

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

818.5–1048.7' QMP

910–915' crumbly & fractured, esp. 910-912'. 91'-915' more competent rock.
910-912' barren, 912-915' typical low-grade Cu clay
910' 1cm atz vein, 70° TCA. Most fractures ~50° TCA.
915-920' v. abundant FeOx, good CuOx as well.
917.5-918' gravel, breccia? ~40° TCA.
some chrysocolla.
920-925' some high FeOx, very little Cu.
920-921.9' fault bx; ~75° TCA. All rock is very broken, the interval may be entirely fault bx.
925-927.2' broken up, ~45° TCA.
927.2-928.2' more solid
928.2-930' broken, flakes easily.
Some chrys on fxs, low Cu overall. Plag sites are greenish.
930-930.7' hard w/ good CuOx, some chrys. & dendritic hematite.
930.7-935' fault bx, ~50° TCA.
935-940' swaths of biotite flooding, poor Cu mineralization.
937-937.6' fault bx, w/ gouge ~35° TCA.
937.6-940' reasonably competent, washes easily. No chrys or tenorite.
940.9-941.4' fault bx, low gouge, ~60° TCA.
veins of bio, ~zones of bio flooding. Low Cu.
945-950' competent rock w/ decent Cu mineralization in clay sites. Small amounts of chrys visible in fractures.
948.1-948.3' fault bx, mostly sand w/ a little clay. ~55° TCA.
950-955' fractures ~40° TCA, pretty friable, chrys on fractures.
952.5-952.7' brecciated
954-955' intermittent breccia ~40° TCA.
955-960' same as above. Raining hard..
960-965' variable fracture angles, fairly competent rock.
Some chrys on fractures.
965-970' very competent rock, much ksp alteration
965-965.3' kspar flooding
967-967.2' clot of biotite (2ndary?) w/ increased CuOx around/in it, in clays + tiny fxs.
Some atz veins w/ FeOx pseudomorphs of sulfides. Bio is partially eroded, rutile needles clearly visible in holes.
970-971.7' same as above
970-970.6' thin shattered recemented zones, ~45° TCA.
971.7-975' no recovery
975-980' QMP similar to above.
975-975.3' clay gouge, 975.3-975.7' gravel, ~90° TCA.
975.7-980' veins of chrys, best Cu in hole so far. ~75° TCA.
979.8-980' almost solid blue Cu clay, w/ tenorite veins

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
910–915	96	N/S	N/S
915–920	96		
920–925	94		
925–930	88		
930–935	100		
935–940	100		
940–945	100		
945–950	94		
950–955	104		
955–960	100		
960–965	96		
965–970	98		
970–975	34		
975–980	102		

HBCURIS

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: Noonan | Russin
SCALE: 1" = 10'

ELEVATION: 1471.8'
BEARING: 132.0° @ 1000'
INCLINATION: -89.8° @ 1000'
TOTAL DEPTH: 1145'

COLLAR COORDINATES:
N: 746,166.58 E: 847,659.27
STARTED: 7-15-11
COMPLETED: 7-23-11

LOCATION: FLORENCE
HOLE ID: CMP11-016
SHEET 9 OF 11

COMMENTS: Survey @ 1000'
az 143° Incl. -89.8°
Cor 132

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP
980	-	-	-		3	1	2					1	3	3		3	3	2						4	6	-
	1	1	2	-	3	1	0					0	1	2		1	2	2						2	5	-
990	4	1	2		3	2	1					0	3	3		1	2	2						3	5	-
	3	2	3		3	2	1					1	2	3		1	2	2						2	-	-
1000	3	1	2	1	3	1	1					0	2	2		1	2	2						2	5	-
	4	2	4	0	3	2	1					1	1	2		1	2	2						1	7	-
1010	3	2	5	1	3	2	1					0	3	2		1	2	2						2	3	-
	3	2	3	2	4	2	1					1	3	3		1	1	2						5	7	7
1020	2	1	3	0	3	2	1					1	1	2		1	2	2						2	5	-
	2	2	4		3	2	1					1	2	2		1	2	2						1	6	-
1030	2	1	4		2	2	2					0	2	1		1	1	2						1	5	-
	5	2	4		2	2	2					1	2	2		2	2	2						2	7	3
1040	-	2	-		3	2	1					1	3	3		1	1	3						5	-	3
		2			3	1	-					1	3	3		1	3	2						4	5	-
1050																										

FRACTURING

GEOLOGY

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

818.5-1048.7' QMP

980-985' well broken, good Cu mineralization @980-981', w/ lots of Cu clay, chrys, & flecks of tenorite.
Contact between well-mineralized & barren QMP is 60° TCA, same as other fractures.
Cu clay & chrys rare 981-985'.
985-990' top 1' of core (985-986') is sand from the hole.
987' ~1/8" vein of chrys, varders erratically across core
988-990' regularly fractured, ~35-40° TCA. 1 fx every 1/2". Streaks of bio alt w/ qtz veins, 30° TCA.
990-995' locally strong kspar alt. Bio → chl is nearly complete.
991-991.3' solid kspar.
993-994' shattered zone, no milling of fractures. Strong hem replacement in a few spots.
994-995' a couple of ~1/8" chrys veins, ~30° TCA.
995-1000' same, pretty competent rock w/ minor Cu clay after plag.
997.5' 2 1/2" bio-bearing qtz veins, parallel, 50° TCA.
998-999' well-broken.
1001-1002' well-broken
1003.5-1005' slightly elevated Cu, stronger green in clay & a few specks of chrys.
1006.5-1007' silicified
1006.5-1009' biotite appears recrystallized, then replaced by chlorite.
1007-1008.5' strong ksp alteration.
1009' ~1/2" seam of clay/bx, 65° TCA. Some Cu in clay.
1010-1014' same; low-grade competent QMP w/ qtz-bio veins w/ qtz-ksp envelopes. bio → chl.
1014-1014.5' intense hem development, rock is silicified
1015.5-1016.1' fault zone; gouge breccia ~60-65° TCA.
1018-1018.5' no recovery, very broken below.
1017-1018' sericite flooding, tan after kspar.
1020-1025 some QMP. Plag → Cu clay & trace chrys.
1024.2' 1/2" gouge/bx zone. 35° TCA.
1025-1030' same as above. Sheeted qtz veins ~45° TCA, visible as gray streaks through kspar.
1029-1030' increase in Cu clay + a couple of ~1mm chrys veinlets.
1030-1031' numerous <3mm chrys veinlets, various orientations
1033.5-1035' bio completely altered to epidote.
1035-1036.2' v. strong kspar flooding. Salmon-pink rock w/ qtz & chrys.
1036.2-1037.2' silicified & mineralized, w/ FeOx psuedomorphs of sulfides in qtz vns w/ chrys.
1038' 2" fault bx w/ gouge, ~30° TCA. bio → chl + ep, complete replacement.
1040-1045' highly oxidized QMP, very fractured
Patches of chrys, low CuOx overall.
1042.5-1044' breccia, ~25° TCA.
1045-1048.7' QMP.
1046.5-1047.2' chrys veins, FeOx abundant throughout the interval.
1048.7-1060.4' Ta ← sheared planar contact w/ 1cm gouge, 30° TCA.

DRILLING INTERVAL	% CORE RECOVERED
980 – 5	104
985 – 5	68
990 – 5	94
995 – 5	94
1000 – 5	86
1005 – 5	94
1010 – 4.5	96
1014.5 – 5.5	89
1020 – 5	88
1025 – 5	96
1030 – 5	94
1035 – 5	98
1040 – 5	98
1045 – 5	98

RECOVERY % BY A.I.: N/S

SAMPLE INTERVAL: N/S

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-06
SHEET 10 OF 11

CONTRACTOR: CABO
CORE SIZE: PQ
LOGGED BY: Noonan | Russin
SCALE: 1" = 10'

ELEVATION: 1474.8'
BEARING: 154.5° @ 1100'
INCLINATION: -89.7° @ 1100'
TOTAL DEPTH: 1145'

COLLAR COORDINATES:
N: 746,166.58 E: 847,659.27
STARTED: 7-15-11
COMPLETED: 7-23-11

COMMENTS: Survey @ 1100' az 165.5° incl. -89.7° Cor 154.5°

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
1050	-	-	-	-	5	1							-	3	1		2	2	2							5	-	7			1050	5	92	N/S	N/S
		1			6	1							-	4	2		1	1	3							5	-	6			1056	5	80		
			N	O		R	E	C	O	V	E	R	Y			N	O		R	E	C	O	V	E	R	Y			?	?					
1060		1			5	1							1	5	3		1	1	3							5	-	-			1060	5	100		
		2		1	3	2							1	3	2		1	3	2							5	8	8			1065	5	102		
1070		1		1	5	2							-	4	4		1	1	3							5	6	6			1070	5	100		
		1		-	3	1							1	3	3		2	4	2							5	6	6			1075	5	94		
1080		1	2		2	1							1	3	2		1	1	3							4	-	-			1080	5	60		
	2	2	2		4	2							1	4	3		1	2	2							5	-	5			1085	3	167		
	2	1	1	1	3	1							1	3	3		1	1	3							4	-	-			1088	2	95		
1090	-	3	-	1	4	1							1	3	3		1	1	3							4	6	-			1090	5	90		
	3	1	2	3	4	2	1						1	2	2		1	2	2							4	-	6			1095	5	88		
1100	2	1	3	4	4	2	2						1	2	2		1	1	2							4	5	-			1100	5	88		
	1	0	4	2	4	2	1						0	1	2		1	2	2							3	5	-			1105	5	98		
1110	2	1	3	2	5	2	1						1	1	3		1	3	2							5	-	3			1110	5	96		
	2	0	1	0	5	1	1						0	1	3		1	2	2							5	-	-			1115	3	83		
1120					6	1	1						0	1	3		0	1	2							5	-	-			1118	2	90		
																															1120				

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

1048.7-1060.4' Ta

1050-1055' Ta, competent rock w/ chrys in fxs
1050-1053' fault breccia w/ ~50% gouge, ~70° TCA.
1053-1053.2' QMP, well-mineralized, w/ Cu clay & chrys.
1055-1056.4' solid, competent, w/ flecks of tenorite
1056.4-1059' fault bx, ~60° TCA, ~20" of clay. Very little blue Cu clay, trace tenorite.
1058-1059' solid black clay; sheared Ta?
1059-1060' no recovery

1060.4-1079.1' QMP ← contact planar, intrusive(?) ~85° TCA.

1060-1065' weakly mineralized QMP
All brecciated; only trace visible Cu
1065-1070' alternating intervals of fault bx & heavily fractured but intact rock. chl→bio.
1065-1065.2' gouge, v. little clay elsewhere. ↳ ~80° TCA.
1069.5-1070' minor tenorite & chrys, FeOx pseudomorphs of sulfides visible.
1070-1075' mostly fault breccia, very crumbly w/ no gouge. ~60° TCA.
all bio→chl. Little visible Cu, as Cu clay.
1075-1079.1' well-mineralized w/ Cu clay, chrys., & tenorite.
1076, 1077.8' small brecciated areas, ~60° TCA.
1079.3-1078.6' highest Cu grade

1079.1-1081.5' Tqdp ← contact sheared, 1cm gouge. 60° TCA.
Phenocrysts → white clay, little Cu. Abundant thin vlts of hem.

1081.5-1145' QMP ← contact rubblized

1083-1085.2' bands of qtz + ksp + bio alt; most bio→chl.
1085.2-1086' fault breccia, ~50° TCA.
1086-1088' completely shattered, detail obscured.
1088-1090' QMP as above, very fractured.
1088.7' ~25mm band of kspar, ~60° TCA, smaller bands of bio. Vein envelopes?
1090-1095' very broken w/ zones of fault breccia. bio→chl mostly complete. Weakly mineralized.
1092.8' biotite vein fxs @ ~60° TCA.
1094.5-1095' clay gouge.
1095-1100' shattered QMP. Strong sericitic alteration; kspar phenos are entirely ten.
1097' 3" gouge w/ abundant goethite, 55° TCA. contains ~2" fragment of ~solid biotite.
1098.5' 3" fault bx, no gouge.
1100-1105' same ser-altered QMP, shattered, abundant clay & FeOx & very little Cu.
most of the rock is tan altered feldspar.
1105.8-1107' partially silicified.
1105', 1106.5' patches up to a couple inches of sericite alteration.
Little biotite in QMP; only a couple%
1110-1115' fault breccia & gouge, slips ~25° TCA. Stronger Cu than previous intervals, chrys vns up to ~2mm.
1111', 1113-1114' clots of Cu-rich clay. Competent rock, core in 4 pcs.
1112.5-1115' streaks of chrys + tenorite.
1115-1118' same fault bx; less Cu, limited to clays. Trace chrys.
large fragments w/ little matrix; fragments are clearly milled.
1118-1120' same fault bx.

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP11-06
SHEET 11 OF 11

CONTRACTOR: CABO / PQ
CORE SIZE: PQ
LOGGED BY: Noonan / Russin
SCALE: 1" = 10'

ELEVATION: 1474.8'
BEARING: 154.5° @ 1100'
INCLINATION: -89.7° @ 1100'
TOTAL DEPTH: 1145'

COLLAR COORDINATES:
N: 746,166.58 E: 847,659.27
STARTED: 7-15-11
COMPLETED: 7-23-11

FOOTAGE	ALTERATION: ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		OXIDE: LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	SULFIDE: MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY
1120					6	1	1						1	2	4		0	2	2							5	-	-		
					6	1	1						0	3	4		0	1	3							5	-	5		
1130		1			1	1	-						0	2	1		1	0	2							2	8	-		
		1			1	1							0	2	2		1	1	2							2	-	-		
1140		2			1	1							1	2	2		1	2	2							2	-	-		

COMMENTS:

AVG. CORE REC'Y/HOLE

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

1081.5-1145' QMP

1120-1125' same fault bx; low Cu grade w/ minor clay in plag sites. most hypogene detail is obscured.

1125-1128' Same.

1128-1129.6' Ta; top 6" is gouge. Top & bottom contacts sheared, ~45° TCA.

1129.6' QMP is much grayer, less Fe ox/clay overprint. Fresh bio + plag; hematite is common but confined to fracture surfaces.

1133-1133.8' lacy network of thin vlts of secondary biotite.

1135-1140' same; small cloudy areas of secondary biotite. Fractures @ variable angles.

1140-1145' same.

T.D. @ 1145'. Drill rig nearing rated depth for PQ; nearing sulfide zone but not reached.

Geology Logging by SRK Consulting (Tucson)

429-480' Mike Sieber
480-540' Katie Noonan
540-610' Mike Sieber
610-664' Katie Noonan
664-700' Mike Sieber
700-751' Danny Russin
751-797' Mike Sieber
797-835' Katie Noonan
835-900' Mike Sieber
900-965' Katie Noonan
965-975' Danny Russin
975-985' Katie Noonan
985-1040' Danny Russin
1040-1095' Katie Noonan
1095-1135' Danny Russin
1135-1145 Katie Noonan

Downhole Surveys

450'	110°	-89°
500'	93.2°	-88.9°
600'	352.3°	-89.3°
700'	86.9°	-89.4°
800'	86.0°	-89.4°
900'	49.8°	-89.5°
1000'	132°	-89.8°
1100'	154.5°	-89.7°

Core Recovery

All: 93.1%
QMP: 93.8%
Tgdp: 90.8%
Ta: 86.0%

Met Zones

0-1145' Oxide

TD is near the transition to sulfides probably <1200'.

Lithology Contacts

429-687' QMP
687-758' Tgdp
758-815' QMP
815-818.5' Tgdp
818.5-1048.7' QMP
1048.7-1060.4' Ta
1060.4-1079.1' QMP
1079.1-1081.5' Tgdp
1081.5-1145' QMP

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
1120 5	94	N/S	N/S
1125 5	94		
1130 5	94		
1135 5	96		
1140 5	104		
1145			

COLLAR COORDINATES:	ELEVATION:	CONTRACTOR: CABO	HDI CURIS
N: E:	BEARING:	CORE SIZE: PQ	LOCATION: FLORENCE
STARTED: 7-15-11	INCLINATION:	LOGGED BY: M. STEBEL/K. NOONAN	HOLE ID: CMP 11-06
COMPLETED:	TOTAL DEPTH:	SCALE:	SHEET 1 OF

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP
420																										
430	1	1	2	1	1	1	1						1			1	2	2						5	4	8
440	1	2	1	1	3	1							1	1		2	2	2						4	-	8
450	1	1			4	1							1	1		2	2	2						5	7	6
460	1	2	1	1	4	1							2	1		2	2	2						3	8	-
470	1	1	1	1	4								4	1		3	3	3						3	7	7
480	1	2	1	2	2	1							3	1		3	3	2						2	8	
490	1	2	-	3	3	3							1	2		1	1	2						2	-	7
490	1	1		2	3	2							1	2		1	1	2						4	3	7

ALTERATION

OXIDE

SULFIDE

FRACTURING

GEOLOGY

COMMENTS: SURVEY 450' AZ 121.0 COR 110.0 -89.0

AVG. CORE REC'Y/HOLE

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

492-429.4 FINE GR LT BRN ROCK 80° CONTACT - QMP
429.4 - Ygm K-SPAR - CLAY → CU

VERY FRACTURED MANY ORIENTATIONS
431.5-432.2 FRACTURES FILLED W/ CLAY
GOOD CU ON FRACTURES + K-SPAR - CU

440
439.6 FAULT - CLAY & BRECCIA CONSIDERABLE BIOTITE K-SPAR - CU
CU ON FRACTURES
K-SPAR - CLAY - CU, CU ON FRACTURES + CLAY
444-445 FAULT - CLAY 45°

GOOD CU - CLAY - FRACTURES K-SPAR - CU
445.9-446.4 CLAY GOUGE - FAULT 80° SHEARED ORTHOCLASE

450-450.3 CLAY W/ FINE BRECCIA
452.7-453 BLEACHED WHITE AREA HARD - VUG - QTZ
453-455 K-SPAR → CLAY + CU
GOOD CU ON K-SPAR + FRACTURES SOME TENERITE
CONSIDERABLE BIOTITE

SOME K-SPAR → CU TENERITE
463.8-464 VUGS W/ ORTHOCLASE - HARD
LESS CU THAN ABOVE CONSIDERABLE HEMATITE
469.3-470 FAULT - GOUGE/BRECCIA ~70°
SOLAR ORTHOCLASE 1-2 CM STREAKED THROUGHOUT W/ HEMATITE
TENERITE - K-SPAR → CU

TENERITE
475.6-476.1 SHEARED CRYSTALS W/ HEMATITE IN MATRIX
K-SPAR + CU COAL IS HARD - SILICIFIED

480-485 ROCK IS FRACTURED but washed easily w/out flakes, Ygm
Nearly vertical (TCA) vein runs almost full length of core filled w/ BIO, CHL, CLAY

485-490 Ygm, Fault breccia 485-485.2, 485.6-485.7, 488.2-488.5 < ~70°
487 1 in wide vein HEM, GOE at 30°

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
429	2.5		
431.5	5		
436.5	3.5		
440	5		
445	5		
450	5		
455	5		
460	5		
465	5		
470	5		
475	5		
480	5		
485	5		

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CNP11-016
SHEET 2 OF

CONTRACTOR: Cabo
CORE SIZE: PQ
LOGGED BY: Noman
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED: 7/15/11
COMPLETED:

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	COMMENTS: DESCRIPTION: GEO., MINERAL., ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
490	-	2	-		1	2							1	2	2		1	1	2							3	-	-			490-494 Ygm, lots of fractures but not too crumbly 490.4-490.9 areas of BIO flooding	490 4			
					1	1							1	2	2		1	2	2							3	3	-			494-498 Ygm, lots of fractures, didn't crumble during cleaning CHRYS on fracture at 494, 494-494.4 surface covered w/ light gm clay 451.1, 451.6 fault breccia w/ very little gouge, fractures ∠ ~25°	494 4			
					1	1							1	1	2		+	1	2							2	-	-			498-500.5 Ygm, pretty solid, 30x30 mm KSPAR throughout	498 2.5			
500					5	1							1	3	3		1	4	2							5	-	4	40		500.5-506.5 Ygm, lots of HEM/GOE filled fractures Fault breccia 502.3-502.7 (low gouge), 504-504.2, ∠ 40° 501.9-505.5 all Cu clay after PLAG, completely sol.	500.5 5			
	1	4			2	3							1	3	4		1	1	3							5	7	7	70		505.5-510 Ygm, very fractured, lots of fault breccia, not much gouge Fracture/fault ∠ 70°, 509.5 zones of CHL after BIO Fractures mostly filled w/ Fe ox, not much Cu ox	505.5 4.5			
510	1	-			2	2							1	3	3		1	1	3							5	-	-			510-515 Ygm, lots of fault breccia, ∠ variable, not much gouge, fine-grained matrix w/ milled fragments, esp. large KSPAR 514.5-515 almost all black & white, maybe chunk of Tgdp? ∠?	510 5			
	1	1	1		2	1							1	3	3		1	2	2							5	-	5	50		515-520 Ygm lots of fault breccia, very little gouge, ∠ 50° very fractured w/ KSPAR and QTZ on fractures Large (20x20 mm) milled fragments of KSPAR bordered by GOE	515 5			
520	-	1	-		4	1							1	4	3		1	2	3							5	-	7	70		520-525 Ygm, mostly fault breccia w/ some gouge, ∠ ~70° 520-520.6 HEM clay 523.7-524.2 GOE in fractures	520 5			
	-	2	1		1	2							1	1	3		1	1	2							1	7		70		525-530 Ygm relatively solid little to no breccia, very little clay Fracture ∠ ~70°, 526-527 patches of 2° BIO, some gone to CHL. 527-529 intense GOE, 528.5 5-10 mm wide QTZ vein at 60° 529.2 fracture w/ Cu clay and BIO at 80°	525 5			
530	-	1	1		5	1	1						1	4	3		3	5	2							5	-	4	35		530-535 Ygm, over 50% fault breccia, ∠ 35°, intense mineralization 531.6-532 bands of GOE, 532-533.5 high Cu ox, esp 532.3-532.5 w/ veins of bright blue Cu ox at 50°, 533.8-534.2 band of HEM at 35°	530 5			
		1	1										1	3	3		1	1	2							5	-	4	40		535-540 Ygm, very fractured, fault breccia 535-536.5 w/ low gouge, ∠ 40° Lots of Fe ox throughout, trace Cu ox	535 5			
540	1	1	-		3									3	1		2	2	3							4	-				CORE IS A MUDDY MESS ORTHOCLASE & OTHER MINERALS ARE SHEARED KSPAR - CU CLAY 1-3 CM ORTHOCLASE BIOTITE K-SPAR - CLAY - CU TENORITE	540 5			
	1	1			2									3	1		-	2	2							3	0				548-549 MINERALS SHEARED HEMATITE IN W/ MATRIX MINOR K-STAR → CU SHEARED ORTHOCLASE NOT MUCH CU	545 5			
550	1	1			1									3			-	2	2							4	-				552.7-553.7 FAULT ZONE - SHEARED PORPHYRITIC-CLAY BRECCIA 553.7-557 ROCK IS FRACTURED LIGHTER COLORED HARD IT IS FINER GRAINED NOT PORPHYRITIC - some HEMATITE - BARREN (CU)	550 2 552 5			
	1		1		5	1								3			-	-	2							5	-	-							
														NO			RECOVERY																		
560	1				1	1								2			-	-	2							5	-	-	2		558-558.7 FRACTURED ROCK 1-3 CM PIECES Ygm	557.1 558 -2			

560

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP 11-06
SHEET 2 OF

CONTRACTOR: Cabo PQ
CORE SIZE:
LOGGED BY: Jonas Sieber
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED: 7/15/11
COMPLETED:

COMMENTS: 600' AZ 3.3° 80.0.3

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION: GEO., MINERAL, ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
560	1	1			3	1							4	1		-	2	2						4	-	-			560 - 573.7 Ygm 560 - 562.5 BRECCIATED W/ CLASTS UP TO 2-3 cm LOTS OF HEMATITE IN MATRIX 562.5 - 565 Ygm W/ K-SPAR → CU, BIOTITE, SALMON ORTHOCLASE	560 5			
		1			2	1							1	1		-	2	2						5	-	-			565 - 565.5 Ygm 565.5 - 567.4 FINGERS PALE QZ DIABASE? AT THE CONTACTS Ygm IS IN SOME OF DIABASE ANTENNSIVE? 567.4 - 568.1 Ygm W/ K-SPAR → CU 568.1 - 569 DIABASE? 569 - 570 Ygm	565 5			
570			1		5								4	1		—	2	2						4	-	-			570 - 573.3 Ygm NO CU - FRACTURE, HEMATITE 573.3 - 575 Ygm 575 - Ygm Tgdp - Ygm MIXED Tgdp - GOOD CUOX2	570 5			
	1	1			1								2	1		2	2	2						4	-	-			Ygm - CUT W/ DIABASE 575.4 - 576.2 577.2 & 579 - DIABASE Ygm - CUOX1 & CUOX2	575 5			
580	1	1			3								3	1		2	2	2						5	-	6			583.6 NORMAL FAULT 60° CLAY TENORITE & K-SPAR → CU	580 5			
	1	1	1		2								2	1		—	2	2						3	-				K-SPAR → CU MINOR TENORITE LARGE ORTHOCLASE	585 5			
590	1				4								4	2		—	3	3						2	-				589.5 - 590 Tgdp FELDSPAR → CU 590.4 - 594.1 BRECCIA/SHEAR W/ HEMATITE MATRIX SOME K-SPAR - CU, TENORITE 593.5 & 594.5 Tgdp GOOD K-SPAR → CU	590 5			
	1	2			3								3	1		2	2	2						3	-				595.9 - 597.7 GOOD CUOX2 - LOTS OF BIOTITE ALSO	595 5			
600	1	2	1		3	1										2	3	2						4	-				600 - 604.4 Ygm SHEARED W/ HEMATITE K-SPAR → CU RICH BIOTITE BLOCKS 604.4 - 605 Tgdp	600 5			
	1	1			6	1							8	1		-	3	3											605 - 609 Ygm SHEARED/BRECCIATED (CLASTS) & CU W/ HEMATITE (AS ABOVE) SOME KSPAR → CU 609 - 610 Tgdp	605 5			
610	1	1	1		4	1						1	4	4		1	2	3						4		3	30		610 - 615 Ygm, 610 - 610.6 fault breccia w/ gouge, ∠ 30° Fractures at 50° Veins of KSPAR/QTZ at 611.6 and 612.8	610 5			
	-	-	1		5	1						1	3	3		1	2	2						5	-	4	40		615 - 620 Ygm, 615 - 616.2 solid w/ 2mm wide QTZ veins 616.2 - 618 fault breccia w/ ~50% gouge, ∠ 40°	615 5			
620	-	1	-		1	1						1	4	2		1	1	3						5	-	4	40		620 - 625 Ygm, 620 - 621.6 fault breccia w/ sandy matrix, no gouge Fault ∠ 40°, Bands of BIO at 90° at 621.7, 621.9	620 5			
630		1			1	1						1	3	3		1	1	2						4	6	8	85		625 - 630 Ygm very fractured at 55°, Fault breccia 627.2 - 627.6 no gouge @ 70° More breccia 628.7 - 628.9 no gouge at 85°	625 5			

630

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP 11-06
SHEET 4 OF

CONTRACTOR: Cabo
CORE SIZE: PQ
LOGGED BY: Noonan/Sicker
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED: 7/15/11
COMPLETED:

COMMENTS: 700' SURVEY
AZ 97.96
CON 86.9°
INCL - 89.4

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION: GEO., MINERAL, ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
630		1			4	1						1	3	3		1	1	2						5	-	5	50		630-635 Ygm, mostly fault breccia w/ little gouge, ∠50°	630 5			
																													634-634.4 high clay content				
																													2nd side difficult to watch, very friable, still some mud				
		1			2	1						1	2	3		2	2	2						5		?			635-640 Ygm fault breccia, no gouge, ∠(?), very friable	635 5			
																													Not much else noteworthy				
640																																	
		—		—	4	1						1	3	2		2	2	2						5	-	8	75		640-644 Ygm fault breccia, no gouge from 640-642, zones of sand plus some clay 642-644, fault ∠75°	640 4			
																													slickensided cu/Fe ox at 640.3				
					3	1						1	3	3		1	1	3						5		?			644-648 Ygm fault breccia w/ very little clay except from 646.8-647.2, ∠(?)	644 4			
					5	1						1	3	3		1	3	2						5		?			648-651 Ygm fault breccia w/ lots of milled fragments and lots of gouge	648 3			
650																													Fault ∠(?), High cu ox in clay zones				
					2	1						1	5	5		1	2	3						5	-	6	60		651-656 Ygm fault breccia, ∠~60°, large milled fragments surrounded by Goe/Hem, no gouge, matrix is sandy	651 5			
					4	1						1	5	5		1	1	3						5	-	6	60		656-660 Ygm fault breccia, ∠60°, at before w/ milled fragments, sandy matrix, some gouge 658.7-660	656 4			
660					3	1						1	5	5		1	3	3						5		?			660-664 Ygm fault breccia, ∠(?)	660 4			
																													660-661.6 almost solid Fe ox w/ milled frag Ygm				
																													661.6-661.9, 662.4-662.8 almost solid white and light gm clay at 20°				
	1				4	1							5			-	2	2						5		4	60		664-664.4 FAULT BRECCIA	664 5			
																													664.4-665.2 FAULT ~40°				
																													SOME K-SPAR-CU				
670	1				5								5			3	2	2						5		-	45		664-670.8 BRECCIATED TUFF W/ COARSE GRANULAR PYRITE	669 5			
																													670.8-671.8 CU IN FRACTURES & K-SPAR				
																													671.3 FAULT ~45° NO 671.8-679				
																													677.7-679.5 SHEARED MINERALS W/ HEMATITE				
	1	1			5								5	2		3	2	2						4		—			SOME K-SPAR → CU	674 5.5			
680																													SOLID TUFF LITTLE CLAY OR HEMATITE GREEN CU ON FRACTURES	679.5 5			
	1	1			3								2	1		2	2	2						3	8	—			LARGE ORTHO SLAB & BOUDS OF BIOTITE				
																													684.9-685.2 DACITE DACITE IS DARK GREY W/ HEMATITE	684.5 5.5			
	1				4											3	2	2						5		7			685.2-688.7 Ygm CU ON FRACTURES - VERY FRACTURED				
																													688.7-689.2 DACITE 689.2-690 Ygm QTZ VEINS				
690																													690-695 DACITE	690 5			
			1		1								2			2	-	2						4					691-691.7 QTZ VEINS CRISS-CROSS				
																													CU ON FRACTURES				
																													HEMATITE ON FRACTURES				
													2				—							4					QTZ VEIN LOTS	695 5			
																													697-697.8 VEINLET OF CLAY HEMATITE				
700																																	

700

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMP 11-06
SHEET 5 OF

CONTRACTOR: Cabo
CORE SIZE: PQ
LOGGED BY:
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED: 7/15/11
COMPLETED:

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		LIMONITE	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY
700	1	3	2	1	2	1							0	1	1		1	0	2						3	3	-		
	3	3	3	1	2	0							0	1	1		1	1	2						3	8	-		
	2	3	3	0	1								0	2	1		1	0	2						1	9	-		
710	1	3	5	4	1								0	2	2		1	0	2						5	1	5		
	2	3	3	4	1	1	1						0	2	2		1	0	2						2	4	-		
720	3	1	3	5	1	1	0						0	2	2		0	1	3						3	7	-		
	2	0	2	5	2	1	1						0	1	2		0	0	3						2	5	-		
730	2	1	2	5	2	1	0						0	2	2		0	0	3						2	4	-		
	2	1	7	4	2	1							0	2	2		0	1	3						2	4	-		
740	2	1	2	3	3	1							1	4	2		0	1	2						3	6	-		
	2	1	3	3	4	1							0	4	3		0	0	3						4	-	-		
750	1	0	1	2	1	1							0	2	1		1	1	2						2	6	-		
	1	1		1										2	1		0	0	2						4	-	-		
		2		1										3	1		0	0	3						4	-	-		
760	1		1		2									2	2		2	2	2						3	-	-		
	2	1	1		2	1								4	2		2	2	2						3	-	-		
770	2	1	2		2	1								3	2		3	2	2						3				

COMMENTS:

AVG. CORE REC'Y/HOLE

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

700-703.5' nearly barren Tqdp. Dark gray, fr. CuOx on fbs. Abun. secondary biotite (recrystallized phenos). Hem in <1mm fbs, w/ minor white clay.

703.5-708' same. Several ~1/4-1/2" qtz vns, -/ksp-bio alt. stks.

708-710' some ½" vertical qtz-ksp vn. Numerous other smaller vns; various orientations. continues to 714', up to ~1" wide.

712-712.5' swarm of qtz vns w/ sericite envelopes up to ~1" wide.

714' fault begins, gouge. 50° TCA. end 715.

715-720' same rock. Common qtz//ser vns + secondary bio.

718-719.5' swath of strong ser+chl+epid. alt. ~25° TCA.

717' 1.5" qtz-CuOx vn, no envelope (60°?) 30° TCA

+719' 1"

719'- different Tqdp; lighter gray w/ much larger plag phenos

720-725' same lighter Tqdp. More FeOx; still only trace Cu. Abundant qtz vns ~75° TCA. Stringers of FeOx. Chlorite ser envelopes on qtz vns (± hem). Biotite is only locally recrystallized. Local patches of ser. flooding (@721.5, 724-725')

725-730' same Tqdp; nearly universal mod. ser flooding. fresh bio, few qtz vns/ser env. w/ some ksp(?). Biotite is fresh. gue > hem. ↳ uniform 2mm size.

730-735' same Tqdp; barren.

732.3' 3mm EDM vn, 80° TCA.

735-740' same

very common qtz(±ksp±ser) vns w/ ksp/ser envelopes.

738.5-740' strong patches of sericitic alt. Trace Cu clay.

740.2' 1/4" Cu clay vn, 70° TCA. Cu clay in plag @ 741-741.5'

742.2' 1/2" qtz vn w/ ksp

742.7-743' shattered zone w/ abund. hem.

746-747' shattered, not milled bx.

Same rock + alteration as above. No visible Cu

749-751' increased hem + stringers + blebs. Same rock.

751-755 FRACTURED HEMATITE STAINING

NO VISIBLE CU

758. Ygm HEMATITE/GOETITE STAINING

758-758.5 GOOD CU PLASTER ~2-1% LESS CU DOWN THE CORE

HARD COLT KSPAR → CU TENORITE HEMATITE/GOETITE STAINING ON FRACTURES & AROUND FELDSPAR

AS ABOVE

TENORITE K-SPAR → CU LARGE OTHE CLASTS - CONSIDERABLE QTZ

770 SEE OTHER SHEET

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
700 3.5			
703.5 4.5			
708			
710 5			
715 5			
720 5			
725 5			
730 5			
735 5			
740 5			
745 4			
749 2			
751 4			
755 3			
758 3.5			
761.5 5			
766.5			

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CNP11-06
SHEET 6 OF

CONTRACTOR: Cabo
CORE SIZE: PQ
LOGGED BY:
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED: 7/15/11
COMPLETED:

COMMENTS: Survey at 800' uncor. az 97.0, inclin -89.4

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION: GEO., MINERAL, ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
770																														770			
	3		3		3	1							3	2		2	2	2						3	-				LARGE ORTHOCLASE & QTZ GOOD CU ON FRACTURES & K-SPAR → CLAY → CU FRACTURES CRISS-CROSSING	771.5 5.5			
780	1		1		4								4	1		3	2	2						3	-	-			777→777.7 Y gm w/ ORTHOCLASE QTZ SOME K-SPAR → CU 777.7 - 778.8 BRECCIA/SHEARED PHENOCRYSTS W/ HEMATITE, CLAY	777 5			
	1		1		5								3	1		2	2	2						4	-	-			778.8 → 782 MORE CLAY → CU LESS HEMATITE 783-784.4 CONSIDERABLY CLAY - HEMATITE & CU 784.4-787 ORTHOCLASE QTZ K-SPAR → CU TENTERITE, BIOTITE	782 5			
790	2		2		4	1							3	1		-	2	2						4	-	-			787-788.2 ORTHOCLASE QTZ SOME K-SPAR → CU 788.2-790 SHEARED - CLAY - HEMATITE 790-792 HARD (SAME AS (787-788.2)) MOST OF CORE CAME OUT W/ OUT SPUN! FRACTURED W/ SILICA 1-3cm ORTHO CLASE K-SPAR → CU	787 5			
	2	1	2		2	1							3	1		3	2	2						3	-	-			792.5 → 797 CLAY	792 5			
800	-	1	-		4	1						1	2	2		1	2	2						2	-	60			797-800 Y gm fractured small zone of breccia w/ gouge 797.7-797.8 @60°	797 3			
		1			3	1						1	5	2		1	3	2						5	-	?			800-805 Y gm lots of fault breccia, ∠(?) 800.6-801.3 SOLID HEM w/ nice Cu ox, bright blue CHRYS followed by breccia to 802' mostly sand w/ little gouge, 803.6-804.4 gravelly breccia	800 5			
		-			3	1						-	3	2		2	2	2						5	-	?			805-810 Y gm, 806.4-808.2 fault breccia w/ 2in gouge Nice Cu ox in clay sites & on fractures, mostly 1" gravel w/ CHRY flecks	805 5			
		1			4	1						1	3	3		1	2	2						5	-	5	45		805-809 Y gm alternating fault breccia w/ non-breccia but fractured rock, ∠ ~45 a few areas of secondary BIO, especially 808-809' 5x5cm chunks Tgdp at both ends	810 5			
	NO			R	E	C	O	V	E	R	Y			NO		R	E	C	O	V	E	R	Y				NR	NR				
	1	-	1		2	1						-	2	3		1	1	3						5	-	4	40		815-818.7 Tgdp w/ extensive sericitic alteration and KSPAR & QTZ vns contact w/ Y gm at 818.7 at 40° Tgdp is barren 818.7-820 Y gm as before, difficult to watch 2nd side so still has some meat	815 5			
	-		-		1	1						1	2	2		1	3	2						2	5	-	45		820-825 Y gm w/ best mineralization I've seen in this hole, extensive PLAG replacement w/ Cu ox, Cu ox vein at 820.9' and 30° Fractures at 45°, rock is relatively solid but breaks when handled	820 5			
		1			1	1						1	2	2		1	3	2						2	3	-	30		825-830 Y gm as in last interval, good mineralization, appears solid but fractures easily, fractures at 30°	825 5			
		-			1	1						1	2	2		1	2	2						2	?	-			830-835 same Y gm as above, little more friable, little less Cu	830 5			
	2				1	1							2	1		1	2	2						3	-	-			835-840 Y gm LARGE ORTHOCLASE KSPAR → CU	835 5			
																														840			

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CMN 11-06
SHEET 7 OF

CONTRACTOR: SRX
CORE SIZE: RQ
LOGGED BY: Sieber/Nowan
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N:
E:
STARTED: 7/15/11
COMPLETED:

COMMENTS: AZ 60.0 CURRF 49.8 900' SURVEY INCL 89.50°

AVG. CORE REC'Y/HOLE

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION: GEO., MINERAL., ALT., STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
840	1		1		3	1								1	1		2	2	2							5	-				840- Ygm	840 5			
	1				4												-	2	2							5	-				842.4-843.5 FAULT GOUGE 0.5' OF BRECCIATED CLAY				
																															843-844.5 1" CLAY FAULT CU GOOD CU 843.8 → 845 W/ TENORITE	845			
	1	1			4									4	4			2	2							2	-				846-850 SHEARED & BRECCIATED 845.5-847 CU TENORITE SOME ORTHOCLASE	846 4			
850																															847-850 LT GREY CLAY → CU K-SPAR & CLAY → CU				
	1	3			5	1								4	4		2	2	2							2	6				850-855 SHEARED W/BRECCIA ORTHOCLASE & K-SPAR-CU W/ HEMATITE & GOETITE CONSIDERABLE BIOTITE - GOOD CU	850 5			
	1				6									4	3		-	2	2							3	-				Ygm W/ CONSIDERABLE CLAY	855 5			
860																															THE CORE HAD A LOT OF CLAY & WAS HARD TO CLEAN THE CORE IS CLAY ALTERED W/ SHEARED PHENOCRYSTS				
	1	1			5	1								2	3		2	2	2							2	3				AS ABOVE CU ON CLOSED FRACTURES	860 5			
	1	1			5	1								3	3		2	2	2							2	-				AS ABOVE GOOD CU - CLAY ALTERED Ygm	865 5			
870																																	870 5			
	1	1			5	1								4	2		2	2	2							2	6	-			AS ABOVE WEAK ROCK UNFRACTURED				
	1				4	1								3	2		2	2	2							4	-				875-886 OK CU OX, & R 876-880 9% ORTHOCLASE LESS ALTERED K-SPAR → CU SHEARED NOT NEAR ALTERED K-SPAR - CLAY → CU	875 5			
880																																	880 5			
	2	1	1		2	1								4	1		3	2	2							4	8				FRESH Ygm QTZ-ORTHOCLASE - K-SPAR, CU HEMATITE ON ALL FRACTURES	PUMP ROCK OUT W/ON SPLITS & MESH			
	2	1	2		2	1								4	1		2	2	2							4	-				STILL PUMPING CORE W/ OUT SPLITS COMING OUT OF TUBE QUTZ FLOODED - ORTHOCLASE VERY LITTLE CU	885 5			
890																															891.3-891.7 FAULT 60 CLAY LT GREY - CU K-SPAR → CU	890 5			
	2		1		2									3	1		2	2	2							5	-	6			895-897.5 GOOD CU OX_1 & OX_2 TENORITE LARGE ORTHOCLASE				
	2		1		2	1								2			2	2	2							4	-					895 5			
9																															900-905 Ygm, Fault breccia 903.1-903.5, ∠(?) mostly sand, some clay Fault breccia 904.5-905 w/ 50% clay and 50% sand, ∠(?) low CU ox, 2nd side difficult to watch/very tricky so still has some mud	900 5			
	1	1	-		4	1							-	2	4		1	1	3							5	-	?							
		2			3	2								3	3		1	1	3							4	-	5			905-910 Ygm, very fractured and crumbly w/ some zones of sandy breccia 100 clay, low CU ox, fault ∠ 50, which is very difficult to watch, some mud	905 5			
910																																	910			

COLLAR COORDINATES:	ELEVATION:	CONTRACTOR: Cabo	HDI CURIS
N: E:	BEARING:	CORE SIZE: PQ	LOCATION: FLORENCE
STARTED: 7/15/11	INCLINATION:	LOGGED BY: Noonan	HOLE ID: CMP11-06
COMPLETED:	TOTAL DEPTH:	SCALE:	SHEET 8 OF

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP
ALTERATION																										
OXIDE																										
SULFIDE																										
FRACTURING																										
GEOLOGY																										

COMMENTS:

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

910-915 Ygm, flaky and fractured from 910-912, more solid 912-915
910-912 is barren, 912-915 typical disperded Cu ox
QTZ m at 910 1 cm wide, 70° TCA, Fracture ∠50°
915-920 Ygm, highly oxidized, mostly Fe ox but nice Cu ox too
esp from 918.6-919, Gravel from 917.5-918, ∠40°, breccia?
Some CHPYS
920-925 Ygm highly oxidized w/ very little visible Cu
Fault breccia 920-921.9 ∠75, rest of rock really broken up, all breccia?
925-930 Ygm, 925-927.2 broken up ∠45° 927.2-928.2 ~solid,
928.2-930 looks solid but flakes easily, Cu ox, low visible abundance,
some CHPYS on fractured, bright gm in clay sites, last foot of 2nd side not was read
930-935 Ygm 930-930.7 very solid w/ good Cu ox, some CHPYS
930.7-935 broken up breccia, ∠50° and dendritic HEM
935-940 Ygm, veins of BIO flooding, poor mineralization
937-937.6 fault breccia w/ gouge at 35°, rest of interval is
resistant to flaking and easily to break, All Cu ox in clays, no CHPY or TEN
940-945 Ygm, veins and zones of BIO flooding, low Cu ox
940.9-941.4 fault breccia, low gouge, 60°
945-950 Ygm, most competent rock so far today, decent mineralization
in clay sites, CHPYS on fractured (only small and visible)
948.1-948.3 Fault breccia, mostly sand, little clay, 55°
950-955 Ygm, Fractured at 40°, pretty friable, CHPYS on fractured
Breccia 952.5-952.7, and intermittent from 954-955, ∠40°
955-960 Bad rain night now Ygm
looks same, broken
960-965 Ygm, variable fracture angles, fairly competent
some CHPYS on fractured

new page

AVG. CORE REC'Y/HOLE

DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
910			
5			
915			
5			
920			
5			
925			
5			
930			
5			
935			
5			
940			
5			
945			
5			
950			
5			
955			
5			
960			
5			
965			

COLLAR COORDINATES:	ELEVATION:	CONTRACTOR: Cabo	HDICURIS
N: E:	BEARING:	CORE SIZE: PQ	LOCATION: FLORENCE
STARTED: 7/15/11	INCLINATION:	LOGGED BY: Russin/Norman	HOLE ID: CMP11-06
COMPLETED:	TOTAL DEPTH:	SCALE:	SHEET 9 OF

FOOTAGE	980	970	965
ALTERATION: ORTHO	0	1	3
BIO	0	0	1
QTZ	0	2	2
SER	0	1	0
CLAY	3	3	3
CHL	1	2	1
EPID	0	0	1
CARB			
GYPS			
ANHY			
MAG			
OXIDE: LIM JAR	0	0	0
HEM	1	1	1
GOE	1	2	2
CU GRAPHIC			
CUOX 1	2	1	2
CUOX 2	3	2	2
SULFIDE: MET ZONE	1	2	2
PY			
CPY			
CC			
BN			
MO			
FRACT INT	4	1	1
FRACT DIP	8	6	6
FAULT DIP	9	-	-
FRACTURING	90		
GEOLOGY	+ +	+ +	+ +

COMMENTS:

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

965-970' v. [illegible] black [illegible] alt. [illegible] 965-967.5' [illegible] (secondary) w/ [illegible] 970-973' sand.

970-976' thin slightly recrystallized zones; [illegible]

917-925' NC.

925-930 4gm. 975-975.3 clay gouge 975.3-975.7 gravel ∠ ~90°
930-37.780 blind dip chips, [illegible] 975.7 Fracture ∠ 75°
979.8-980 almost solid bright white-colored clay TEN veins

AVG. CORE REC'Y/HOLE

	980	925	970	965
DRILLING INTERVAL		5	5	5
% CORE RECOVERED				
RECOVERY % BY A.I.				
SAMPLE INTERVAL		23	NO SAMPLE	011

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CUP 11-06
SHEET 10 OF

CONTRACTOR: Cobra
CORE SIZE: PQ
LOGGED BY: Duncan/Russin
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED: 7/15/11
COMPLETED:

COMMENTS: survey @ 1000': az = 143° incl = -89.8°
corrected az = 132.0°

AVG. CORE REC'Y/HOLE

FOOTAGE	ALTERATION: ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		OXIDE: LIM/JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	SULFIDE: MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION: GEO., MINERAL, ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
980	-	-	-		3	1	2						1	3	3		3	3	2							4	6	-	60		980-985 Y/gm, pretty broken up, great mineralization from 980-981 w/ lots of cu/clay chrys, and fucks of TEN, contact w/ two min. zone and boring Y/gm at 60°, same angle for other fractured, cu clay and chrys throughout interval but v. dense from 981-985	980 5			
	1	1	2	-	3	1	0						0	1	2		1	2	2							2	5	-			985.990' top of [illegible] sand from the hole. 987' ~1/8" [illegible] as is usual in drill core. 988-990' stringer [illegible] fracturing @ 35-40° TCA every 1/2". Streaks of bx alt w/ qtz vns, 30° TCA	985 5			
990	4	1	2		3	2	1						0	3	3		1	2	2							3	5	-			990-995' strong ksp alt locally, 991-993 - mod ksp. Pyrite → chl almost complete. 993-994' shattered bx, no mineral. Strong hem replacement in a few spots 994-995' a couple ~1/2" chrys veins, 30° TCA.	990 5			
	3	2	3		3	2	1						1	2	3		1	2	2							2	-	-			995-1000' same, pretty complete fuck w/ minor Cu clay a fiber plag 997.5 2 1/2" bx-bearing qtz vns, parallel, 50° TCA 998.[illegible] well fractured	995 5			
1000	3	1	2	1	3	1	1						0	2	2		1	2	2							2	5	-			1001-1002' 1003.5-1005' slightly elevated Cu, stronger green in clay + a few specks of chrys	1000 5			
	4	2	4	0	3	2	1						1	1	2		1	2	2							1	7	-			1006.5-1007' zone of [illegible] 1007-1009' strong ksp [illegible] (1006.5-1009') 1009' ~1/2" seam of clay/bx, 65° TCA. some Cu clay.	1005 5			
1016	3	2	5	1	3	2	1						0	3	2		1	2	2							2	3	-			1010-1014' [illegible] low-grade [illegible] qtz-bio/ksp [illegible] → chl alt. 1014-1014.5' [illegible] development, rock is s/c [illegible]	1010 4.5			
	3	2	3	2	4	2	1						1	3	3		1	1	2							5	7	7			1015.5-1016.1' fault zone: gougey breccia. 60-65° TCA. 1018-1019.5' NR, very broken below. Common jar in plag 1017-1020' 1017-1019 [illegible] (than after ksp).	1014.5 5.5			
1020	2	1	3	0	3	2	1						1	1	2		1	2	2							2	5	-			1020-1025' same old [illegible]; low grade, mod. alt. → clay → Cu clay + tr. chrys. 1024 2" 1/2 [illegible] zone 35° TCA.	1020 5			
	2	2	4		3	2	1						1	2	2		1	2	2							1	6	-			1025-1030' same. Sheeted [illegible] (qtz/qtz) @ ~45° TCA. Visible as gray streaks in kspar. 1029-1030' [illegible] clay + a couple white chrys vns	1025 5			
1030	2	1	4		2	2	2						0	2	1		1	1	2							1	5	-			1030-1033' same. 1030-1031' numerous <3 mm chrys vlts, [illegible] 1033.5-1035' bio completely altered to sp/chl	1030 5			
	5	2	4		2	2	2						1	2	2		2	2	2							2	7	3	30		1035-1036.2' [illegible] kspar [illegible] Salmon [illegible] w/ qtz + chrys. 1036.2-1037.2' [illegible] mod. alt, w/ [illegible] qtz vns w/ chrys. 1038' 2" [illegible] w/ gouge, 30° TCA. Bio completely → chl, much sp.	1035 5			
1040		2	-		3	2	1						1	3	3		1	1	3							3	-	3	25		1040-1045 Y/gm heavily oxidized, very fractured, patches of CHPY, otherwise ISW Cu ox. 1042.5-1044 breccia at 25°	1040 5			
		2			3	1	-						1	3	[illegible]		1	3	2							4	5	-	50		1045-1048.7 Y/gm, 1046.5-1047.2 chrys veins, Fe ox throughout. Planar contact at 30° w/ 1cm of gouge, fractures and vns at 50° 1048.7-1050 Y/ds/[illegible] w/ Cu clay; chrys veins, HEM veins	1045 5			
1050																																	1050			

HDI CURIS

LOCATION: FLORENCE
HOLE ID: CAP11-06
SHEET 11 OF

CONTRACTOR: FQ
CORE SIZE: NQ
LOGGED BY: Nassar/Bueno
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES: N: E:
STARTED: 3/15/11
COMPLETED:

COMMENTS: Screen @1100': az 165.5° incl -89.7° corrected az = 154.5°

AVG. CORE REC'Y/HOLE

DESCRIPTION: GEO., MINERAL, ALT, STRUCT.

FOOTAGE	ALTERATION: ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG	OXIDE: BM JAR	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	SULFIDE: MET ZONE	PY	CPY	CC	BN	MO	FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	DESCRIPTION	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
1050	-	-	-	-	5	1						-	3	1		2	2	2						5	-	7	70		1050-1055 Ydb, 1050-1053 fault breccia w/ 50% gouge, ∠~70° 1053-1055 competed w/ chlys in vns & on fractures, ten fracks well mineralized chunk of Ygm 1053-1053.2 and ~60° w/ chlys, curly	1050 5			
		1			6							-	4	2		1	1	3						5	-	6	60		1055-1060 Ydb poorly mineralized, 1055-1056.4 solid, fracks of Tenorite 1056.4-1059 Fault breccia, ∠60° w/ about 20 in clay and practically no blue Cu ox still some ten. fracks	1055 5			
1060	NO		R	E	C	O	V	E	R	Y				NO		R	E	C	O	V	E	R	Y						Lost 1059-1060 1058-1059 solid blk clay.				
		1			5	1						1	5	3		1	1	3						5	-	?	85		1060-1065 v. weakly mineralized Ygm contact w/ Ydb at 1060.4 1060.4-1065 all Ygm breccia, almost no visible Cu ∠85°	1060 5			
		2		1	3	2						1	3	2		1	3	2						5	8	8	80		1065-1070 Ygm intermittent fault breccia alternating w/ fractured All clt → BIO, 1065-1065.2 gouge, otherwise v. little clay ∠80° Cu ox visible, sm. amt tenorite 1069.5-1070, remnant sulfides	1065 5			
1070		2		1	5	2						-	4	4		1	1	3						5	6	6	60		1070-1075 Ygm mostly breccia, no gouge, very crumbly, ∠60° All BIO → clt, low visible Cu ox, no chlys.	1070 5			
		1		-	3	1						1	3	3		2	4	2						5	6	6	60		1075-1079.1 well mineralized Ygm w/ Cu clay, chlys, tr tenor. Small zones of breccia at 1076 and 1077.8, highest Cu 1078.3-1078.6 ∠60° Contact w/ Ydb at 1079.1, Ydb to 1080, contact planar at 60°	1075			
1080		1	2		2	1						1	3	2		1	1	3						4	?	?			1080-1081.5 Ydb w/ vein of clay at 1080.1 w/ faint Cu, stretched little Cu ox, preceded by Cu gouge phenocrysts of white clay, crosscut by HEM veins	1080 5			
	2	2	2		4	2						1	4	2		1	2	2						5	-	5	50		1081.5-1083 Ygm, most BIO → clt, contact ∠(?) Lost 1083-1085, recovered in next run, 1083-1088 Ygm 1085.2-1086 Fault breccia ∠50° 1086-1088 totally broken up, can't see much 1083-1085.2 bands of KSPAR, Qtz, BIO, most BIO → clt, 2nd side not watched	1085 3			
1090	2	1	1	1	3	1						1	3	3		1	1	3						4	-				1088-1090 Ygm, 25 mm wide band KSPAR at 1088.7, smaller bands of BIO and 60° very fractured	1088 2			
	-	3	-	1	4	1						+	3	3		1	1	3						4	4	-	60		1090-1095 Ygm, pretty broken up zones of breccia, BIO vn at 1092.8 much of BIO → clt, clay gouge 1094.5-1095 All very weakly mineralized, fractured at 60	1090 5			
	3	1	2	3	4	2	1					1	2	2		1	2	2						4	-	6			1095-1100' shattered QMP. strong sericitic alteration; tan ksp, not pink. 1097' 3" gouge w/ sand. qtz; 55° TCA. bx contains ~2" chunk of solid biotite. 1098.5' 3" bx, no gouge or clay but shattered	1095 5			
11	2	1	3	4	4	2	2					1	2	2		1	1	2						4	5	-			1100-1105' same sericitized QMP, shattered, abundant clay + FeOx, a little Cu Ox. Most of the rock is fine grained.	1100 5			
	1	0	4	2	4	2	1					0	1	2		1	2	2						3	5	-			1105.8-1107' partially silicified patches of strong sericitic alt @ 1105 + 1106.5, a couple inches. most of 1105-1110' the same partially altered weakly mineralized QMP. Less sulfides in the QMP than typical; only a couple percent. Well fractured.	1105 5			
110	2	1	3	2	5	2	1					1	1	3		1	3	2						5	-	3			1110-1115' fault bx + gouge, slips @ 25° TCA. Stronger cu throughout, w/ chlys usl ~2mm 1111' + 1113-1114'. Patches + dots of Cu-rich clay throughout. 1112.4-1115' streaks of tenorite w/ chlys. Stick core! 4 pcs	1110 5			
	2	0	1	0	5	1	1					0	1	3		1	2	2						5	-	-			1115-1118' same fault bx, less Cu, only in chlys really, trace chlys. fragments are large, not much matrix, but clearly milled.	1115 3			
1120					6	1	1					0	1	3		0	1	2						5	-	-			1118-1120' same fault bx.	1118 2			

1120

HDI CURIS

LOCATION: FLORENCE
HOLE ID:
SHEET OF

CONTRACTOR:
CORE SIZE:
LOGGED BY:
SCALE:

ELEVATION:
BEARING:
INCLINATION:
TOTAL DEPTH:

COLLAR COORDINATES:
N: E:
STARTED:
COMPLETED:

FOOTAGE	ORTHO	BIO	QTZ	SER	CLAY	CHL	EPID	CARB	GYPS	ANHY	MAG		LIM	HEM	GOE	CU GRAPHIC	CUOX 1	CUOX 2	MET ZONE	PY	CPY	CC	BN	MO		FRACT INT	FRACT DIP	FAULT DIP	FRACTURING	GEOLOGY	COMMENTS: / DESCRIPTION: GEO., MINERAL, ALT, STRUCT.	DRILLING INTERVAL	% CORE RECOVERED	RECOVERY % BY A.I.	SAMPLE INTERVAL
1120					6	1	1						1	2	4		0	2	2							5	-	-			1120-1125' same fault bx. v. low grade, only Cu clay in plag sites. most hypogene detail concealed by clay/Fe ox overprint.	1120 5			
					6	1	1						0	3	4		0	1	3							5	-	5			1125-1128' same	1125 5			
1130																															1128-1129.6' Ta top 6" gouge (not bx) ← contacts sheared, 45°TCA. 1129.6- QMP				
		1			1	1							0	2	1		1	0	2							2	8	-			much gneissic w/ Qtz blebs + plag. Abundant hematite, mostly confined to fractures. 1133-1133.8' lacy network of secondary biotite. Little supergene influence, relative to above. 1135-1140 QMP, relatively solid, small clouds secondary biotite. Fresh bio, weaker Fe/Cu ox, variable fracture angle	1130 5			
1140		1			1	1							0	2	2		1	1	2							2?	-					1135 5			
		1			1	1							1	2	2		1	2	2												1140-1145 same	1140 5			
																																1145			
1150																															T.D. is 1145' Hole called b/c drilling was close to capacity				
1160																																				
1170																																				
1180																																				
1190																																				

AVG. CORE REC'Y/HOLE

DRILLER'S LOG

HOLE NO. #367
I.5-1N

TOTAL DEPTH 350'
SPOT CORE

DATE STARTED 1-18-74
DATE COMPLETED 1-18-74
DRILLER

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-45'	Alluv - Loose	Boulders Gravel		Ok
		Clay	Slow	
45'-160'	Cong - Loose	Sand - Clay	Slow	" "
160-280'	Cong - Cemented	Sand - Boulders		
		Clay	Med	
280-300'	Cong	Brown Sticky		
		Clay	Slow	
300'-350'	Cong Cemented	Sand Clay	Med	

Set 45' of 5 9/10 Surface

HOLE No. 367-S
DEPTH 941'
COORDINATES N 746173, E 648315
COLLAR ELEVATION 1475.40
INCLINATION 90°
BEARING

MAGMA COPPER COMPANY
FLORENCE PROJECT
GEOLOGIC LOG

PHASE II Hole-
Re-entered rotary
Casing done by Conoco-

DATE STARTED 6/21 - ~~6/13-93~~
COMPLETED 6/13
CONTRACTOR Tonto
LOGGED BY REX
CASING DEPTH 355'
CORE SIZE NX TO 941,
SIZE TO

CORE RUN	CORE REC.	DEPTH RUN BOTTOM	ROCK	LITH.	TEXT.	FRAC. INT.	FRAC. DIP	FIT. DIP	RQD	ALTERATION MINERALS OR BIO QTZ SER CLY CHL EPI CAR GYP ANH MAG 01 02 03 04	OXIDE ZONE LIM HEM Cu 01 Cu 02	MET ZONE	SULFIDE ZONE Py Cp Cc Bn Mo 01 02 03 04	ASSAYS TOTAL Cu	Cu Ox	Mo	FE	S	CA	Zn	SAMPLE NUMBERS	GRAPHIC LOG
			GC																			
10	100	520	GC			4			4					017	009	001	050	001	040		367-1	
10	100	530							4					010	004		171		040		2	
	100	540							0					010	005		173		455		3	
	100	550							0					013	009		179		040		4	
	95	560							0					010	008		167		040		5	
	95	570							4		11			012	007		166		040		6	
	100	580							0		11			010	008		177		040		7	
	100	590							4		11			082	061		156		040		8	
	100	600	BX						0		11			079	037		217		040		9	
	100	610	BX						0		11			063	042		176		040		10	
	100	620	BX					8	0		11			144	080		226		040		11	

REMARKS

355'-600'- Gila Conglomerate-

poorly sorted- subangular clasts-
SP, Qm, An - well cemented

Brownish red - matrix-
(calcarious-)

mainly Qm-ap frags-

contact very sheared- minor Fe st.
hard to distinguish-
600'-670'- Breccia- Sidewinder
fault zone-
strong yellow clay- souse-

Broken zone- strong Bx-
FG- (fault souse)

921'-80° FLT

MCC 367

ARIZONA DEPARTMENT OF WATER RESOURCES

500 NORTH THIRD STREET
PHOENIX, ARIZONA 85004

PROJECT COMPLETION REPORT FOR MINERAL EXPLORATION DRILLING

This report must be prepared by the owner in all detail for each hole drilled and filed with the Department within 30 days following completion of the well drilling project.

1. Owner Name: BHP Copper

   Address: 14605 E. Hunt Hwy, Florence AZ 85232
   Street City State Zip

2. Lessee or Operator Name: Same as above

   Address: _____
   Street City State Zip

3. Driller Name: Boyles Drilling

   Address: 12030 E. Riggs Rd., Chandler AZ 85249
   Street City State Zip

4. Location: 4S N/S 9E E/W 28 SW 1/4 NE 1/4 SW 1/4
   Township Range Section 10-Acre 40-Acre 160-Acre

WELL REGISTRATION NO. 55-539336 (REQUIRED)

DESCRIPTION OF WELL

5. Type of Casing (if installed): Steel casing

6. Abandonment method and material used if abandoned: 941' to 0' type 5 cement

Was well abandoned in the course of drilling pursuant to R12-15-816, F.? Yes ✓ No ____

7. Date of period drilled: From: 6/7/93 To: 6/13/93

LOG OF WELL

[✓] Unconsolidated Formation
0-600'

[✓] Consolidated Formation
Depth to water in feet below land surface: ____
(if encountered or detected)
600'-941'

I state that this report is filed in compliance with A.R.S. §45-600 and is complete and correct to the best of my knowledge and belief.

Carolla Hoag 9/11/97
Owner/Lessee's Signature Date

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. ____

Received ____ By ____

Entered ____ By ____

File No. ____

DWR-55-57-7/91(Rev)

New Page Added

Magma Copper Company
Well Closure Certification Form

This form is to be filled out upon abandonment of any well or coreholes. A copy shall be filed in the well log file.

I certify that the well/core hole number MCC-367 has been abandoned in compliance with the attached "Magma Copper Company Well and Corehole Abandonment Work Plan" dated January 10, 1996. A copy of the following documents are t be attached to this certification:

1. ADWR Notice of Intent to Abandon a Well (Unit wells only)
2. Well abandonment completion report per R12-15-816.K
3. U.S.EPA Plugging and abandonment plan form 7520-14
4. A diagram for each well or core hole depicting "as abandoned conditions"
5. A description of placement methods and volumes
6. Notation of any deviation from typical procedures

Name: James M. Lewis
Company: Layne-Christensen
Date: 5-21-96

#5. Cemented bottom of core hole to bottom of casing. Cut casing. Circulated cement around casing. Total Volume approx. 700 gallons. Type V cement.

DRILLER'S LOG

HOLE NO. 368
I 1.5N

TOTAL DEPTH 385'
SPOT CORE

DATE STARTED 1-21-74
DATE COMPLETED 1-21-74
DRILLER

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-55'	Alluv - Loose	Boulder - Gravel		1K
		Clay	Slow	
55'-150	Cong - Loose	Sand Clay	Slow	5"
150-280	Cong - Cem Tol	Sand Boulder		
		Clay	Med	
280-300	Cong	Brown Sticky		
		Clay	Slow	
300-370	Cong - Cem Tol	Sand Clay	Med	
370-385	possible bedrock		Slow	

Set 55' of 5 9/16 Surface

HOLE No. 368 PHASE II
DEPTH 1044'
COORDINATES N 745957, E 648192
COLLAR ELEVATION 1473.29
INCLINATION -90
BEARING —

MAGMA COPPER COMPANY
FLORENCE PROJECT
GEOLOGIC LOG

DATE STARTED 6-20-93
COMPLETED 6-24-93
CONTRACTOR Tonto
LOGGED BY REX, FLU
CASING DEPTH 390'
CORE SIZE NX TO 1044,
SIZE ____ TO ____

CORE RUN	CORE REC.	DEPTH RUN BOTTOM	ROCK	LITH.	TEXT.	FRAC. INT.	FRAC. DIP	FIT. DIP	RQD	ALTERATION MINERALS OR	BIO	QTZ	SER	CLY	CHL	EPI	CAR	GYP	ANH	MAG	01	02	03	04	OXIDE ZONE LIM	HEM	Cu 01	Cu 02	MET ZONE	SULFIDE ZONE Py	Cp	Cc	Bn	Mo	01	02	03	04	ASSAYS TOTAL Cu	Cu Ox	Mo	FE Ag	S Au	CA Pb	Zn	SAMPLE NUMBERS	GRAPHIC LOG
10		390	WT						12																																						0
		400							8																																						
		410							24																																						0
		420							18																																						
		430							16																																						0
		440							12																																						
		450							20																																						0
		460							8																																						
		470	WT						12																																						0
5	95	475	GP			3			8																1				3										068	017	001	181	002	040		368-1	
	100	480				4			4																1				3										193	061		177	002				2
	100	485				4			0				1			1									1				3										118	025		216	001				3
	100	490				4			0				1			1									1				3										120	013		229	001				4
	95	495				4			0				1			1									1				3										108	041		193	001				5
	95	500				4			4				1			1									1				3										168	050		200	001				6
	100	505				4			0				1												1				3										134	010		186	001				7

REMARKS

390'-470' - White tail consl - poorly sorted - angular - sub angular frags of qm, sp, volcanics - set in a red clay matrix - well cemented -
420' - red clay fault zone? broken, fractured -

456' - Fault gouge - clay

Qm boulder (?)

470'-620' - Granodiorite porphyry - contact extremely vague - broken, brecciated, high clay - yellow Fe staining (?)
470-480: cal (?) fragments of qm, and sp in a finely-~~grus~~ ground up matrix. Tr. FeOx on fracts. Weathered.
480-490 Poss. bedrock. GP; fine-grnd. wkly. argilliz. equigranular rock. Gypsum in fracts. + "vugs"; barren
490-505: GP as above, but minor lim. after py in fracts. Locally, ox. diss. py (<0.5%); black, neotocite (?) on fract planes.

mcc 368

ARIZONA DEPARTMENT OF WATER RESOURCES

500 NORTH THIRD STREET
PHOENIX, ARIZONA 85004

PROJECT COMPLETION REPORT FOR MINERAL EXPLORATION DRILLING

This report must be prepared by the owner in all detail for each hole drilled and filed with the Department within 30 days following completion of the well drilling project.

1. Owner Name: BHP Copper

   Address: 14605 E. Hunt Hwy, Florence AZ 85232
   Street City State Zip

2. Lessee or Operator Name: Same as above

   Address: _____
   Street City State Zip

3. Driller Name: Boyles Drilling

   Address: 12030 E. Riggs Rd., Chandler AZ 85249
   Street City State Zip

4. Location: 4S N/S 9E E/W 28 SW 1/4 NE 1/4 SW 1/4
   Township Range Section 10-Acre 40-Acre 160-Acre

WELL REGISTRATION NO. 55-539336 (REQUIRED)

DESCRIPTION OF WELL

5. Type of Casing (if installed): Steel casing

6. Abandonment method and material used if abandoned: 1044' to 0' type V cement

Was well abandoned in the course of drilling pursuant to R12-15-816, F.? Yes ✓ No ____

7. Date of period drilled: From: 6/20/93 To: 6/24/93

LOG OF WELL

☑ Unconsolidated Formation
0-470'

☑ Consolidated Formation
Depth to water in feet below land surface: ____
(if encountered or detected)
470' - 1044'

I state that this report is filed in compliance with A.R.S. §45-600 and is complete and correct to the best of my knowledge and belief.

Carolla Hoag 9/11/97
Owner/Lessee's Signature Date

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. ____

Received ____ By ____

Entered ____ By ____

File No. ____

DWR-55-57-7/91(Rev)

Magma Copper Company
Well Closure Certification Form

This form is to be filled out upon abandonment of any well or coreholes. A copy shall be filed in the well log file.

I certify that the well/core hole number 368 has been abandoned in compliance with the attached "Magma Copper Company Well and Corehole Abandonment Work Plan" dated January 10, 1996. A copy of the following documents are t be attached to this certification:

1. ADWR Notice of Intent to Abandon a Well (Unit wells only)
2. Well abandonment completion report per R12-15-816.K
3. U.S.EPA Plugging and abandonment plan form 7520-14
4. A diagram for each well or core hole depicting "as abandoned conditions"
5. A description of placement methods and volumes
6. Notation of any deviation from typical procedures

Name: James M. Meeuls

Company: Boyles Bros.

Date: 5-17-96

5. Filled core portion of hole with cement. Cut casing and circulated cement around casing. Total Volume approx. 800 gallons of Type V cement

DRILLER'S LOG

HOLE NO. #420
H. 5-1.5 W

TOTAL DEPTH 360
SPOT CORE

DATE STARTED 4-23-74
DATE COMPLETED 4-23-74
DRILLER

DEPTH	ROCK TYPE	LITHOLOGY	RATE OF DRILLING	BITS USED
INTERVALS SUCH AS 0-20	ALLUVIUM (LOOSE) CONGLOMERATE (CEMENTED) BEDROCK	BOULDERS, GRAVEL SAND, CLAY	FAST, MEDIUM SLOW	
0-60	Alluv - Loose	Boulder Gravel		6½
		Clay	Slow	
60'-150	Cong - Loose	Sand - Clay	Slow	5"
150'-280	Cong - Cemented	Sand - Boulders		
		Clay	Med	
280'-300'	Cong	Brown Sticky		
		Clay	Slow	
300'-355	Cong - Cemented	Sand - Clay	Med	
355'-360	Bedrock		Slow	
Set	15 Joints 3" Casing		Cemented	
Set	60' of 5⅝ Surface			

HOLE No. 421
DEPTH 1039'
COORDINATES N 745696, E 648273
COLLAR ELEVATION 1472.77
INCLINATION -90
BEARING

MAGMA COPPER COMPANY
FLORENCE PROJECT
GEOLOGIC LOG

Phase II Drillings

0-353' - Rotary
(0-495' - Conglomerate)

DATE STARTED 6-17-93
COMPLETED 6-23-93
CONTRACTOR Tonto
LOGGED BY REX
CASING DEPTH 353'
CORE SIZE NX TO 1039',
SIZE ____ TO ____

CORE RUN	CORE REC.	DEPTH RUN BOTTOM	ROCK	LITH.	TEXT.	FRAC. INT.	FRAC. DIP	FIT. DIP	RQD	ALTERATION MINERALS OR	BIO	QTZ	SER	CLY	CHL	EPI	CAR	GYP	ANH	MAG	01	02	03	04	OXIDE ZONE LIM	HEM	Cu 01	Cu 02	MET ZONE	SULFIDE ZONE Py	Cp	Cc	Bn	Mo	01	02	03	04	ASSAYS TOTAL Cu	Cu Ox	Mo	Fe	S	Ca	Zn	SAMPLE NUMBERS	GRAPHIC LOG
		353	GC																																												
5	100	495	GP									2	2												21				3																			
	100	500	GP			4			0			2	2												21				3										163	058	001	214	002	040		421-1	
	100	505	GP			4			0			2	2												21				3										174	064		188	002				2
	100	510	GP			4			0			2	2												22				3										116	032		258	002				3
	100	515	GP			4			0			2	2												21				3										059	015		153					4
	95	520	GP			4			0			2	2												21				3										072	028		140					5
	100	525	GP			4			0			2	2												2				3										120	047		197					6
	95	530	GP			4			0			2	2												2				3										111	035		164					7
	95	535	GP			3			8			2	2												22				3										099	041		202					8
	100	540	Qm			4			0			12	2												22				3										186	090		253					9
	100	545	Qm			4			0			12	2												21	22	2												437	304		212					10
	100	550	Qm			3			4			1	2												21	22	2												473	322		160					11
	100	555	Qm			4			8			12	2												21	22	+												481	352		139					12

REMARKS

353'-495' Gila Conglomerate
Sub angular frags Qm, gp, volcanics, andesites etc. set in Brownish-red matrix -

Contact vague - Strong Bx

495'-540' - GP

540'-878' - Quartz monzonite
Strong Potassic Qm - texture extremely weathered

High limonite -

Strong BX - Broken, shear zone
High yellow Fe staining
CLAYS - gravels

Broken zone -

Bx - Hematite -
yellow Fe -

550' - Hybrid Qm - Qm/Gp mix
Strong BX -
CLAY - Broken -

MCC 421

ARIZONA DEPARTMENT OF WATER RESOURCES

500 NORTH THIRD STREET
PHOENIX, ARIZONA 85004

PROJECT COMPLETION REPORT FOR MINERAL EXPLORATION DRILLING

This report must be prepared by the owner in all detail for each hole drilled and filed with the Department within 30 days following completion of the well drilling project.

1. Owner Name: BHP Copper

   Address: 14605 E. Hunt Hwy, Florence AZ 85232
   Street City State Zip

2. Lessee or Operator Name: Same as above

   Address: _____
   Street City State Zip

3. Driller Name: Boyles Drilling

   Address: 12030 E. Riggs Rd., Chandler AZ 85249
   Street City State Zip

4. Location: 4S N/S 9E E/W 28 NW 1/4 SE 1/4 SW 1/4
   Township Range Section 10-Acre 40-Acre 160-Acre

WELL REGISTRATION NO. 55-539336 (REQUIRED)

DESCRIPTION OF WELL

5. Type of Casing (if installed): Steel casing

6. Abandonment method and material used if abandoned: 1039' to 0' type 5 cement

Was well abandoned in the course of drilling pursuant to R12-15-816, F.? Yes ✓ No ____

7. Date of period drilled: From: 6/17/93 To: 6/23/93

LOG OF WELL

[✓] Unconsolidated Formation
0 - 495'

[✓] Consolidated Formation
Depth to water in feet below land surface: ____
(if encountered or detected)
495' - 1039'

I state that this report is filed in compliance with A.R.S. §45-600 and is complete and correct to the best of my knowledge and belief.

Owner/Lessee's Signature _____ Date 7/11/97

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. ____

Received ____ By ____

Entered ____ By ____

File No. ____

DWR-55-57-7/91(Rev)

Magma Copper Company
Well Closure Certification Form

This form is to be filled out upon abandonment of any well or coreholes. A copy shall be filed in the well log file.

I certify that the well/core hole number ~~419~~ 421 has been abandoned in compliance with the attached "Magma Copper Company Well and Corehole Abandonment Work Plan" dated January 10, 1996. A copy of the following documents are t be attached to this certification:

1. ADWR Notice of Intent to Abandon a Well (Unit wells only)
2. Well abandonment completion report per R12-15-816.K
3. U.S.EPA Plugging and abandonment plan form 7520-14
4. A diagram for each well or core hole depicting "as abandoned conditions"
5. A description of placement methods and volumes
6. Notation of any deviation from typical procedures

Name: Garner M. Neuils

Company: Boyles Bros.

Date: 5-15-96

5 Filled core portion of hole with cement. Cut casing and circulated cement around casing. Total volume approx. 750 gallons of Type V cement.

FLORENCE FEASIBILITY PROJECT
Prefeasibility Holes
Original Conoco Names and Final Magma Names

7/17/96
Michael Kline
Corename.xls
Jackie's PC

Present Hole ID	Original Conoco Hole ID	Relationship between the Hole ID's	Comments
MCC-367	367S	Magma REENTERED AND DEEPENED	NX diameter
MCC-368	368S	Magma REENTERED AND DEEPENED	NX diameter
MCC-369	369MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-397A	397MF	Magma DRILLED BESIDE ORIGINAL	Hole Drilled Entirely by Magma,NX diameter
MCC-406	406MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-407A	407MF	Magma DRILLED BESIDE ORIGINAL	Hole Drilled Entirely by Magma,NX diameter
MCC-418A	418MF	Magma DRILLED BESIDE ORIGINAL	Hole Drilled Entirely by Magma,NX diameter
MCC-419	419MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-421	421MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-423	423MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-425	425MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-426	426MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-427	427MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-434	434MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-519	N/A	Hole Drilled Entirely By Magma	NX diameter,used for met tests
MCC-521	N/A	Hole Drilled Entirely By Magma	NX diameter
MCC-522	N/A	Hole Drilled Entirely By Magma	NX diameter
MCC-523	N/A	Hole Drilled Entirely By Magma	6 inch diameter
MCC-524	N/A	Hole Drilled Entirely By Magma	NX diameter,used for met tests
MCC-525	N/A	Hole Drilled Entirely By Magma	NX diameter
MCC-526	N/A	Hole Drilled Entirely By Magma	NX diameter
MCC-527	N/A	Hole Drilled Entirely By Magma	6 inch diameter
MCC-530	N/A	Hole Drilled Entirely By Magma	NX diameter
MCC-531	N/A	Hole Drilled Entirely By Magma	NX diameter
MCC-532	N/A	Hole Drilled Entirely By Magma	NX diameter
22-1	N/A	Hole Drilled Entirely By Magma	HX diameter, Section 22 expl. holes
22-2	N/A	Hole Drilled Entirely By Magma	HX diameter, Section 22 expl. holes
22-3	N/A	Hole Drilled Entirely By Magma	HX diameter, Section 22 expl. holes
22-4	N/A	Hole Drilled Entirely By Magma	HX diameter, Section 22 expl. holes
22-5	N/A	Hole Drilled Entirely By Magma	HX diameter, Section 22 expl. holes

# of Core Holes Re-entered & deepened by Magma	11
# of Core Holes Magma Drilled Next to Conoco Holes	3
# of New Core Holes Drilled Entirely By Magma	16
Total Number of Core Holes Drilled During Prefeasibility Study	30

HOLE No. 522 mcc
DEPTH 1380'
COORDINATES N745,558, E 647,718
COLLAR ELEVATION
INCLINATION -90
BEARING —

MAGMA COPPER COMPANY
FLORENCE PROJECT
GEOLOGIC LOG

Copy Hole 135 MF

DATE STARTED 5-19-93
COMPLETED 5-27-93
CONTRACTOR Tonto
LOGGED BY M. REX
CASING DEPTH
CORE SIZE ____ TO ____,
SIZE ____ TO ____

CORE RUN	CORE REC.	DEPTH RUN BOTTOM	ROCK	LITH.	TEXT.	FRAC. INT.	FRAC. DIP	FIT. DIP	RQD	ALTERATION MINERALS OR	BIO	QTZ	SER	CLY	CHL	EPI	CAR	GYP	ANH	MAG	01	02	03	04	OXIDE ZONE LIM	HEM	Cu 01	Cu 02	MET ZONE	SULFIDE ZONE Py	Cp	Cc	Bn	Mo	01	02	03	04	ASSAYS TOTAL Cu	Cu Ox	Mo	FE ~~Ag~~	S ~~Au~~	CA ~~Pb~~	Zn	SAMPLE NUMBERS	GRAPHIC LOG
		350	GC																																													
5	100	360	GC			2			4																2	2	1	1	3										071	021	.01	3.25	.1	.40		522-1	
14	100	374	GC			2			8																														072	024	.01	2.89	.1	.40		2	
5	100	380	QM			3			4	1			2	1																									233	123	.01	1.78	.1	.40		3	
5	100	385	QM			3			4	1			2	1																									172	114	.01	1.39	.1	.40		4	
6	95	391	QM			4			0	1			2	1																									200	100	.01	1.43	.2	.40		5	
4	85	395	GP			4			0		1		2																										224	079	.01	2.31	.1	.40		6	
5	60	400				3			0		1		2																										256	125	ND	2.59	.1	.40		7	
5	95	405				3			4		1		2																										119	019	.01	1.95		2.00		8	
5	95	410				4			0		1		2																										112	027	N/D	1.83		.40		9	
5	95	415				4			0		1		2																										087	024	N/D	2.08				10	
4	100	419				3			0		1		2																										176	079	.01	1.16				11	
6	95	425	QM			4			0	1	1		2	1											2	2	2	1											124	068		1.47				12	
5	95	430				3			4	1	1		2	1											2	2	2	1											173	094		1.78				13	
5	95	435				4			0	1	1		2	2											2	2	1	1											155	036		1.81				14	
5	100	440				4			4	1	2		2	1											2	2	1	1											096	012		1.71				15	

REMARKS

0-40' Alluvium

40'-374' - Gila Conglomerate
Moderate → poorly sorted;
Sub angular frags. Qm, GP,
Andesite,

374'-391' - Quartz Monzonite -
Highly weathered, fractured,
Low → mod. chrysocolla mainly
in clays and along fractures -
High limonite, hematite.

391'-419' - Granodiorite porphyry
Brownish - grey silicified groundmass -
Low recovery near contact -
Plag. phenos 5-10 mm - ≈50%
of g.m. - fairly fresh -
(biotite fresh) - Strong limonite -

419'-567' - Quartz Monzonite -
Broken - sheared @ contact -
fairly fresh K-spars -
quartz "eyes"
Strong Fe staining -
chrysocolla
Minor Sericite - clays -

Broken - Sheared -

522 mcc

ARIZONA DEPARTMENT OF WATER RESOURCES

500 NORTH THIRD STREET
PHOENIX, ARIZONA 85004

PROJECT COMPLETION REPORT FOR MINERAL EXPLORATION DRILLING

This report must be prepared by the owner in all detail for each hole drilled and filed with the Department within 30 days following completion of the well drilling project.

1. Owner Name: BHP Copper

   Address: 14605 E. Hunt Hwy, Florence AZ 85232
   Street City State Zip

2. Lessee or Operator Name: Same as above

   Address: _____
   Street City State Zip

3. Driller Name: Boyles Drilling

   Address: 12030 E. Riggs Rd., Chandler AZ 85249
   Street City State Zip

4. Location: 4S N/S 9E E/W 28 NE 1/4 SW 1/4 SW 1/4
   Township Range Section 10-Acre 40-Acre 160-Acre

WELL REGISTRATION NO. 55-538308 (REQUIRED)

DESCRIPTION OF WELL

5. Type of Casing (if installed): casing pulled

6. Abandonment method and material used if abandoned: 1380' - 0' type V cement

Was well abandoned in the course of drilling pursuant to R12-15-816, F.? Yes ✓ No ____

7. Date of period drilled: From: 5/19/93 To: 5/27/93

LOG OF WELL

☑ Unconsolidated Formation
0'-374'

☑ Consolidated Formation
Depth to water in feet below land surface: ____
(if encountered or detected)
374' - 1380'

I state that this report is filed in compliance with A.R.S. §45-600 and is complete and correct to the best of my knowledge and belief.

Corella Hoag 9/11/97
Owner/Lessee's Signature Date

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. ____

Received ____ By ____

Entered ____ By ____

File No. ____

DWR-55-57-7/91(Rev)

Magma Copper Company
Well Closure Certification Form

This form is to be filled out upon abandonment of any well or coreholes. A copy shall be filed in the well log file.

I certify that the well/core hole number 522 has been abandoned in compliance with the attached "Magma Copper Company Well and Corehole Abandonment Work Plan" dated January 10, 1996. A copy of the following documents are t be attached to this certification:

1. ADWR Notice of Intent to Abandon a Well (Unit wells only)
2. Well abandonment completion report per R12-15-816.K
3. U.S.EPA Plugging and abandonment plan form 7520-14
4. A diagram for each well or core hole depicting "as abandoned conditions"
5. A description of placement methods and volumes
   Bottom to top w/ approx. 750 gallons of Type V cement
6. Notation of any deviation from typical procedures

Name: James M. Daniels

Company: Layne-Christensen

Date: 6-17-96

FLORENCE FEASIBILITY PROJECT
Prefeasibility Holes
Original Conoco Names and Final Magma Names

7/17/96
Michael Kline
Corename.xls
Jackie's PC

Present Hole ID	Original Conoco Hole ID	Relationship between the Hole ID's	Comments
MCC-367	367S	Magma REENTERED AND DEEPENED	NX diameter
MCC-368	368S	Magma REENTERED AND DEEPENED	NX diameter
MCC-369	369MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-397A	397MF	Magma DRILLED BESIDE ORIGINAL	Hole Drilled Entirely by Magma,NX diameter
MCC-406	406MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-407A	407MF	Magma DRILLED BESIDE ORIGINAL	Hole Drilled Entirely by Magma,NX diameter
MCC-418A	418MF	Magma DRILLED BESIDE ORIGINAL	Hole Drilled Entirely by Magma,NX diameter
MCC-419	419MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-421	421MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-423	423MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-425	425MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-426	426MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-427	427MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-434	434MF	Magma REENTERED AND DEEPENED	NX diameter
MCC-519	N/A	Hole Drilled Entirely By Magma	NX diameter,used for met tests
MCC-521	N/A	Hole Drilled Entirely By Magma	NX diameter
MCC-522	N/A	Hole Drilled Entirely By Magma	NX diameter
MCC-523	N/A	Hole Drilled Entirely By Magma	6 inch diameter
MCC-524	N/A	Hole Drilled Entirely By Magma	NX diameter,used for met tests
MCC-525	N/A	Hole Drilled Entirely By Magma	NX diameter
MCC-526	N/A	Hole Drilled Entirely By Magma	NX diameter
MCC-527	N/A	Hole Drilled Entirely By Magma	6 inch diameter
MCC-530	N/A	Hole Drilled Entirely By Magma	NX diameter
MCC-531	N/A	Hole Drilled Entirely By Magma	NX diameter
MCC-532	N/A	Hole Drilled Entirely By Magma	NX diameter
22-1	N/A	Hole Drilled Entirely By Magma	HX diameter, Section 22 expl. holes
22-2	N/A	Hole Drilled Entirely By Magma	HX diameter, Section 22 expl. holes
22-3	N/A	Hole Drilled Entirely By Magma	HX diameter, Section 22 expl. holes
22-4	N/A	Hole Drilled Entirely By Magma	HX diameter, Section 22 expl. holes
22-5	N/A	Hole Drilled Entirely By Magma	HX diameter, Section 22 expl. holes

# of Core Holes Re-entered & deepened by Magma	11
# of Core Holes Magma Drilled Next to Conoco Holes	3
# of New Core Holes Drilled Entirely By Magma	16
Total Number of Core Holes Drilled During Prefeasibility Study	30

HOLE No. 525 MCC
DEPTH 1210'
COORDINATES N 746,167, E 647,939
COLLAR ELEVATION 1476
INCLINATION -90
BEARING —

MAGMA COPPER COMPANY
FLORENCE PROJECT
GEOLOGIC LOG

DATE STARTED 4-22-93
COMPLETED 4-29-93
CONTRACTOR Tanto
LOGGED BY M. REX
CASING DEPTH 430'
CORE SIZE NX-430' TO 1210',
SIZE _____ TO _____

CORE RUN	CORE REC.	DEPTH RUN BOTTOM	ROCK	LITH.	TEXT.	FRAC. INT.	FRAC. DIP	FIT. DIP	RQD	ALTERATION MINERALS OR	BIO	QTZ	SER	CLY	CHL	EPI	CAR	GYP	ANH	MAG	O1	O2	O3	O4	OXIDE ZONE LIM	HEM	Cu O1	Cu O2	MET ZONE	SULFIDE ZONE Py	Cp	Cc	Bn	Mo	O1	O2	O3	O4	ASSAYS TOTAL Cu	Cu Ox	Mo	Fe	S	Ca	Zn	SAMPLE NUMBERS	GRAPHIC LOG
		000	Al																																												
		50	Al																																												
		300	WT																																												
5		430	GP					7																																							
	60	435	Qm			3	7	0	1	2		2	2												2	2	1	3										283	143	001	229	401	100		525-1	
	95	440				3		0																	2	2	1	3										114	082		136		100		2	
	95	445				4		0																	2	2	1	3										199	145		107		040		3	
	100	450				4		0																	2	2	1	3										266	177		330		200		4	
	095	455				5		0																	2	2	1	3										607	497		248		040		5	
	100	460				4		0																	2	2	2	2										927	764		197		040		6	
	100	465				4		0																	2	2	2	2										1296	964		186		100		7	
	95	470				4		0																	2	2	1	3										283	172		159		100		8	
	100	475				4		0																	2	2	2	2										217	129		149		040		9	
	100	480				3		16																	2	2	1	2										718	635		106		040		10	
	100	485				3		18		2	2		2	2											2	2	2	2										578	473		184		100		11	
	100	490				3		8		2	2		2	2											2	2	2	2										736	628		146		040		12	

REMARKS

0-50'- Alluvium.

50'-300'-(?) Conglomerate (WT?)
Contact very vague- started coring in GP. (430'-432')

70° fault @ 430'.
432'-628.5'- Quartz monzonite-
Hish clay- fracture zone-
Qm extremely weathered- Hish Fe staining; plagioclase ext. altered mainly to sericites-

FG-Bx- 450-455'

Hish Oxide chrys -along clay fractures & in folds.
Broken zone-
Fault zone
mainly sand, gravels-

468'-475' Hish clay zone-

Strong chrysocolla-
chrys. in feldspars-
" " fractures

525 mcc

ARIZONA DEPARTMENT OF WATER RESOURCES

500 NORTH THIRD STREET
PHOENIX, ARIZONA 85004

PROJECT COMPLETION REPORT FOR MINERAL EXPLORATION DRILLING

This report must be prepared by the owner in all detail for each hole drilled and filed with the Department within 30 days following completion of the well drilling project.

1. Owner Name: BHP Copper

   Address: 14605 E. Hunt Hwy, Florence AZ 85232
   Street City State Zip

2. Lessee or Operator Name: Same as above

   Address: _____
   Street City State Zip

3. Driller Name: Boyles Drilling

   Address: 12030 E. Riggs Rd., Chandler AZ 85249
   Street City State Zip

4. Location: 4S N/S 9E E/W 28 SE 1/4 NW 1/4 SW 1/4
   Township Range Section 10-Acre 40-Acre 160-Acre

WELL REGISTRATION NO. 55-538308 (REQUIRED)

DESCRIPTION OF WELL

5. Type of Casing (if installed): Casing pulled

6. Abandonment method and material used if abandoned: 1210' to 0' type 5 cement

Was well abandoned in the course of drilling pursuant to R12-15-816, F.? Yes ✓ No ____

7. Date of period drilled: From: 4/22/93 To: 4/29/93

LOG OF WELL

☑ Unconsolidated Formation
0'-430'

☑ Consolidated Formation
Depth to water in feet below land surface: ____
(if encountered or detected)
430' - 1210'

I state that this report is filed in compliance with A.R.S. §45-600 and is complete and correct to the best of my knowledge and belief.

Carolla Hoag 9/11/97
Owner/Lessee's Signature Date

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. ____

Received ____ By ____

Entered ____ By ____

File No. ____

DWR-55-57-7/91(Rev)

Magma Copper Company
Well Closure Certification Form

This form is to be filled out upon abandonment of any well or coreholes. A copy shall be filed in the well log file.

I certify that the well/core hole number MCC-525 has been abandoned in compliance with the attached "Magma Copper Company Well and Corehole Abandonment Work Plan" dated January 10, 1996. A copy of the following documents are t be attached to this certification:

1. ADWR Notice of Intent to Abandon a Well (Unit wells only)
2. Well abandonment completion report per R12-15-816.K
3. U.S.EPA Plugging and abandonment plan form 7520-14
4. A diagram for each well or core hole depicting "as abandoned conditions"
5. A description of placement methods and volumes
   Bottom to top with approx. 750 gallons of Type V Cement.
6. Notation of any deviation from typical procedures

Name: James M. Quimby

Company: Layne Christensen

Date: 5-30-96

Memo to: File **MAGMA COPPER - FLORENCE**
From: R. Williamson
Date: August 29, 1995

Subject: Drilling Summary MCC-535 (site F-6) NX-diameter core.

Date Started:	3/7/1995
Date Completed:	3/31/1995
Collar Coordinates:	745,696.36 N, 647,744.11 E
Surface Elevation:	1471.8 ft.
Azimuth:	0°
Inclination:	-90°

Downhole surveys completed at 100-foot increments from 379 to 1,279 feet in depth. Rotary: 0 to 360 feet Core: 360 to 1,279 feet. Drilling contractor: Boyles. Purpose: Ore reserve confirmation and classification on the west side of the deposit during the 1995 feasibility program. MCC-535 is located approximately 35 feet west of Conoco hole 461-MF.

Geologic Summary:

Core is badly broken, >15 fractures per foot to depth of 550 ft. Below 550 ft, becomes relatively competent, 2-3 fractures per foot except in areas of major faults (listed below)

Lithology:		
	0-392 ft.	Gila Conglomerate (Tgc)
	392-520.2 ft.	Tertiary Granodiorite Porphyry (Tgdp)
	520.2-646.7 ft.	Precambrian Quartz Monzonite (Yqm)
	646.8-651 ft.	Tertiary Andesite (Ta)
	651-654.5 ft.	Precambrian Quartz Monzonite (Yqm)
	654.5-656.8 ft.	Tertiary Andesite (Ta)
	656.8-771.6 ft.	Precambrian Quartz Monzonite (Yqm)
	771.6-791 ft.	Tertiary Andesite (Ta)
	791-795 ft.	Precambrian Quartz Monzonite (Yqm)
	795-807.5 ft.	Tertiary Andesite (Ta)
	807.5-845.5 ft.	Precambrian Quartz Monzonite (Yqm)
	845.5-856.5 ft.	Tertiary Andesite (Ta)
	856.5-865.5 ft.	Precambrian Quartz Monzonite (Yqm)
	865.5-895 ft.	Tertiary Granodiorite Porphyry (Tgdp)
	895-980 ft.	Precambrian Quartz Monzonite (Yqm)
	980-985 ft.	Tertiary Andesite (Ta)
	985-1110 ft.	Precambrian Quartz Monzonite (Yqm)
	1110-1154 ft.	Tertiary Granodiorite Porphyry (Tgdp)
	1154-1169 ft.	Precambrian Quartz Monzonite (Yqm)
	1169-1198 ft.	Tertiary Granodiorite Porphyry (Tgdp)
	1198-1250.5 ft.	Precambrian Quartz Monzonite (Yqm)
	1250.5-1258 ft.	Tertiary Granodiorite Porphyry (Tgdp)
	1258-1279 ft.	Precambrian Quartz Monzonite (Yqm)

FILE 595

ARIZONA DEPARTMENT OF WATER RESOURCES

500 NORTH THIRD STREET
PHOENIX, ARIZONA 85004

PROJECT COMPLETION REPORT FOR MINERAL EXPLORATION DRILLING

This report must be prepared by the owner in all detail for each hole drilled and filed with the Department within 30 days following completion of the well drilling project.

1. Owner Name: BHP Copper

   Address: 14605 E. Hunt Hwy, Florence AZ 85232
   Street City State Zip

2. Lessee or Operator Name: Same as above

   Address: _____
   Street City State Zip

3. Driller Name: Boyles Drilling

   Address: 12030 E. Riggs Rd., Chandler AZ 85249
   Street City State Zip

4. Location: 4S N/S 9E E/W 28 NE 1/4 SW 1/4 SW 1/4
   Township Range Section 10-Acre 40-Acre 160-Acre

   WELL REGISTRATION NO. 55-548247 (REQUIRED)

DESCRIPTION OF WELL

5. Type of Casing (if installed): 220 - 360' left in hole

6. Abandonment method and material used if abandoned: 1279' to 0' type 5 cement

   Was well abandoned in the course of drilling pursuant to R12-15-816, F.? Yes ✓ No ____

7. Date of period drilled: From: 3/7/95 To: 3/31/95

LOG OF WELL

☑ Unconsolidated Formation
0 - 392'

☑ Consolidated Formation
Depth to water in feet below land surface: ____
(if encountered or detected)
392' - 1279'

I state that this report is filed in compliance with A.R.S. §45-600 and is complete and correct to the best of my knowledge and belief.

Carolla Hoag — Aug 7 1997
Owner/Lessee's Signature Date

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. ____

Received ____ By ____

Entered ____ By ____

File No. ____

DWR-55-57-7/91(Rev)

Magma Copper Company
Well Closure Certification Form

This form is to be filled out upon abandonment of any well or coreholes. A copy shall be filed in the well log file.

I certify that the well/core hole number 535 has been abandoned in compliance with the attached "Magma Copper Company Well and Corehole Abandonment Work Plan" dated January 10, 1996. A copy of the following documents are t be attached to this certification:

1. ADWR Notice of Intent to Abandon a Well (Unit wells only)
2. Well abandonment completion report per R12-15-816.K
3. U.S.EPA Plugging and abandonment plan form 7520-14
4. A diagram for each well or core hole depicting "as abandoned conditions"
5. A description of placement methods and volumes
   Bottom to top with approx. 650 gal. of Type V cement.
6. Notation of any deviation from typical procedures

Name: James M. Daniels

Company: Boyles Bros.

Date: 3/25/96

Memo to: File **MAGMA COPPER - FLORENCE**
From: C. Hoag C. Hoag
Date: November 1, 1995

Subject: Drilling Summary MCC-536, (site F-7) NX-diameter core.

Diamond drill hole started March 28, 1995 and completed on April 10, 1995. *End of hole*: 1,162 feet. *Collar coordinates*: 745,705.31N 647,979.80E . *Ground elevation*: 1,472.23 feet *Top of casing elevation*: 1,473.93. Azimuth: 0° Inclination -90°. Downhole surveys completed at approximately 100-foot increments from 200 to 1,130 feet in depth. *Rotary*: 0 to 380 feet *Core*: 380 to 1,162 feet. Drilling contractor: Boyles. *Purpose*: Ore reserve confirmation and classification on the west-central side of the deposit during the 1995 feasibility program. MCC-536 is located 100 feet west of Conoco hole 460-MF.

GEOLOGIC SUMMARY
Lithology Summary

0 -380.0	Rotary, no core
380.0-392.0	Precambrian quartz monzonite (Yqm)
392.0-399.0	Tertiary granodiorite porphyry (Tgdp)
399.0-525.0	Precambrian quartz monzonite
525.0-531.0	Tertiary granodiorite porphyry
531.0-544.0	Precambrian quartz monzonite
544.0-568.0	Tertiary granodiorite porphyry
568.0-596.0	Tertiary andesite (Ta)
596.0-640.0	Tertiary granodiorite porphyry
640.0-657.0	Tertiary andesite (Ta)
657.0-696.0	Precambrian quartz monzonite
696.0-699.0	Tertiary andesite (Ta)
699.0-1043.5	Precambrian quartz monzonite
1043.5-1055.8	Tertiary granodiorite porphyry
1055.8-1162.0	Precambrian quartz monzonite

Oxide:	380.0-1,078.0
Transition:	1,078.0-1,146.0
Sulfide:	1,146.0-1,162.0

Rock Types: The predominant rock type is the Precambrian quartz monzonite (Conoco's quartz monzonite porphyry). The rock consists of coarse-grained orthoclase and quartz and lesser amounts of plagioclase and biotite. Although there are some competent intervals, the bulk of the rock is moderately broken with many intense rubble zones. Aplitic dikes and stringers of fine-grained orthoclase and quartz cut the quartz monzonite and may be pre-Laramide in age.

Thin dikes of Tertiary granodiorite porphyry appear to intrude the quartz monzonite along pre-existing fault or brecciated zones. Several of the no recovery zones in the Yqm are adjacent to or very near to Tgdp dikes. The granodiorite porphyry has a grayish black to olive gray aphanitic matrix with 1-2mm subhedral plagioclase phenocrysts. These dikes may correlate to Conoco's Type III Tgdp. The iron oxide staining and copper oxide development on fractures is minimal.

mcc 536

ARIZONA DEPARTMENT OF WATER RESOURCES

500 NORTH THIRD STREET
PHOENIX, ARIZONA 85004

PROJECT COMPLETION REPORT FOR MINERAL EXPLORATION DRILLING

This report must be prepared by the owner in all detail for each hole drilled and filed with the Department within 30 days following completion of the well drilling project.

1. Owner Name: BHP Copper

   Address: 14605 E. Hunt Hwy, Florence AZ 85232
   Street City State Zip

2. Lessee or Operator Name: Same as above

   Address: _____
   Street City State Zip

3. Driller Name: Boyles Drilling

   Address: 12030 E. Riggs Rd., Chandler AZ 85249
   Street City State Zip

4. Location: 4S N/S 9E E/W 28 NW 1/4 SE 1/4 SW 1/4
   Township Range Section 10-Acre 40-Acre 160-Acre

WELL REGISTRATION NO. 55- 548247 (REQUIRED)

DESCRIPTION OF WELL

5. Type of Casing (if installed): Casing pulled

6. Abandonment method and material used if abandoned: 1162' to 0' type 5 cement

Was well abandoned in the course of drilling pursuant to R12-15-816, F.? Yes ✓ No ____

7. Date of period drilled: From: 3/28/95 To: 4/10/95

LOG OF WELL

[✓] Unconsolidated Formation
0 - 380'

[✓] Consolidated Formation
Depth to water in feet below land surface: ____
(if encountered or detected)
380' - 1162'

I state that this report is filed in compliance with A.R.S. §45-600 and is complete and correct to the best of my knowledge and belief.

Corolla Hoag — August 7 1997
Owner/Lessee's Signature — Date

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. ____

Received ____ By ____

Entered ____ By ____

File No. ____

DWR-55-57-7/91(Rev)

Magma Copper Company
Well Closure Certification Form

This form is to be filled out upon abandonment of any well or coreholes. A copy shall be filed in the well log file.

I certify that the well/core hole number 536 has been abandoned in compliance with the attached "Magma Copper Company Well and Corehole Abandonment Work Plan" dated January 10, 1996. A copy of the following documents are t be attached to this certification:

1. ADWR Notice of Intent to Abandon a Well (Unit wells only)
2. Well abandonment completion report per R12-15-816.K
3. U.S.EPA Plugging and abandonment plan form 7520-14
4. A diagram for each well or core hole depicting "as abandoned conditions"
5. A description of placement methods and volumes
   Bottom to top with approx. 650 gallons of type V cement.
6. Notation of any deviation from typical procedures

Name: James M. Daniels

Company: Boyles Bros.

Date: 4-2-96

Memo to: File **MAGMA COPPER - FLORENCE**
From: J. LeAnderson, C. Hoag
Date: August 21, 1995

Subject: Drilling summary MCC-538, (site F-9), NX-diameter core.

Diamond drill hole started March 29, 1995 and completed on April 10, 1995. End of hole: 1,169 feet. Collar coordinates: 745,523.510 N 648063.217 E . Ground elevation: 1,472.1 feet Top of casing elevation: 1,472.77. Azimuth: 0° Inclination -90°. Downhole surveys were completed at 100-foot increments beginning at 450 feet. Rotary: 0 to 359.3 feet Core: 359.3 to 1,169 feet. Drilling contractor: Boyles. Purpose: Resource confirmation during 1995 feasibility program. MCC-538 deepened/twinned a nearby Conoco hole 465MF.

SUMMARY OF GEOLOGY

Drill Log Summary

0 - 359.3'	Tertiary Gila Conglomerate
359.3 - 406.8	Precambrian Quartz Monzonite
406.8 - 419.9'	Tertiary Aplite
419.9 - 587.0'	Precambrian Quartz Monzonite
474.2 - 483.0'	Fault gouge
587.0 - 594.9'	Tertiary Andesite
594.9 - 597.4'	Tertiary Aplite
597.4 - 618.5'	Tertiary Granodiorite Porphyry
618.5 - 780.1'	Precambrian Quartz Monzonite Porphyry
780.1 - 788.85'	Tertiary Andesite
788.85 - 813.0	Precambrian Quartz Monzonite Porphyry
813.0 - 814.7'	Tertiary Andesite
814.7 - 834.0'	Precambrian Quartz Monzonite
815.8 - 818.0'	Fault gouge and breccia
834.0 - 839.0'	Tertiary Granodiorite Porphyry
839.0 - 870.6'	Precambrian Quartz Monzonite Porphyry
870.6 - 998.3'	Tertiary Granodiorite Porphyry
998.3 - 1006.8'	Precambrian Quartz Monzonite Porphyry
1006.8 - 1007.6'	Fault gouge and breccia **(Sidewinder Fault)**
1007.6 - 1013.2'	Tertiary Granodiorite Porphyry
1013.2 - 1044.0'	Precambrian Quartz Monzonite Porphyry
1044.0 - 1051.7'	Tertiary Granodiorite Porphyry
1051.7 - 1169.0	Precambrian Quartz Monzonite

Structure - A 0.8' fault beginning at 1006.8' is interpreted to be the Sidewinder Fault, a major structure of probable Basin and Range age. The hanging wall is intensely 'rubbleized', has intense iron oxide alteration, has weak Kfeldspar alteration, and has intense supergene clay alteration. The footwall is competent, has weak iron-oxide alteration, no clay alteration, and has intense potassium feldspar alteration. It is thought that the hanging wall block represents a block from higher up in elevation that was more intensely oxidized. There doesn't appear to be a major change in copper mineralization across the fault. However, 'tenorite' is rare in the hanging wall.

mcc 538

ARIZONA DEPARTMENT OF WATER RESOURCES

500 NORTH THIRD STREET
PHOENIX, ARIZONA 85004

PROJECT COMPLETION REPORT FOR MINERAL EXPLORATION DRILLING

This report must be prepared by the owner in all detail for each hole drilled and filed with the Department within 30 days following completion of the well drilling project.

1. Owner Name: BHP Copper

   Address: 14605 E. Hunt Hwy, Florence AZ 85232
   Street City State Zip

2. Lessee or Operator Name: Same as above

   Address: _____
   Street City State Zip

3. Driller Name: Boyles Drilling

   Address: 12030 E. Riggs Rd., Chandler AZ 85249
   Street City State Zip

4. Location: 4S N/S 9E E/W 28 NW 1/4 SE 1/4 SW 1/4
   Township Range Section 10-Acre 40-Acre 160-Acre

WELL REGISTRATION NO. 55-548247 (REQUIRED)

DESCRIPTION OF WELL

5. Type of Casing (if installed): Casing pulled

6. Abandonment method and material used if abandoned: 1169' to 0' type 5 cement

Was well abandoned in the course of drilling pursuant to R12-15-816, F.? Yes ✓ No ____

7. Date of period drilled: From: 3/29/95 To: 4/10/95

LOG OF WELL

[✓] Unconsolidated Formation
0 - 363.2'

[✓] Consolidated Formation
Depth to water in feet below land surface: ____
(if encountered or detected)
363.2' - 1169'

I state that this report is filed in compliance with A.R.S. §45-600 and is complete and correct to the best of my knowledge and belief.

Lowella Hoag August 7 1997
Owner/Lessee's Signature Date

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. ____

Received ____ By ____

Entered ____ By ____

File No. ____

DWR-55-57-7/91(Rev)

Magma Copper Company
Well Closure Certification Form

This form is to be filled out upon abandonment of any well or coreholes. A copy shall be filed in the well log file.

I certify that the well/core hole number 538 has been abandoned in compliance with the attached "Magma Copper Company Well and Corehole Abandonment Work Plan" dated January 10, 1996. A copy of the following documents are t be attached to this certification:

1. ADWR Notice of Intent to Abandon a Well (Unit wells only)
2. Well abandonment completion report per R12-15-816.K
3. U.S.EPA Plugging and abandonment plan form 7520-14
4. A diagram for each well or core hole depicting "as abandoned conditions"
5. A description of placement methods and volumes
6. Notation of any deviation from typical procedures

Bottom to top with approx. 650 gallons of Type V cement.

Name: James M. Daniels

Company: Layne Christensen

Date: 6-10-96

Memo to: File C. Hoag **MAGMA COPPER - FLORENCE**
From: C. Hoag
Date: October 9, 1995

Subject: Drilling Summary MCC-545, (site F-4) NX-diameter core.

Diamond drill hole started April 26, 1995 and completed on May 8, 1995. End of hole: 1,370 feet. *Collar coordinates*: 746,157.623N 647,675.460E . *Ground elevation*: 1,474.0 feet *Top of casing elevation*: 1,474.70. Azimuth: 0° Inclination -90°. Downhole surveys completed at approximately 100-foot increments from 400 to 1,350 feet in depth. *Rotary*: 0 to 363 feet *Core*: 363 to 1,370 feet; drilled with single tube. *Drilling contractor*: Boyles. *Purpose*: Ore reserve confirmation and classification on the west side of the deposit during the 1995 feasibility program. MCC-545 is located approximately 100 feet east of Conoco hole 455-S.

GEOLOGIC SUMMARY

Lithologic Summary

0-363.0	Rotary, no sample
363.0-415.0	Tertiary Gila Conglomerate
415.0-561.4	Precambrian quartz monzonite
561.4-589.0	Tertiary granodiorite porphyry
589.0-628.2	Precambrian quartz monzonite
628.2-676.5	Tertiary granodiorite porphyry
676.5-928.2	Precambrian quartz monzonite
928.2-937.0	Tertiary granodiorite porphyry
937.0-963.2	Tertiary trachy andesite
963.2-966.3	Tertiary granodiorite porphyry
966.3-1074.0	Precambrian quartz monzonite
1074.0-1106.2	Tertiary granodiorite porphyry
1106.2-1361.2	Precambrian quartz monzonite
1361.2-1370	Tertiary granodiorite porphyry

Oxide: 415.0-1316.5 feet
Sulfide: 1316.5-1370.0 feet

Rock types: The predominant rock (~800 feet) is competent, moderately broken, and rubbleized Precambrian quartz monzonite (Yqm). The rock consists of subequal amounts of orthoclase and quartz, lesser white plagioclase, 2-10 percent biotite, and trace magnetite. Large 1-2 cm perthitic k-feldspar phenocrysts are present throughout the hole. Tertiary granodiorite porphyry (Tgdp) dikes account for 120 feet. The dikes consist of medium-dark gray to olive gray fine-grained intrusive rock with abundant, 1-3mm long white plagioclase phenocrysts plus biotite. The contacts between Tgdp and Yqm are both gradational, intrusive contacts as well as fault contacts in some instances. One lone 25-foot dike of weakly magnetic, Tertiary trachy andesite (Tta) at 937-963 feet cross cuts a dike of granodiorite porphyry. The upper contact with Tgdp appears gradational; the lower contact is broken and no contact angle was determined. The upper and lower Tta contacts did exhibit "chilled margins" and overprint the Tgdp host rock.. Phenocrysts within the Tgdp looked indistinct near the contact with the trachy andesite.

mcc 345

ARIZONA DEPARTMENT OF WATER RESOURCES

500 NORTH THIRD STREET
PHOENIX, ARIZONA 85004

PROJECT COMPLETION REPORT FOR MINERAL EXPLORATION DRILLING

This report must be prepared by the owner in all detail for each hole drilled and filed with the Department within 30 days following completion of the well drilling project.

1. Owner Name: BHP Copper

   Address: 14605 E. Hunt Hwy, Florence AZ 85232
   Street City State Zip

2. Lessee or Operator Name: Same as above

   Address: _____
   Street City State Zip

3. Driller Name: Boyles Drilling

   Address: 12030 E. Riggs Rd., Chandler AZ 85249
   Street City State Zip

4. Location: 4S N/S 9E E/W 28 SE 1/4 NW 1/4 SW 1/4
   Township Range Section 10-Acre 40-Acre 160-Acre

WELL REGISTRATION NO. 55-548200 (REQUIRED)

DESCRIPTION OF WELL

5. Type of Casing (if installed): Casing pulled

6. Abandonment method and material used if abandoned: 1370' to 0 type II cement

Was well abandoned in the course of drilling pursuant to R12-15-816, F.? Yes ✓ No ____

7. Date of period drilled: From: 4/26/95 To: 5/5/95

LOG OF WELL

☑ Unconsolidated Formation
0 - 415'

☑ Consolidated Formation
Depth to water in feet below land surface: ____
(if encountered or detected)
415' - 1370'

I state that this report is filed in compliance with A.R.S. §45-600 and is complete and correct to the best of my knowledge and belief.

Corella Hoag August 6, 1997
Owner/Lessee's Signature Date

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. ____

Received ____ By ____

Entered ____ By ____

File No. ____

DWR-55-57-7/91(Rev)

DRILLING SERVICES-BOYLES BROS.

a division of Layne Christensen Company

Boyles Bros. DRILLING COMPANY

CLIENT: BHP Copper DATE: 10-31-96 Thur.

JOB#: 34-7025 JOB NAME: LOCATION: Florence, AZ

DRILL#: 4670 ANGLE: MSHA: ✓ PRE-SHIFT INSPECTION: [illegible]

DRILLING AND CORING RECORD

SHIFT	HOLE SIZE	FROM	TO	TOTAL	RECOVERY	#RUNS	ROCK TYPE	HOLE #	HOLE CONDITIONS
DAY							MCC	545	
REAM									
SWING									
REAM									
NIGHT									
REAM									

HOURLY ACTIVITIES

SHIFT	CORE	ROTARY	REV.CIRC	REAM	REDRILL	MOB/ DEMOB	WASH CLEAN HOLE	REGAIN LOST CIRC	SURVEY	CEMENT	CASING INSTALL	CASING REMOVE
DAY							5			5		2
SWING												
NIGHT												

SHIFT	MOVE SETUP	STANDBY	MAINT. REPAIR	HOLE DELAY	WEATHER DELAY	WATER DELAY	WATER HAUL TRUCK #	WATER HAUL MILES	WATER HAUL HOURS	WATER HAUL LOADS	OTHER SERVICES	
DAY							2178			1		
SWING												
NIGHT								BACK-HOE			2	

SHIFT		NAME	HOURS	EXPLAIN DELAYS, DIRECTIONS, ETC.
DAY	DRILLER	Daniels J.	12	Washed out NX portion of hole to 1370'. Flushed hole w/ water. Cemented hole up to casing. Pulled casing after filling w/ cement. Cemented hole to top. Total Type V cement used: Approx. 700 gallons.
	HELPER	Booth G.	12	
	OTHER			
SWING	DRILLER			
	HELPER			
	OTHER			
NIGHT	DRILLER			
	HELPER			
	OTHER			

CASING

SIZE	QUANTITY	LENGTH		CASING SHOES DAMAGED/LOST	CASING SET IN HOLE
			TYPE	DEPTH	SIZE
			NO.	SIZE	
BIT#	SIZE/TYPE	OFF	ON	TOTAL	
BIT#	SIZE/TYPE	OFF	ON	TOTAL	

MATERIALS

	QUANTITY DAY	QUANTITY SWING	QUANTITY NIGHT		QUANTITY DAY	QUANTITY SWING	QUANTITY NIGHT		QUANTITY DAY	QUANTITY SWING	QUANTITY NIGHT
MUD2	4			PORTLAND CEMENT	70			N BOXES			
CLEARMUD				CALSEAL				H BOXES			

FOREMAN [signature] GEOLOGIST [signature]

White : Customer Yellow : Office Pink : Foreman

Memo to: File **MAGMA COPPER - FLORENCE**
From: R. Williamson
Date: September 28, 1995

Subject: Drilling Summary MCC-546 (site F-3) NX-diameter core.

Date Started:	4/23/1995
Date Completed:	5/31/1995
Collar Coordinates:	746,598.80 N, 647,829.28 E
Surface Elevation:	1477.00 ft.
Casing Elevation:	1477.05 ft.
Azimuth:	0°
Inclination:	-90°

Downhole surveys were not taken on this hole due to poor hole conditions. Rotary: 0 to 397 feet. Core: 397 to 1,152 feet. Drilling contractor: Boyles. Purpose: Ore reserve confirmation and classification on the northwest side of the deposit during the 1995 feasibility program. MCC-546 is located approximately 46 feet east of Conoco hole 447-S.

Geologic Summary:

Lithology:	0-534 ft.	Gila Conglomerate (Tgc)
	534-633 ft.	Precambrian Quartz Monzonite (Yqm)
	633-716 ft.	Tertiary Granodiorite Porphyry (Tgdp)
	716-720 ft.	Tertiary Andesite (Ta)
	720-733 ft.	Precambrian Quartz Monzonite (Yqm)
	733-788 ft.	Tertiary Granodiorite Porphyry (Tgdp)
	788-1032 ft.	Precambrian Quartz Monzonite (Yqm)
	1032-1036 ft.	Tertiary Andesite (Ta)
	1036-1133 ft.	Precambrian Quartz Monzonite (Yqm)
	1133-1144 ft.	Precambrian Diabase (Ydb)
	1144-1145 ft.	Precambrian Quartz Monzonite (Yqm)
	1145-1146 ft.	Precambrian Diabase (Ydb)
	1146-1152 ft.	Precambrian Quartz Monzonite (Yqm)

Oxide: 534-1152 ft.

Rock type descriptions: The137 feet of Tertiary Gila Conglomerate consists of moderately to weakly consolidated, generally competent core. The material is conglomeratic, matrix supported, with subangular to subrounded clasts dominated by quartz monzonite. The lower contact is rubbleized but appears to be conformable. The 460 feet of Precambrian quartz monzonite is the coarse-grained variety with 1-2 cm. K-spar phenocrysts intergrown with smaller phenocrysts of quartz, plagioclase, and biotite. The 4 feet Andesite dike is weakly porphyritic, with 2-3% secondary biotite in the groundmass. The andesite contains copper oxides and calcite. The 138 feet of Tertiary granodiorite porphyry is strongly porphyritic, with approximately 30% phenocrysts of predominantly plagioclase in a fine-grained quartz-K-spar matrix. The phenocrysts are pervasively altered to clay and sericite ± copper oxides. The Precambrian diabase occurs

mcc 546

ARIZONA DEPARTMENT OF WATER RESOURCES

500 NORTH THIRD STREET
PHOENIX, ARIZONA 85004

PROJECT COMPLETION REPORT FOR MINERAL EXPLORATION DRILLING

This report must be prepared by the owner in all detail for each hole drilled and filed with the Department within 30 days following completion of the well drilling project.

1. Owner Name: BHP Copper

   Address: 14605 E. Hunt Hwy, Florence AZ 85232
   Street City State Zip

2. Lessee or Operator Name: Same as above

   Address: _____
   Street City State Zip

3. Driller Name: Boyles Drilling

   Address: 12030 E. Riggs Rd., Chandler AZ 85249
   Street City State Zip

4. Location: 4S N/S 9E E/W 28 NE 1/4 NW 1/4 SW 1/4
   Township Range Section 10-Acre 40-Acre 160-Acre

WELL REGISTRATION NO. 55-548200 (REQUIRED)

DESCRIPTION OF WELL

5. Type of Casing (if installed): Casing pulled

6. Abandonment method and material used if abandoned: 620' to 0 type V cement

Was well abandoned in the course of drilling pursuant to R12-15-816, F.? Yes ✓ No ____

7. Date of period drilled: From: 4/23/95 To: 5/31/93

LOG OF WELL

[✓] Unconsolidated Formation
0 - 534'

[✓] Consolidated Formation
Depth to water in feet below land surface: ____
(if encountered or detected)
534' - 1152'

I state that this report is filed in compliance with A.R.S. §45-600 and is complete and correct to the best of my knowledge and belief.

Corella Hoag August 6, 1997
Owner/Lessee's Signature Date

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. ____

Received ____ By ____

Entered ____ By ____

File No. ____

DWR-55-57-7/91(Rev)

Magma Copper Company
Well Closure Certification Form

This form is to be filled out upon abandonment of any well or coreholes. A copy shall be filed in the well log file.

I certify that the well/core hole number 546 has been abandoned in compliance with the attached "Magma Copper Company Well and Corehole Abandonment Work Plan" dated January 10, 1996. A copy of the following documents are t be attached to this certification:

1. ADWR Notice of Intent to Abandon a Well (Unit wells only)
2. Well abandonment completion report per R12-15-816.K
3. U.S.EPA Plugging and abandonment plan form 7520-14
4. A diagram for each well or core hole depicting "as abandoned conditions"
5. A description of placement methods and volumes
   Cemented from 620' to top w/ approx. 450 gallons of Type V.
6. Notation of any deviation from typical procedures
   Hit twisted off rods @ 620'. Cemented from 620' to top.

Name: James A. Daniels

Company: Boyles Bros Drilling

Date: 4-8-96

Memo to: File
From: P. Stubbe
Date: October 13, 1995

Subject:Drilling Summary MCC-546A (Site F-3) NX diameter core

Date Started: 6/4/95
Date Completed: 6/18/95
Collar Coordinates: 746,606.99N, 647,838.83E
Surface Elevation: 1477.00 ft.
Casing Elevation: 1477.59 ft.
Azimuth: 0°
Inclination: -90°

Downhole surveys were made on this hole in 100 foot increments starting at 1000 feet. Rotary: 0 to 990 feet. Core: 990 to 1437 feet. Drilling contractor: Boyles. Purpose: Ore reserve confirmation and classification on the northwest side of the deposit during the 1995 feasibility study. MCC-546A is located 13 feet east of MCC-546 which was lost at 1152 feet; shy of the target depth by 250 feet.

Geologic Summary:

Lithology:	0-534	Gila Conglomerate
	534-633	Precambrian Quartz Monzonite
	633-716	Tertiary Granodiorite Porphyry
	716-720	Tertiary Andesite
	720-733	Precambrian Quartz Monzonite
	733-788	Tertiary Granodiorite Porphyry
	788-1097	Precambrian Quartz Monzonite
	1097-1185	Fault Gouge and Breccia
	1185-1253	Precambrian Quartz Monzonite
	1253-1269	Fault Gouge
	1269-1437	Precambrian Quartz Monzonite

Oxide: 990-1286
Sulfide: 1286-1437

Note: Lithology from 0-990 feet is based on the log of hole MCC-546.

Rock Types: The 447 feet of core from this hole is dominantely Precambrian Quartz Monzonite. The rock is coarse grained with K-spar phenocrysts up to 4 cm. across. Plagioclase and quartz are intergrown in the matrix and flecked with small clots of biotite that rarely exceed 1 cm. in width. Over 100 feet of core was logged as fault gouge and breccia in this hole. The gouge consists mainly of sheared and shattered fragments of quartz monzonite in a very oxidized silty-sandy matrix. Within an 88 foot gouge zone, a 3 foot sample of Precambrian diabase was recorded. The diabase is interpreted as a xenolith in the gouge zone. It is a strongly sheared, green, fine grained, mafic rock with a few small biotite clots.

Structure: Major faults and/or shears occur at the following depths: 1031-1033 ft., 1097-1108 ft., 1253-1269 ft. The fault at 1031-1033 ft. appeared to have a true dip of 10°-30°. The large structural zone between 1097-1108 ft. had an undetermined orientation but appeared to be very steep (true dip 70°-90°) at the bottom where slickensides were subparallel to the core axis. At 1253-1269 ft. the fault had a true dip measured at 50°.

mee, 546 A

ARIZONA DEPARTMENT OF WATER RESOURCES

500 NORTH THIRD STREET
PHOENIX, ARIZONA 85004

PROJECT COMPLETION REPORT FOR MINERAL EXPLORATION DRILLING

This report must be prepared by the owner in all detail for each hole drilled and filed with the Department within 30 days following completion of the well drilling project.

1. Owner Name: BHP Copper

   Address: 14605 E. Hunt Hwy, Florence AZ 85232
   Street City State Zip

2. Lessee or Operator Name: Same as above

   Address: _____
   Street City State Zip

3. Driller Name: Boyles Drilling

   Address: 12030 E. Riggs Rd., Chandler AZ 85249
   Street City State Zip

4. Location: 4S N/S 9E E/W 28 NE 1/4 NW 1/4 SW 1/4
   Township Range Section 10-Acre 40-Acre 160-Acre

WELL REGISTRATION NO. 55-548200 (REQUIRED)

DESCRIPTION OF WELL

5. Type of Casing (if installed): Casing pulled

6. Abandonment method and material used if abandoned: 1437' to 0 type V cement

Was well abandoned in the course of drilling pursuant to R12-15-816, F.? Yes ✓ No ____

7. Date of period drilled: From: 6/4/95 To: 6/18/95

LOG OF WELL

[✓] Unconsolidated Formation
0-534'

[✓] Consolidated Formation
Depth to water in feet below land surface: ____
(if encountered or detected)
534'-1437'

I state that this report is filed in compliance with A.R.S. §45-600 and is complete and correct to the best of my knowledge and belief.

Corella Hoag August 6 1997
Owner/Lessee's Signature Date

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. ____

Received ____ By ____

Entered ____ By ____

File No. ____

DWR-55-57-7/91(Rev)

Magma Copper Company
Well Closure Certification Form

This form is to be filled out upon abandonment of any well or coreholes. A copy shall be filed in the well log file.

I certify that the well/core hole number 546-A has been abandoned in compliance with the attached "Magma Copper Company Well and Corehole Abandonment Work Plan" dated January 10, 1996. A copy of the following documents are t be attached to this certification:

1. ADWR Notice of Intent to Abandon a Well (Unit wells only)
2. Well abandonment completion report per R12-15-816.K
3. U.S.EPA Plugging and abandonment plan form 7520-14
4. A diagram for each well or core hole depicting "as abandoned conditions"
5. A description of placement methods and volumes
   Bottom to top with approx. 1100 gallons of type V cement.
6. Notation of any deviation from typical procedures

Name: James M. Daniels
Company: Boyles Bros.
Date: 4-10-96

MAGMA COPPER - FLORENCE

Memo to: File
From: J. Hudson
Date: December 11, 1995

Subject: Drilling Summary MCC-561 (site F-27) NX-diameter core.

		Downhole Surveys:	azimuth	dip
Date Started:	7/12/1995			
Date Completed:	7/22/1995	@480'	112	-89.25°
Collar Coordinates:	745,729.85 N	@580'	283	-89°
	647,558.19 E	@680'	101	-89°
Surface Elevation:	1471.70'	@780'	Cannot Read	
Casing Elevation:	1472.43'	@880'	107	-89°
Azimuth:	0°	@980'	103	-88.75°
Inclination:	-90°	@1080'	111	-88.75°
Rotary:	0-450'	@1180'	93	-89°
Core:	450-1480'	@1280'	98	-89°
Contractor:	Boyles Bros.	@1380'	91	-89°
		@1480	102	-89.5°

Purpose: Ore reserve confirmation and classification on the west side of the deposit during the 1995 feasibility program. MCC-561 twins Conoco hole 426-MF.

Geologic Summary:

Lithology:		
	0-450'	Rotary drilled; no data
	450-495'	Tertiary Gila Conglomerate (Tgc)
	495-523'	Precambrian Diabase (Ydb)
	523-713'	Precambrian Quartz Monzonite (Yqm)
	713-760'	Tertiary Granodiorite Porphyry (Tgdp)
	760-864'	Precambrian Quartz Monzonite (Yqm)
	864-877'	Tertiary Granodiorite Porphyry (Tgdp)
	877-938'	Precambrian Quartz Monzonite (Yqm)
	938-983'	Tertiary Granodiorite Porphyry (Tgdp)
	983-1199'	Precambrian Quartz Monzonite (Yqm)
	1199-1258'	Fault zone with Yqm & Tgdp
	1258-1451'	Precambrian Quartz Monzonite(Yqm)
	1451-1457'	Precambrian Diabase (Ydb)
	1457-1480'	Precambrian Quartz Monzonite (Yqm)

Overburden:	0-495'
Leach Cap:	495-555'
Oxide:	555-1419'
Sulfide:	1419-1480'

mcc 561

ARIZONA DEPARTMENT OF WATER RESOURCES

500 NORTH THIRD STREET
PHOENIX, ARIZONA 85004

PROJECT COMPLETION REPORT FOR MINERAL EXPLORATION DRILLING

This report must be prepared by the owner in all detail for each hole drilled and filed with the Department within 30 days following completion of the well drilling project.

1. Owner Name: BHP Copper

   Address: 14605 E. Hunt Hwy, Florence AZ 85232
   Street City State Zip

2. Lessee or Operator Name: Same as above

   Address: _____
   Street City State Zip

3. Driller Name: Boyles Drilling

   Address: 12030 E. Riggs Rd., Chandler AZ 85249
   Street City State Zip

4. Location: 4S N/S 9E E/W 28 NE 1/4 SW 1/4 SW 1/4
   Township Range Section 10-Acre 40-Acre 160-Acre

WELL REGISTRATION NO. 55- 548247 (REQUIRED)

DESCRIPTION OF WELL

5. Type of Casing (if installed): 50'-450' left in hole

6. Abandonment method and material used if abandoned: 1480' to 0 type V cement

Was well abandoned in the course of drilling pursuant to R12-15-816, F.? Yes ✓ No ____

7. Date of period drilled: From: 7/12/95 To: 7/22/95

LOG OF WELL

☑ Unconsolidated Formation
0-495'

☑ Consolidated Formation
Depth to water in feet below land surface: ____
(if encountered or detected)
495' - 1480'

I state that this report is filed in compliance with A.R.S. §45-600 and is complete and correct to the best of my knowledge and belief.

Corolla Hoag August 6, 1997
Owner/Lessee's Signature Date

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. ____

Received ____ By ____

Entered ____ By ____

File No. ____

DWR-55-57-7/91(Rev)

Magma Copper Company
Well Closure Certification Form

This form is to be filled out upon abandonment of any well or coreholes. A copy shall be filed in the well log file.

I certify that the well/core hole number 561 has been abandoned in compliance with the attached "Magma Copper Company Well and Corehole Abandonment Work Plan" dated January 10, 1996. A copy of the following documents are t be attached to this certification:

1. ADWR Notice of Intent to Abandon a Well (Unit wells only)
2. Well abandonment completion report per R12-15-816.K
3. U.S.EPA Plugging and abandonment plan form 7520-14
4. A diagram for each well or core hole depicting "as abandoned conditions"
5. A description of placement methods and volumes
   Bottom to top with approx. 800 gal of Type V cement.
6. Notation of any deviation from typical procedures

Name: JM Davis

Company: Boyles Bros.

Date: 3/27/96

MAGMA COPPER - FLORENCE
Drill Hole Summary
MCC-569 (site F-35)
February 16, 1996

Type: Rotary 0' to 800', Nx Diamond, 10' split barrel 800' to 999', 5' split barrel 999' to 1663'
Started: September 20, 1995; **Completed:** October 16, 1995
Total depth: 1665 ft. (according to driller's log), 1663' measured on core.
Collar coordinates: 746,203.81N 647,315.61E
Top of casing elevation: No casing in place when surveyed.
Ground elevation: 1473.1 ft
Azimuth: N/A
Inclination: -90°; downhole surveys at ±100 ft. increments from 810' to 1650' depth.
Drilling contractor: Christensen Boyles Corp.
Logged by: J. Downey
Purpose: Ore reserve confirmation and classification on the west side of the deposit during the 1995 pre-feasibility program. MCC-569 is located approximately 50 feet north of Conoco hole 456-S.

Geologic Summary

Precambrian Quartz Monzonite is the most common lithology in MCC-569, and excepting the last interval, from 1613' to 1663', it is typical of the granitic rock seen in most of the recent drill holes. The unusual phase of Precambrian Quartz Monzonite in the last interval is equigranular, with little or no primary pink microcline. This interval is separated from the overlying typical Yqm by a major fault from 1607.5 to 1611.5. Mineral grains typically range from ~3mm to 10 mm, and the largest crystals tend to be euhedral to sub-hedral β-quartz. Quartz and plagioclase each average around 20% of the rock, and biotite (including secondary) also averages ~20%. The remainder is a whitish semi-opaque feldspar that commonly is altered to a light brown Ksp, usually surrounding host fractures or healed fractures. This mineral is assumed to be either white orthoclase or some other alkali feldspar. Petrographic sample of a similar rock (MFL5 & MFL7) from MCC-548 were described by Sid Williams. This interval is hosts significantly more Ksp flooding and argillization than the typical quartz monzonite, but it is not clear if this is the result of environment or chemistry. Going on the texture and composition of this rock it could be a phase of the Tertiary intrusion, but as no age date has been done it tends to get lumped with the Precambrian rock.

This hole contains two intervals of Granodiorite porphyry, one 15' thick and the other 50' thick. Both appear to be Conoco's type II porphyry, as they are a dark grey color and contain little or no quartz. Both tend to be highly fractured with mild K-spar veining and a moderate clay overprint. Mineralization tends to be weak in both intervals.

Tertiary Trachy-Andesite occurs as two dikes, the first being a thin brown-green drab dike with mildly developed flow alignment of needle-like phenos, and fairly strong exotic copper mineralization. Trachy-Andesite also occurs as a med to light brown dike with large sub-hedral plagioclase and anhedral quartz phenos. This dike is very competent, shows traces of trachitic flow alignment, and has traces of tenorite on some fractures. Neither contains significant alteration aside from clay, etc. on the fractures and some argillization of plagioclase phenos.

The entire hole seems to have a mild to moderate potassic alteration, as either biotite or Ksp ± qz depending upon host lithology. Chlorite and clinochlore (pennine, according to pet. reports) occur locally as areas of mod. to str. clots and zones of replacement in the Yqm. These minerals are assumed to be the results of further alteration of secondary and primary biotite. Clay alteration is mod. to str. throughout the hole and there is considerable clay alteration in the sulfide rock which is assumed to be hypogene, consisting of white and drab green clays, both on the fractures and in the matrix. Clay is also very common in the oxide rock, and much of it is assumed to be either hypogene or the result of structural movement. Some of the oxide clays are certain to have been formed from supergene processes, but these clays are realistically impossible to differentiate in hand sample. A similar such assumption deals with sericite. Recent petrographic studies and numerous Conoco pet. reports

MCC 564

ARIZONA DEPARTMENT OF WATER RESOURCES

500 NORTH THIRD STREET
PHOENIX, ARIZONA 85004

PROJECT COMPLETION REPORT FOR MINERAL EXPLORATION DRILLING

This report must be prepared by the owner in all detail for each hole drilled and filed with the Department within 30 days following completion of the well drilling project.

1. Owner Name: BHP Copper

   Address: 14605 E. Hunt Hwy, Florence AZ 85232
   Street City State Zip

2. Lessee or Operator Name: Same as above

   Address: _____
   Street City State Zip

3. Driller Name: Boyles Drilling

   Address: 12030 E. Riggs Rd., Chandler AZ 85249
   Street City State Zip

4. Location: 4S N/S 9E E/W 28 SE 1/4 NW 1/4 SW 1/4
   Township Range Section 10-Acre 40-Acre 160-Acre

WELL REGISTRATION NO. 55- 548247 (REQUIRED)

DESCRIPTION OF WELL

5. Type of Casing (if installed): Casing pulled

6. Abandonment method and material used if abandoned: 1665' to 0 type V cement

Was well abandoned in the course of drilling pursuant to R12-15-816, F.? Yes ✓ No ____

7. Date of period drilled: From: 9/20/95 To: 10/16/95

LOG OF WELL

[✓] Unconsolidated Formation
0 - 810.7'

[✓] Consolidated Formation
Depth to water in feet below land surface: ____
(if encountered or detected)
810.7' - 1665'

I state that this report is filed in compliance with A.R.S. §45-600 and is complete and correct to the best of my knowledge and belief.

Carolla Hoag August 6, 1997
Owner/Lessee's Signature Date

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. ____

Received ____ By ____

Entered ____ By ____

File No. ____

DWR-55-57-7/91(Rev)

Magma Copper Company
Well Closure Certification Form

This form is to be filled out upon abandonment of any well or coreholes. A copy shall be filed in the well log file.

I certify that the well/core hole number 569 has been abandoned in compliance with the attached "Magma Copper Company Well and Corehole Abandonment Work Plan" dated January 10, 1996. A copy of the following documents are t be attached to this certification:

1. ADWR Notice of Intent to Abandon a Well (Unit wells only)
2. Well abandonment completion report per R12-15-816.K
3. U.S.EPA Plugging and abandonment plan form 7520-14
4. A diagram for each well or core hole depicting "as abandoned conditions"
5. A description of placement methods and volumes
   Bottom to top with approx. 1050 gallons of Type V cement.
6. Notation of any deviation from typical procedures

Name: James M. Daniels

Company: Layne-Christensen

Date: 6-18-96

LOG OF BORING NO. B-5

CLIENT	ARCHITECT/ENGINEER
Magma Copper Company	
SITE	**PROJECT**
Florence, Arizona	Proposed New Mine

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: BULL-NOSE	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: BLOWS (6 in.)	TESTS: MOISTURE, %	TESTS: DRY DENSITY PCF		
	SILTY SAND; very fine sand, light brown, poorly graded, medium dense, non-plastic, dry, nil cementation		SM		BAG						
	moist				RS	12"	10 16	4.1	106		
		5			SS	15"	5 7 6				
	very dense	10			SS	15"	27 50/5.5"				
	hard drilling from 16' to 20'	15			SS	15"	19 25 32				
		20									

Continued Next Page

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽	▼
WL		
WL		

Terracon

BORING STARTED	9-20-95		
BORING COMPLETED	9-20-95		
RIG	CME-75	FOREMAN	R.S.
APPROVED	H.M.J.	JOB #	63955116

LOG OF BORING NO. B-5

CLIENT: Magma Copper Company

ARCHITECT/ENGINEER:

SITE: Florence, Arizona

PROJECT: Proposed New Mine

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: BULL-NOSE	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: BLOWS (6 in.)	TESTS: MOISTURE, %	TESTS: DRY DENSITY PCF	TESTS	TESTS
	SILTY SAND; with gravel, medium brown, poorly graded, very dense, non-plastic, moist, nil cementation		SM		SS	3"	24 26 25				
	dense	25			SS	12"	16 21 27				
	hard slow drilling large amount of gravel from 26' to 30'										
	SILTY GRAVEL; light brown, medium graded, very dense, non-plastic, moist, nil cementation	30	GM		SS	2"	50/2"				
	Bottom of Boring	35									
		40									

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽	▼
WL		
WL		

Terracon

BORING STARTED	9-20-95		
BORING COMPLETED	9-20-95		
RIG	CME-75	FOREMAN	R.S.
APPROVED	H.M.J.	JOB #	63955116

LOG OF BORING NO. B-6

CLIENT: Magma Copper Company

ARCHITECT/ENGINEER:

SITE: Florence, Arizona

PROJECT: Proposed New Mine

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: BULL-NOSE	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: BLOWS (6 in.)	TESTS: MOISTURE, %	TESTS: DRY DENSITY PCF	TESTS:	TESTS:
	SILTY SAND; medium brown, poorly graded, medium dense, non- plastic, moist, nil cementation		SM	15	BAG						
	light brown, dense				RS	12"	41 50/4"	4.0	84		
	SANDY CLAY; very fine, poorly graded, hard, low plasticity, moist, nil cementation	5	CL		SS	18"	12 17 22				
	hard drilling from 7' to 9'										
	CLAYEY SAND; with trace gravel, light brown, poorly graded, very dense, low plasticity, moist, nil cementation hard drilling between 12' and 13'	10	SC		SS	12"	22 50/3"				
	SANDY CLAY; with trace gravel, very fine, poorly graded, dense, low plasticity, moist, nil cementation	15	CL		SS	10"	13 19 11				
	Continued Next Page	20									

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽	▼
WL		
WL		

Terracon

BORING STARTED	9-20-95		
BORING COMPLETED	9-20-95		
RIG	CME-75	FOREMAN	R.S.
APPROVED	H.M.J.	JOB #	63955116

LOG OF BORING NO. B-6

CLIENT: Magma Copper Company

ARCHITECT/ENGINEER:

SITE: Florence, Arizona

PROJECT: Proposed New Mine

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: BULL-NOSE	SAMPLES: TYPE	SAMPLES: RECOVERY	SAMPLES: BLOWS (6 in.)	TESTS: MOISTURE, %	TESTS: DRY DENSITY PCF		
	SILTY SAND; with gravel, medium brown, poorly graded, medium dense, non-plastic, moist, nil cementation		SM		SS	2"	8				
							9				
							11				
	hard drilling from 21' to 25'										
					SS		50/3"				
	Auger Refusal										
		25									
		30									
		35									
		40									

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	▽	▼
WL		
WL		

Terracon

BORING STARTED	9-20-95		
BORING COMPLETED	9-20-95		
RIG	CME-75	FOREMAN	R.S.
APPROVED	H.M.J.	JOB #	63955116

Existing Wells

OB3-1

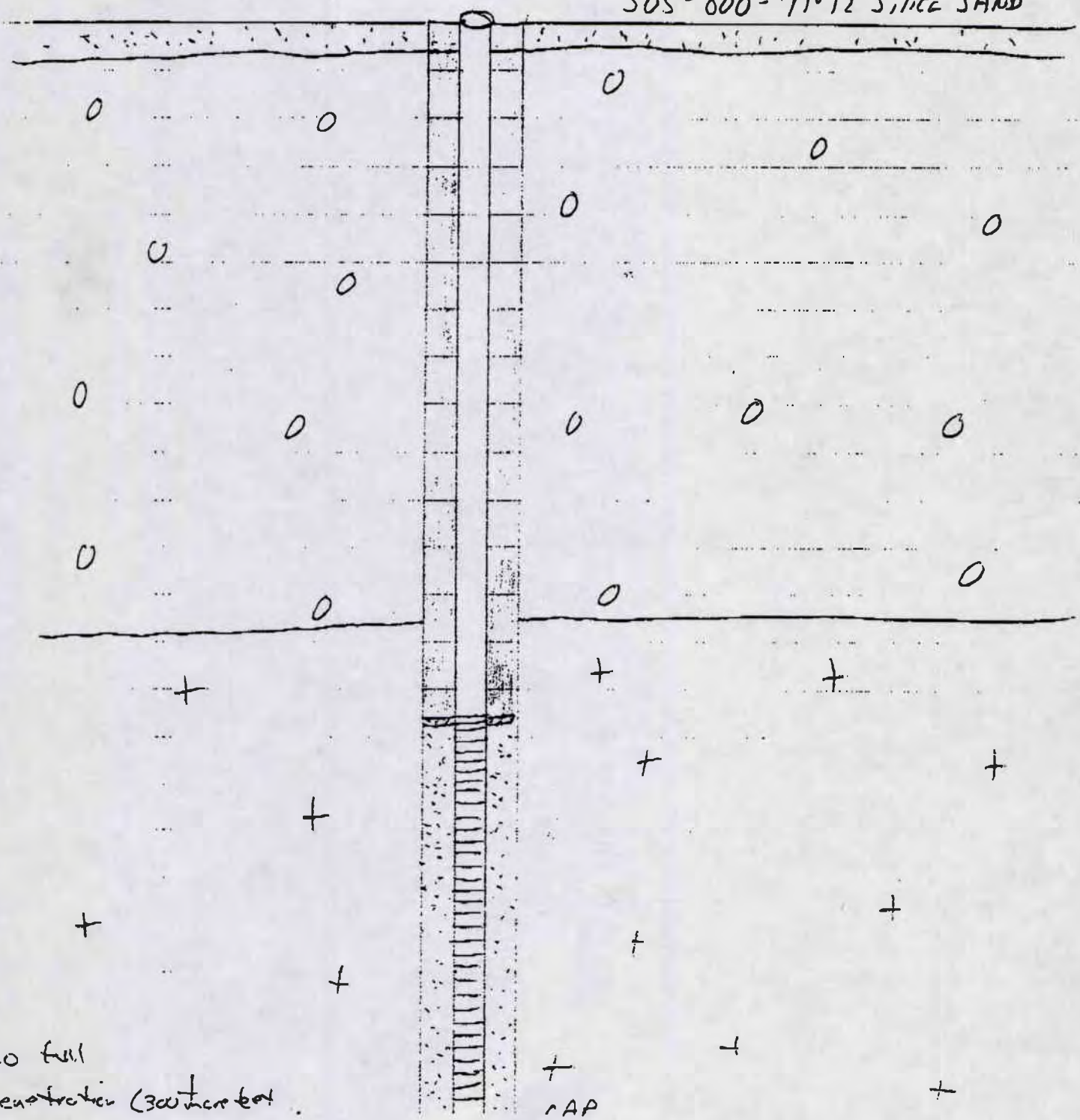
PW3-1 - 6"
OB3-1 - 4"

0-430' Conglomerate

1" = 100'

PVC - SCH. 80
0-500' - Solid
500'-780' - Perf.
780'-800' - Solid

0-20' - cement
20'-500' - Bentonite grout seal
500'-505' - nº 30 SAND
505'-800' - nº 12 Silica SAND



no full
penetration (300 more feet

CAP

Az.: 28-54-40

	Northing	Easting	Elev.
PW3-1	746,250.7029	647,873.5467	1475.49
PB3-1	746,204.0188	647,890.1575	1475.78
PW2-2	745,543.1537	649,854.3396	1464.26 ✓
PB2-2	745,500.7046	649,879.1265	1464.02 ✓

4-25-94

MONITOR/PIEZOMETER WELL

FILING FEE $10.00

ARIZONA DEPARTMENT OF WATER RESOURCES
Operations Division
15 SOUTH 15TH AVENUE
PHOENIX, ARIZONA 85007

MONITOR/PIEZOMETER WELL

FILING FEE $10.00

NOTICE OF INTENTION TO DRILL MONITOR/PIEZOMETER WELL

Section § 45-596, Arizona Revised Statutes provide: Prior to drilling a monitor or piezometer well, a Notice of Intention to Drill shall be filed with the Department.

MR

1. **WELL LOCATION:** OB3-1

   4 N/S | 9 E/W | 28
   Township | Range | Section

   NW 1/4 NW 1/4 SW 1/4
   10 ACRE 40 ACRE 160 ACRE

2. Position location of the well on the land:

   Latitude 111 0 27 : 0 "

   Longitude 33 0 02 : 30 "

3. County: PINAL

4. **Owner of the land of wellsite:**
   Name: Magma Copper Company
   Address: 14605 E. Hunt Highway
   City: Florence State: Az Zip: 85232

5. **Lessee of the land of wellsite:**
   Name:
   Address:
   City State Zip

6. **Owner of well:**
   Name: Magma Copper Company
   Address: 14605 E. Hunt Highway
   City: Florence State: Az Zip: 85232

7. Consulting Firm: _____
   Contact Person: _____
   Phone: _____

8. Purpose of well drilled pursuant to this notice
   Monitor X
   Piezometer _____

9. If for deepening or modifying, Well Registration Number
   55- _____

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

File No. D(4-9)28 c BB
Filed 1-10-94 By ah
Input _____ By _____
ENTERED JAN 11 1994
DUPLICATE
Mailed 1-12-94 By ah
Registration 55- 542056
AMA/INA Pinal
W/S 28 S/B 11

10. Construction will start:
    1 Month 4 Day 94 Year

11. Period well will remain in use 4 Months/Years

12. For monitoring wells, is pump equipment to be installed?
    Yes _____ No X
    (a) If yes, design pump capacity _____
    (b) What use will be made of the water _____

13. **Drilling firm:**
    Name: Bayless Bros. Drilling
    Address: 6527 W. Northview
    City: Glendale State: Az Zip: 85301
    DWR License No. 28 A4
    ROC License classification

14. Is the proposed wellsite within 100 feet of a septic tank system, sewage disposal area, landfill, hazardous waste facility, storage area of hazardous material or petroleum storage areas and tanks?
    Yes _____ No X

16. Proposed method of abandonment of well after project is completed: (All) wells will be capped upon completion of testing.

17. Is this well to monitor existing contamination? NO Potential contamination NO. Please explain: _____

GENERAL INSTRUCTIONS

1. Fill out this form in DUPLICATE and send WITH $10.00 FEE to 15 South 15th Avenue, Phoenix, AZ 85007.
2. For specific instructions, limitations and conditions, see the reverse side of this form.
3. Must be signed by land owner or lessee.
4. Section §45-596(D), provides that the Director shall determine that all information required on form has been submitted. If not, the person filing will be notified and the drilling, deepening, or modification of the well may not proceed.

JAN 10 1994

I state that Notice is filed in compliance with Section § 45-596 and is complete and correct to the best of my knowledge and belief and that I understand the conditions set forth on the reverse side of this form.

Typed or Printed Name _____

Signature [ ] Land Owner [ ] Lessee of wellsite

12/20/93
Date

18. If construction plans have been coordinated with Arizona Department of Environmental Quality, who is the agency contact? _____

If construction plans have been coordinated with Arizona Department of Water Resources, who is the agency contact? _____

19. WELL CONSTRUCTION PLAN

a) Drilling method (mud rotary, hollow-stem auger, etc.) mud rotary

b) Borehole diameters: 6 inches from 0 feet to 1200 feet.

_____ inches from _____ feet to _____ feet.

Proposed only. Not as built.

c) Casing materials (PVC, steel, hollow-stem auger, etc.)

material Sch. 80 PVC diameter 4 inches from 21 feet to 1200 feet

material Steel diameter 6 inches from 0 feet to 20 feet

d) Method of sealing at reductions _____

e) Annular seal materials (cement, grout, etc.); method of placement (tremied, circulated)

material Grout (Bentonite) method tremied from 20 feet to 800 feet

material Cement Grout seal method tremied from 0 feet to 20 feet

f) Filter packs (state material):

material No. 12 Silica Sand - Gravel Pack from 800 feet to 1200 feet

material No. 30 river sand from 795 feet to 800 feet

g) Perforations or screen specifications:

type 0.020" Slot PVC from 800 feet to 1180 feet

type 2" PVC - Blank from 1180 feet to 1200 feet

h) Method of well development (bail, air lift, surge) air lift

i) Will surface or conductor casing extend above grade: Yes X No _____

20. Include detailed construction diagram showing expected water depth in feet below land surface, and details of vault, if specified.

CONDITIONS

I. Construction and abandonment standards for all wells shall be in accordance with A.A.C. R12-15-811 and R12-15-816.

II. Drilling of the well shall be completed within one (1) year after the date of Notice.

III. A Well Driller Report, is required within 30 days of completion of drilling. A Completion Report, is required to be filed with the Department within 30 days after installation of pump equipment for monitor wells.

IV. Pump equipment may not be installed on a well drilled for piezometer purposes. If a monitor well is pumped, pumping is limited to the maximum amount required for monitor purposes, but in no case may exceed 35 gallons per minute and an annual volume of 10 acre feet total.

V. A.A.C. Rule R12-15-811.H.2, requires that: "A monitor well shall be identified as such on the vault cover or at the top of the steel casing. Identification information will include well registration number."

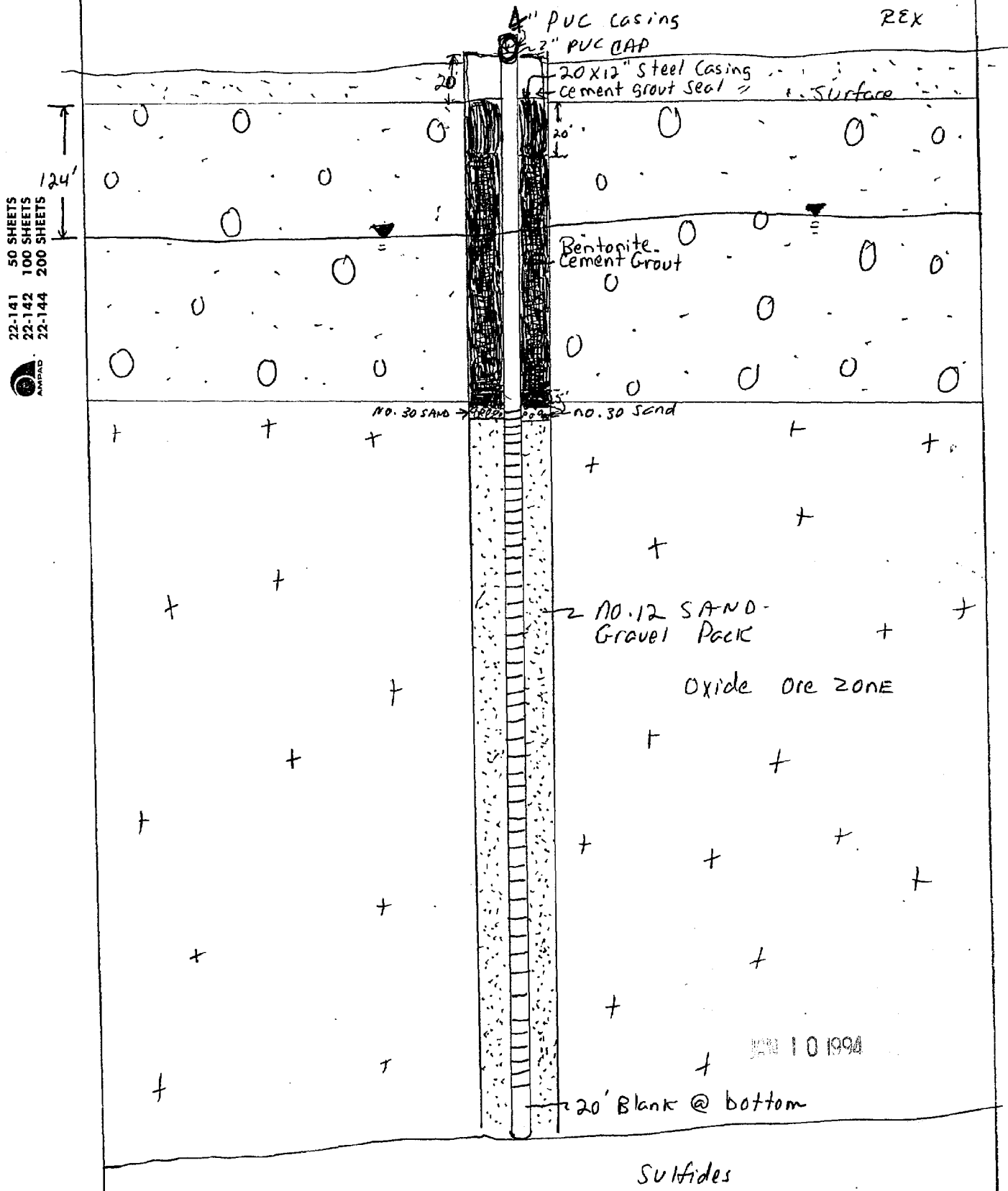
VI. Special construction standards required pursuant to A.A.C. Rule R12-15-821: _____

_____

10 1994

WEll Construction
Diagram - 6" diameter
monitor well - IN-situ
Testing -

12-12-93
REX



22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

JAN 10 1994

OB4-1

: FLORENCE PROJECT
HOLLENBACH SURVEYING CO

Point	Quad	Direction	Distance	Northing	Easting	Elevation
1	PW3-1			746250.7029	647873.5467	1475.490
List						
600	OB-6			746481.6985	648550.6927	1470.518
601	PW-2			747039.0825	647895.5184	1483.167
602	BIA-9			745732.2083	647304.9315	1472.524
603	MF-2			745462.5711	647816.4190	1474.239
604	PW-4			745530.8294	647769.7365	1471.849
605	OB-4			745584.5350	647783.0629	1471.709
606	1 6			745696.1364	647744.1832	1472.014
607	BIA 10			745638.4200	649114.6634	1468.603
608	PW7-1			745435.5384	648861.5612	1468.552
609	OB-7			745454.7947	648871.8236	1468.272

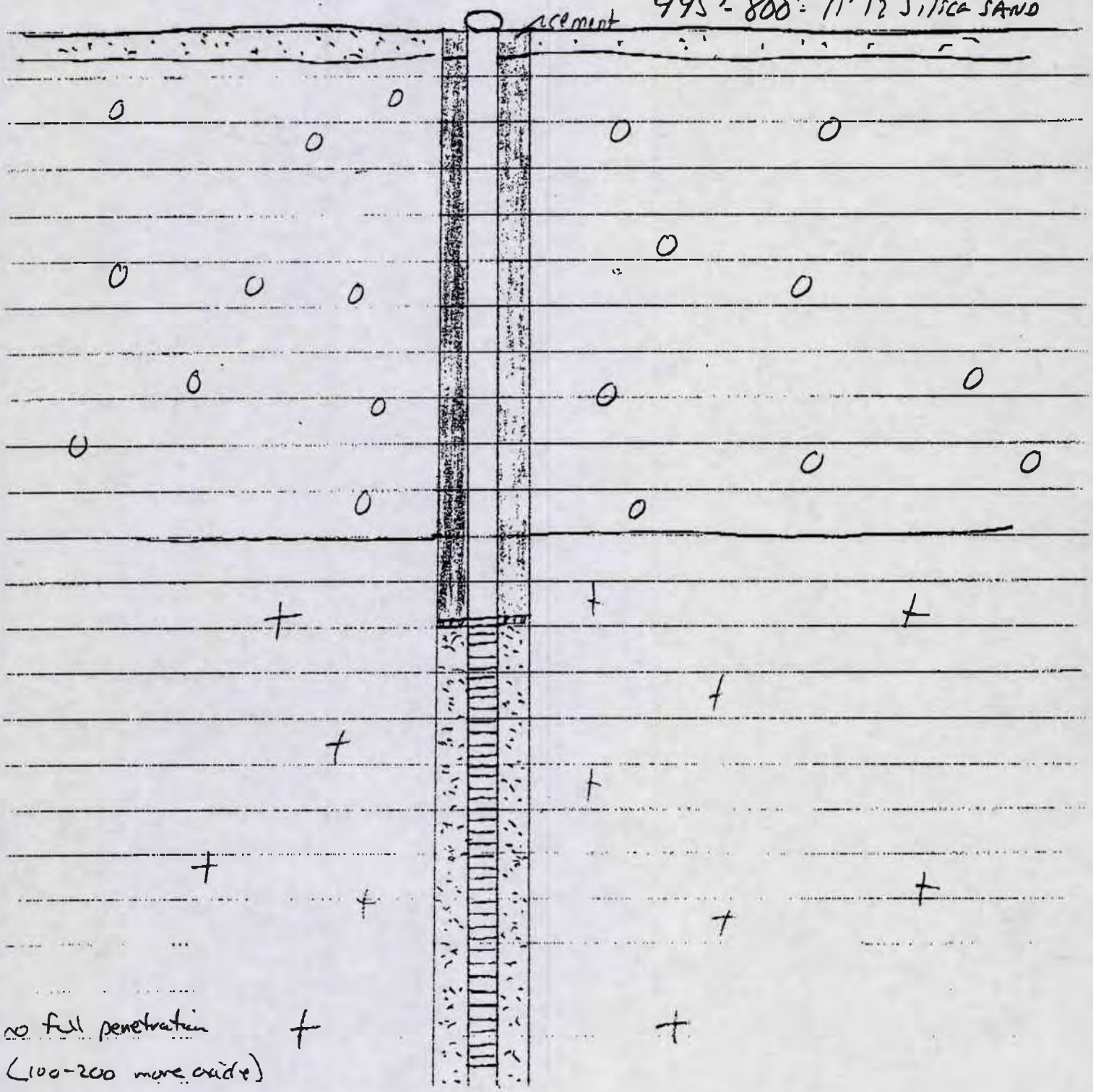
Florence Prefeasibility
Pump Test

PW4-1 - 6"
OB4-1 - 4"

0-375' - Conglomerate
800' - TD
1" = 100'

PVC - SCH 80
0 - 440' - Solid
440' - 780' - Perf.
780' - 800' - Solid

0 - 20' - Cement
20' - 440' - Bentonite grout seal
440' - 445' - #50 SAND
445' - 800' - #12 Silica SAND

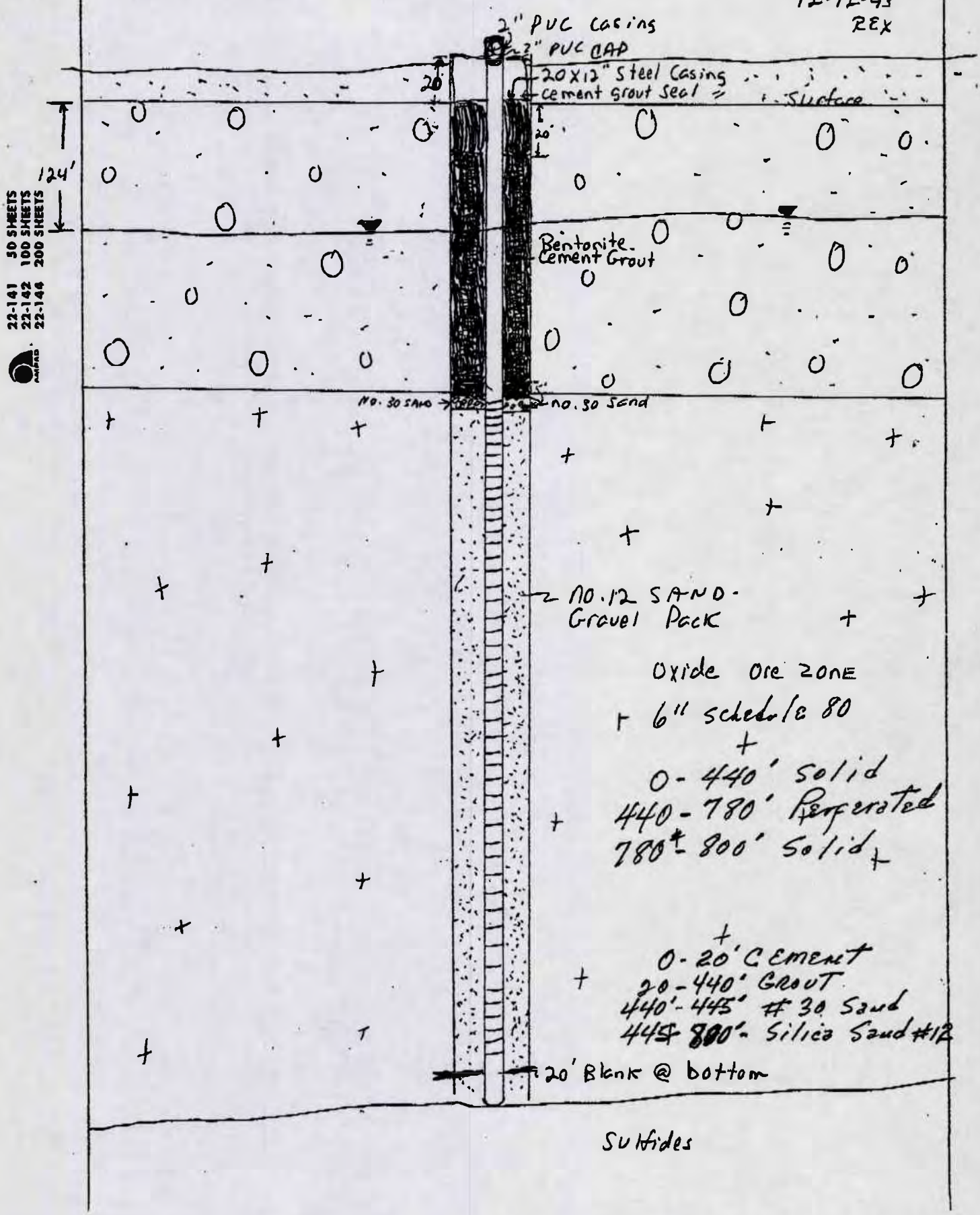


no full penetration
(100-200 more could)

#6 PW4-1 | T.D. 800 | Diagram - 6" diameter Monitor Well - In-situ Testing -

OB4-1

12-12-93
REX



22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

MONITOR/PIEZOMETER WELL

FILING FEE $10.00

ARIZONA DEPARTMENT OF WATER RESOURCES
Operations Division
15 SOUTH 15TH AVENUE
PHOENIX, ARIZONA 85007

MONITOR/PIEZOMETER WELL

FILING FEE $10.00

NOTICE OF INTENTION TO DRILL MONITOR/PIEZOMETER WELL

Section § 45-596, Arizona Revised Statutes provide: Prior to drilling a monitor or piezometer well, a Notice of Intention to Drill shall be filed with the Department. MR

OB4-1

1. **WELL LOCATION:**

   4 N/S | 9 E/W | 28
   Township | Range | Section

   NE 1/4 SW 1/4 SW 1/4
   10 ACRE 40 ACRE 160 ACRE

2. Position location of the well on the land:

   Latitude 111 0 27 : 0 "

   Longitude 33 0 02 : 30 "

3. County: PINAL

4. **Owner of the land of wellsite:**
   Magma Copper Company
   Name
   14605 E. Hunt Highway
   Address
   Florence AZ 85232
   City State Zip

5. **Lessee of the land of wellsite:**
   Name
   Address
   City State Zip

6. **Owner of well:**
   Magma Copper Company
   Name
   14605 E. Hunt Highway
   Address
   Florence AZ 85232
   City State Zip

7. Consulting Firm: _____

   Contact Person: _____

   Phone: _____

8. Purpose of well drilled pursuant to this notice

   Monitor X

   Piezometer _____

9. If for deepening or modifying, Well Registration Number

   55- _____

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

File No. D(4-9)28CCA

Filed 1-10-94 By ek

Input _____ By _____

ENTERED JAN 11 1994
DUPLICATE

Mailed 1-12-94 By ek

Registration 55- 542055

AMA/INA Pinal

W/S 28 S/B 11

10. Construction will start:
    1 Month 4 Day 94 Year

11. Period well will remain in use 4 Months/Years

12. For monitoring wells, is pump equipment to be installed?
    Yes _____ No X
    (a) If yes, design pump capacity _____
    (b) What use will be made of the water _____

13. **Drilling firm:**
    Boyles Bros. Drilling
    Name
    6527 W. Northview
    Address
    Glendale AZ 85301
    City State Zip

    DWR License No. 28 A4

    ROC License classification

14. Is the proposed wellsite within 100 feet of a septic tank system, sewage disposal area, landfill, hazardous waste facility, storage area of hazardous material or petroleum storage areas and tanks?
    Yes _____ No X

16. Proposed method of abandonment of well after project is completed: (All) wells will be capped upon completion of testing.

17. Is this well to monitor existing contamination? NO Potential contamination NO. Please explain: _____

GENERAL INSTRUCTIONS

1. Fill out this form in DUPLICATE and send WITH $10.00 FEE to 15 South 15th Avenue, Phoenix, AZ 85007.
2. For specific instructions, limitations and conditions, see the reverse side of this form.
3. Must be signed by land owner or lessee.
4. Section §45-596(D), provides that the Director shall determine that all information required on form has been submitted. If not, the person filing will be notified and the drilling, deepening, or modification of the well may not proceed.

JAN 10 1994

I state that Notice is filed in compliance with Section § 45-596 and is complete and correct to the best of my knowledge and belief and that I understand the conditions set forth on the reverse side of this form.

Typed or Printed Name

Signature [ ] Land Owner [ ] Lessee of wellsite

12/20/93
Date

18. If construction plans have been coordinated with Arizona Department of Environmental Quality, who is the agency contact? _____

If construction plans have been coordinated with Arizona Department of Water Resources, who is the agency contact? _____

19. WELL CONSTRUCTION PLAN

a) Drilling method (mud rotary, hollow-stem auger, etc.) mud rotary

b) Borehole diameters: 6 inches from 0 feet to 1200 feet. Proposed only. Not as built.

_____ inches from _____ feet to _____ feet.

c) Casing materials (PVC, steel, hollow-stem auger, etc.)

material Sch. 80 PVC diameter 4 inches from 21 feet to 1200 feet

material Steel diameter 6 inches from 0 feet to 20 feet

d) Method of sealing at reductions _____

e) Annular seal materials (cement, grout, etc.); method of placement (tremied, circulated)

material Grout (Bentonite) method tremied from 20 feet to 380 feet

material Cement Grout seal method tremied from 0 feet to 20 feet

f) Filter packs (state material):

material No. 12 Silica Sand - Gravel Pack from 380 feet to 1200 feet

material No. 30 river sand from 375 feet to 380 feet

g) Perforations or screen specifications:

type 0.020" Slot PVC from 380 feet to 1180 ~~1200~~ feet

type 2" PVC - Blank from 1180 feet to 1200 feet

h) Method of well development (bail, air lift, surge) air lift

i) Will surface or conductor casing extend above grade: Yes X No _____

20. Include detailed construction diagram showing expected water depth in feet below land surface, and details of vault, if specified.

CONDITIONS

I. Construction and abandonment standards for all wells shall be in accordance with A.A.C. R12-15-811 and R12-15-816.

II. Drilling of the well shall be completed within one (1) year after the date of Notice.

III. A Well Driller Report, is required within 30 days of completion of drilling. A Completion Report, is required to be filed with the Department within 30 days after installation of pump equipment for monitor wells.

IV. Pump equipment may not be installed on a well drilled for piezometer purposes. If a monitor well is pumped, pumping is limited to the maximum amount required for monitor purposes, but in no case may exceed 35 gallons per minute and an annual volume of 10 acre feet total.

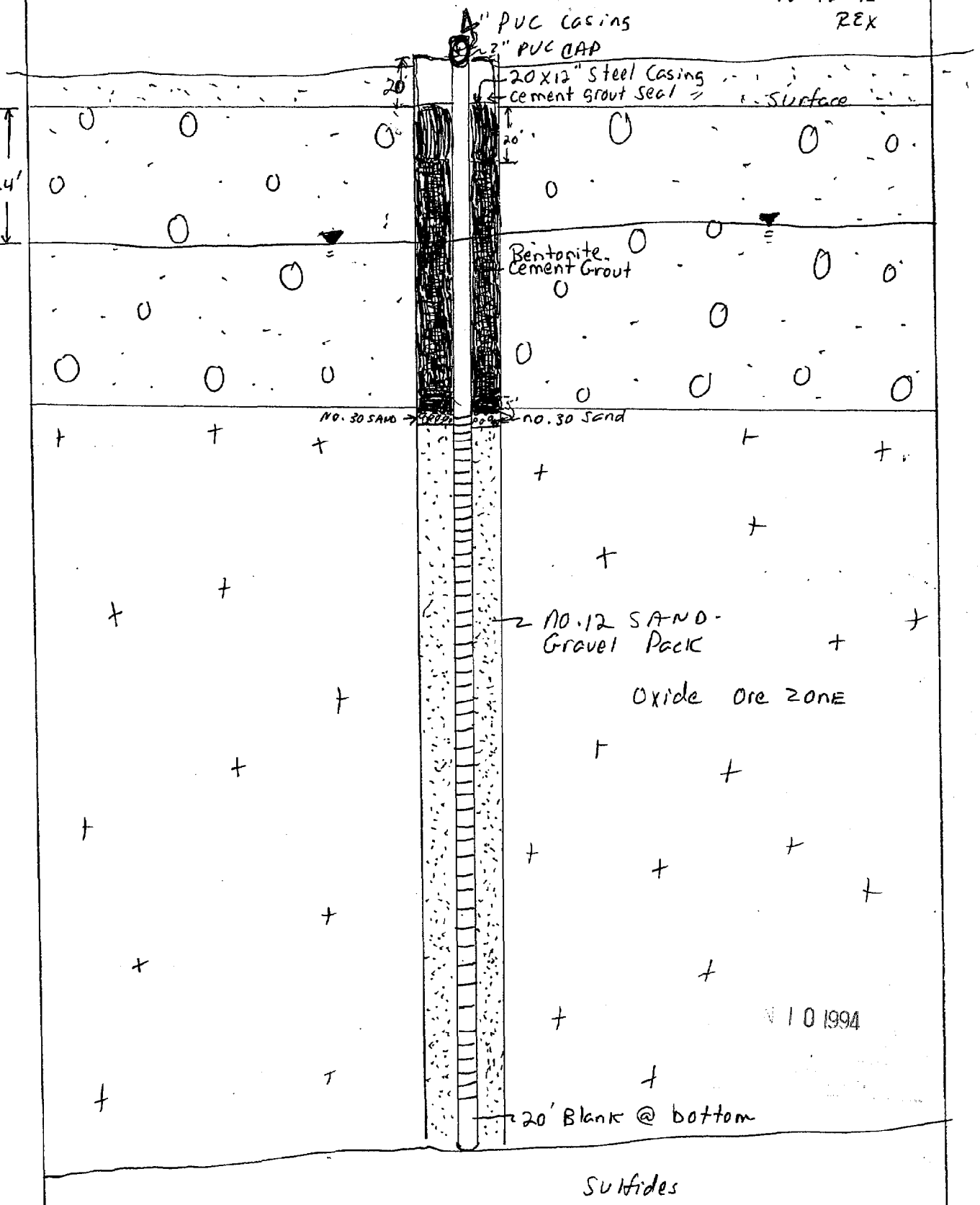
V. A.A.C. Rule R12-15-811.H.2, requires that: "A monitor well shall be identified as such on the vault cover or at the top of the steel casing. Identification information will include well registration number."

VI. Special construction standards required pursuant to A.A.C. Rule R12-15-821: _____

JAN 10 1994

WEll Construction
Diagram - 6" diameter
Monitor Well - INSitu
Testing -

12-12-93
REX



1 0 1994

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

PW3-1

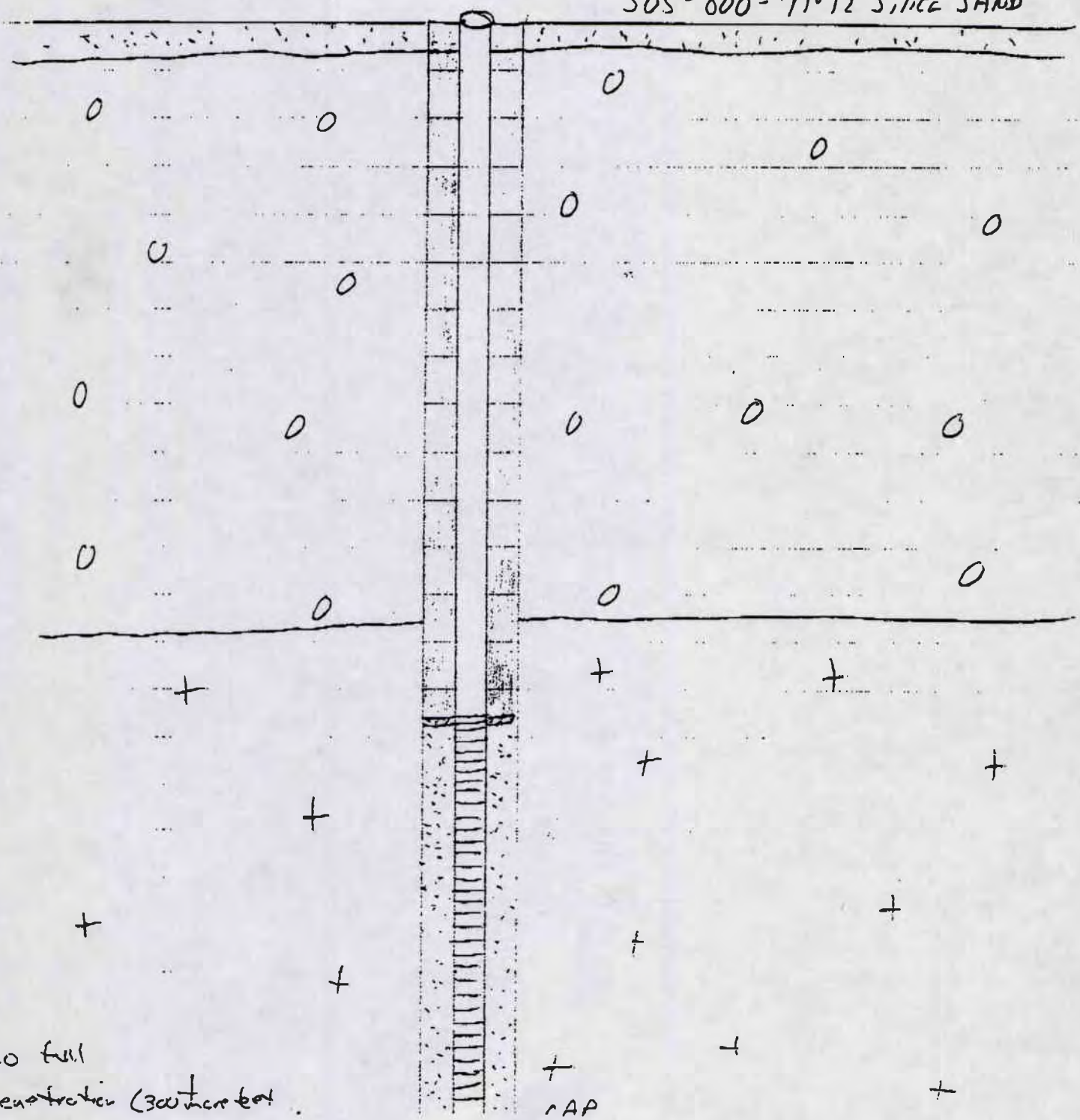
PW3-1 - 6"
OB3-1 - 4"

0-430' Conglomerate

1" = 100'

PVC - SCH. 80
0-500' - Solid
500'-780' - Perf.
780'-800' - Solid

0-20' - cement
20'-500' - Bentonite grout seal
500'-505' - nº 30 SAND
505'-800' - nº 12 Silica SAND



no full
penetration (300 more feet

CAP

Az.: 28-54-40

	Northing	Easting	Elev.
PW3-1	746,250.7029	647,873.5467	1475.49
PB3-1	746,204.0188	647,890.1575	1475.78
PW2-2	745,543.1537	649,854.3396	1464.26 ✓
PB2-2	745,500.7046	649,879.1265	1464.02 ✓

4-25-94

PW3-1

ARIZONA DEPARTMENT OF WATER RESOURCES
GROUNDWATER MANAGEMENT SUPPORT SECTION
P O BOX 458, PHOENIX, ARIZONA 85001-0458
PHONE: (602) 417-2470

RECEIVED
MAR 31 1999
RECORDS MGT

Arizona Revised Statute §45-594 and A.A.C. R12-822: The owner of an open well shall file a notice of well capping with the Department in writing no later than five days after the well is capped.

NOTICE OF WELL CAPPING

1. LEGAL DESCRIPTION OF THE LOCATION OF WELL:

a. Township 4S

b. Range 9E

c. Section 28

____ ¼ ____ ¼ ____ ¼
10 Acre 40 Acre 160 Acre

2. WELL REGISTRATION NUMBER:

55- 542056

File No: D(4-9)28cbb

3. OWNER OF THE WELL:

BHP Copper
Name
14605 East Hunt Hwy
Address
Florence, AZ 85232
City State Zip
(520) 868-5090
Telephone Number

4. PERSON INSTALLING THE CAP:

Jim McBroom
Name
14605 East Hunt Hwy.
Address
Florence, AZ 85232
City State Zip
(520) 868-5090
Telephone Number

5. DATE WELL WAS CAPPED:

March - 94

6. METHOD OF CAPPING:

① Watertight well cap ② Vault with locking cap.

7. TYPE AND DIAMETER OF CASING:

Type of Well Casing: Sch 80 PVC

Diameter of Well Casing: 6"

8. COMMENTS

I state that this Notice is filed in compliance with A.R.S. §45-594 and A.A.C. R12-15-822, and is complete and correct to the best of my knowledge and belief.

9. Signature Carolla Hoag **Date** 3/30/99

DWR 55-39 (Rev 3/98)

ARCHIVED APR 5 1999

PW4-1

: FLORENCE PROJECT
HOLLENBACH SURVEYING CO

Point	Quad	Direction	Distance	Northing	Easting	Elevation
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List						
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Florence Prefeasibility
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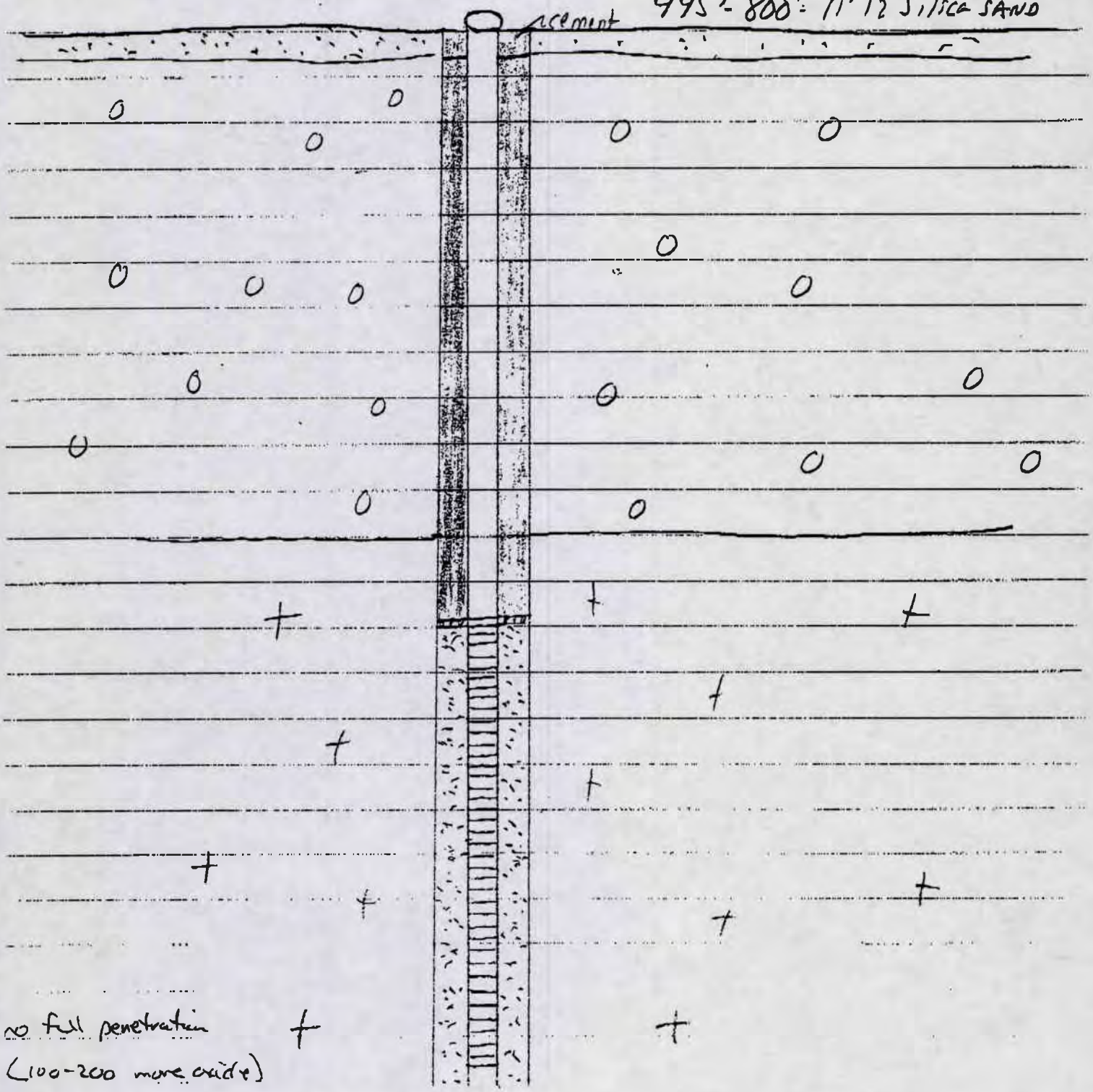
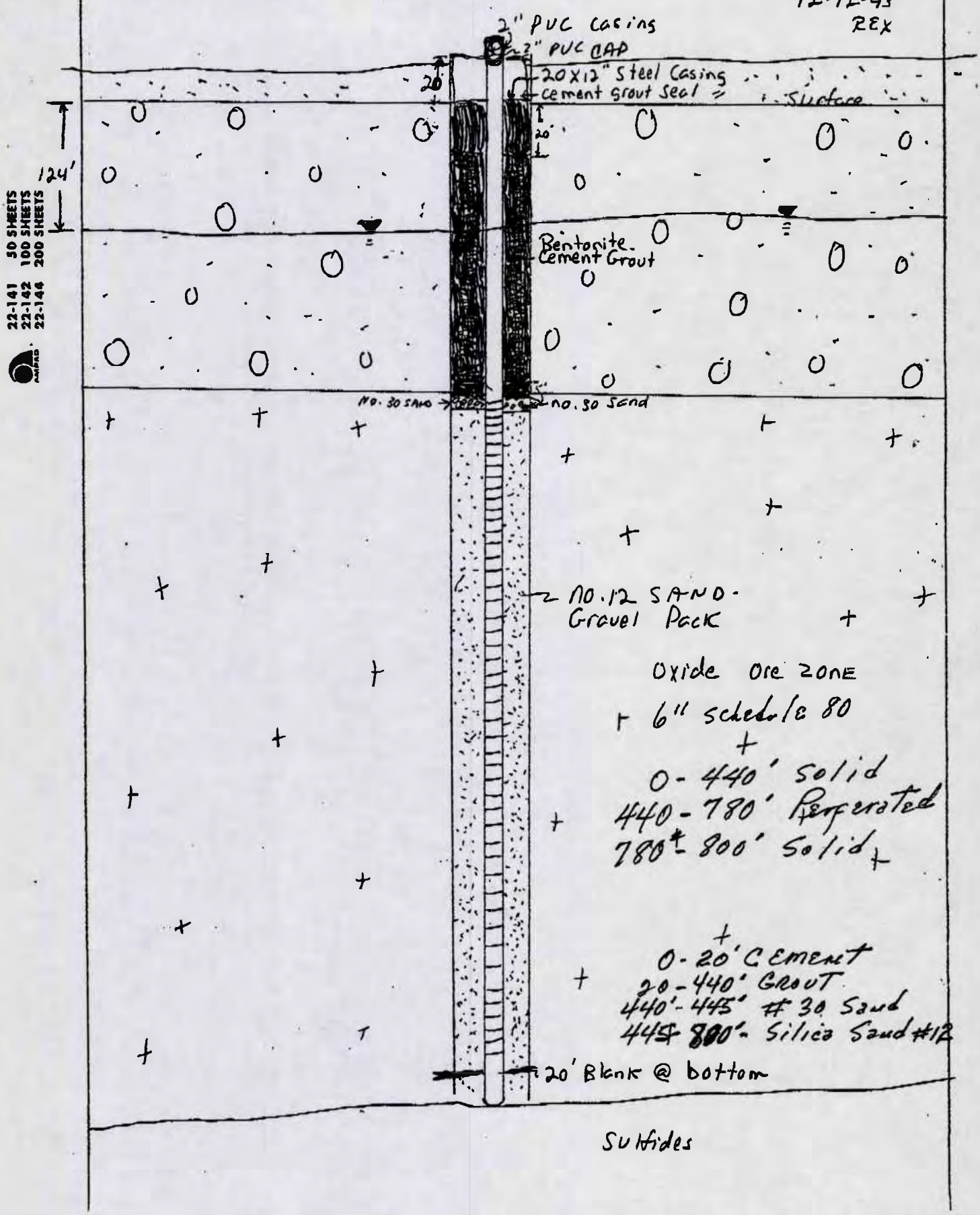


no full penetration
(100-200 more could)

#6 PW4-1 | T.D. 800 | Diagram - 6" diameter Monitor Well - In-situ Testing -

OB4-1

12-12-93
REX



22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS
AMPAD

Water Well 3 (WW3)

Water Development Corporation

CONSULTANTS IN WATER RESOURCES

3938 SANTA BARBARA AVENUE
TUCSON, ARIZONA 85711

PHONE: 602-326-1133
CABLE: WADEVCO, TUCSON

WELL RECORD

PROJECT FIAR-CONOCO WELL NO. 3

Date 6/23 1975 Record by P.W. NASON Source of data

1. LOCATION: County, area PINAL Map FLORENCE QUAD
SE 1/4 SW 1/4, sec. 28, T 4S N, (S) R 9 (E) W

2. OWNER or tenant: CONOCO Address P.O. BOX 627, FLORENCE, AZ
Driller L.C. JONES DRILLING CO Date drilled 11/5/74 19

3. TOPOGRAPHY: FLAT - farmland

4. ALTITUDE of MP, LS: ~1470 (ft) m

5. TYPE: (Drilled) dug Depth: Meas., rept. 933 (ft) m

6. CASING: Diam 81' of 24" 496' of 18" 440' of 14" (in) cm Type STEEL
Depth of casing 936 (ft) m Perf. 96' louvered 80' 3/16 x 3" slot cut 18" 80' 3/16 x 3" slot cut 14" 440' 3/16 x 3" slot cut

7. AQUIFER (S): Depth or thickness ft, m

8. USE: Dom, Stock, P.S., Ind., Irr., Obs. Dewater

9. WATER LEVEL: 230 ft, m meas. rept. 6/23 1975 above, below
which is ft, m above, below land surface

10. PUMP: Type VERTICAL TURBINE Make WORTHINGTON Capacity 2000+ (gpm) lps
Setting 450 (ft) m Diam. of column 10 x 3 x 1 1/16 (in) cm No. of stages 4
Power: Kind ELECTRIC Make WESTINGHOUSE Rated HP 250
CONTROL: GE, ROMAC SUPPLY, L.A. rewound by Vincent Carter

11. YIELD: Flow, pump gpm, lps meas., rept., est.
Drawdown ft, m after hours pumping at gpm, lps (Date)

12. QUALITY: Date sample coll. 19 Temp. °F, °C
Taste, odor, color

13. OTHER DATA (Location): Logs or cuttings
Checmial analyses
Bacteriological analysis
Pumping test data DUNCAN PUMP CO
Other PUMP: STRETCH 0.30, Lateral 7/8"; bowl # 15M154; Hole size 22" (18" casing) 17.5" (14" casing)

(See reverse side for Log, Sketch, Notes, etc.)

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	60!	alluvium
60	80'	clay
80	372'	conglomerates
372	938'	bedrock

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief.

Driller C.C. Sutton Co. Drilling Consultant
Name

Florence, Arizona
Address

Date Feb. 1-1975

2-73

Hole Inventory check list

HOLE ID MDH FILE NAME
WW3 MDH.41

COORDINATES
NORTHING EASTING
745490.00 647950.00

ELEVATION 1470.00 FEET ABOVE SEA LEVEL

DEPTH 938.0 FEET

CHECKED IF PRESENT

___ COPY OF SURVEYOR COORDINATES

✓ WELL CONFIGURATION DIAGRAM

✓ GEOLOGIC LOGS

___ GEOPHYSICAL LOGS_____

_____

_____

_____

DEPARTMENT OF WATER RESOURCES
99 EAST VIRGINIA AVENUE
PHOENIX, ARIZONA 85004

RECEIVED JUN 7 1982 DEPT. OF WATER RESOURCES

REGISTRATION OF EXISTING WELLS

READ INSTRUCTIONS ON BACK OF THIS FORM BEFORE COMPLETING
PRINT OR TYPE — FILE IN DUPLICATE

REGISTRATION FEE (CHECK ONE)	
EXEMPT WELL (NO CHARGE)	☐
NON-EXEMPT WELL – $10.00	☒

U8

FOR OFFICE USE ONLY
REGISTRATION NO. 55- 627608
FILE NO. D(4-9)28cdb
FILED 6-7-82 (DATE) AT 3 — (TIME)
INA
AMA PINAL

1. Name of Registrant:
CONOCO INC.
555 17th Street (Address) Denver (City) Colo. (State) 80202 (Zip)

2. File and/or Control Number under previous groundwater law:
D(4-9)28 cdbb (File Number) 35- 30101 (Control Number)

3. a. The well is located within the NW ¼ SE ¼ SW ¼, Section 28, of Township 4 N/S, Range 9 E/W, G & SRB & M, in the County of Pinal.
   b. If in a subdivision: Name of subdivision _____, Lot No. _____, Address _____.

4. The principal use(s) of water (Examples: irrigation - stockwater - domestic - municipal - industrial)
irrigation.

5. If for irrigation use, number of acres irrigated from well 598.5 In conjunction with 1 other irrigation well and surface water from the San Carlos Irrigation and Drainage District.

6. Owner of land on which well is located. If same as Item 1, check this box ☒
_____
_____
(Address) (City) (State) (Zip)

7. Well data (If data not available, write N/A)
   a. Depth of Well 933 feet
   b. Diameter of casing 18"to496', 14"to933' inches
   c. Depth of casing 933 feet
   d. Type of casing perforated steel.
   e. Maximum pump capacity 1500 gallons per minute.
   f. Depth to water 227 feet below land surface.
   g. Date well completed November (Month) 21 (Day) 1974 (Year).

8. The place(s) of use of water. If same as Item 3, check this box ☐. see attached legal description
____¼ ____¼ ____¼, Section ____ Township ____ Range ____
____¼ ____¼ ____¼, Section ____ Township ____ Range ____
Attach additional sheet if necessary.

9. DATE June 4, 1982 SIGNATURE OF REGISTRANT [signature]

MICROFILMED

Abandoned Wells

DM-B

Memo to: File **BHP Florence**
From: C. Hoag
Date: October 11, 1996

Subject: Hydrology test wells DMA, DMB, DMC, DMD, DME, DMF, and DMG.

Conoco retained the consulting firm Dames & Moore to conduct a pre-mine study of the hydrology and provide an estimate of the amount of water that would be produced in the pilot mine workings. Seven shallow holes were drilled - DMA through DMG around the perimeter of the underground workings. Dames & Moore created plots of water inflow versus depth based on the analysis of radioactive tracers in the wells. Their prediction was that the mine would produce 2,000 to 8,000 gallons per minute for the entire pilot mine. Contrary to predictions, the mine produced a maximum of slightly over 650 gallons per minute. Most of the water occurred as general weeping from the back and ribs of the drifts, a significant percentage occurred in a few high production fault zones. A discussion of the pilot mine and hydrologic tests is located in the Conoco Feasibility Study, Vol. IV, Chapter 3. Dames & Moore's preliminary report, based on their geophysical and hydrological work on DMA through DME, is located in the file system in the library.

Although we have not found the geology logs for DMA through DMG, we do have records of the collar coordinates and downhole geophysical logs including: caliper, spinner, fluid density, temperature, and radioactive tracer. These holes are in the economic area of interest for BHP and are voids that should be identified prior to production. Therefore, the following drill data will be used in the Florence Model A database.

Hole	Northing	Easting	Elevation	Depth
DMA	746381.80	649148.51	1478.70	700 ft.
DMB	746381.71	648246.90	1478.11	700 ft.
DMC	746384.92	650185.43	1471.49	610 ft.
DMD	746842.25	649740.28	1480.10	635 ft.
DME	745516.10	650741.49	1464.94	700 ft.
DMF[1]	745518.90	649496.43	1466.10	392 ft.
DMG[2]	746600	651571	1475	345 ft.

1 No log has been found for DMF, plotted on drill collar map as 50 feet east of 398MF. Hole probably drilled to get slope stability data for Dames & Moore.

2 DMG was drilled to get slope stability information about the overburden. Geology log exists for DMG, collar coordinates referenced to Conoco grid system, E-W line J.5, 6E. The hole is plotted on map at approximately 746600N, 651571E or 250 east of core hole 337S.

FIELD PRINT

Birdwell

Caliper Log

FILING NO.

COMPANY CONOCO

WELL DM-B

FIELD CONOCO FLORENCE PROJECT

COUNTY PINAL STATE ARIZONA

LOCATION:

SEC. TWP. RGE.

OTHER SERVICES:
TL
RTP

ELEVATIONS:
KB.
DF.
GL.

PERMANENT DATUM GROUND LEVEL ELEV.
LOG MEASURED FROM TOP 5" COLLAR
DRILLING MEASURED FROM

DATE	SEPT 10-74		
RUN NO.	ONE		
TYPE LOG	CAL		
DEPTH—DRILLER	700'		
DEPTH—LOGGER	674'		
BOTTOM LOGGED INTERVAL	674'		
TOP LOGGED INTERVAL	500'		
TYPE FLUID IN HOLE	WATER		
SALINITY PPM CL.			
DENSITY LB./GAL.			
LEVEL			
MAX. REC. TEMP.—DEG. F.	79		
OPR. RIG TIME	1/2 HR		
RECORDED BY	WILSON		
WITNESSED BY			
LOCATION	LAS VEGAS		

RUN NO.	BORE HOLE RECORD BIT	FROM	TO	CASING RECORD SIZE	WGT.	FROM	TO
1	4 1/2"	617'	700'	5"		0	617'
				2"		0	532'

SSC—807-D

EQUIPMENT DATA

	CALIPER
TYPE LOG	
TOOL MODEL	LECB
TOOL SERIAL NO.	
TOOL DIAMETER	1 5/8"
SPEED FT./MIN.	40
SCALE	1/2" /DIV
MIN. ARM DIAM.	1 5/8"
MAX. ARM DIAM.	16"
TRUCK NO.	2079

WELL DATA

ORIGINAL TOTAL DEPTH	P.B.T.D.
TYPE WELL	
OPEN HOLE SHOT WITH	
AMOUNT	FM. TO
AMOUNT	FM. TO
AMOUNT	FM. TO
SPECIAL WELL CONDITIONS:	
PURPOSE OF SURVEY	

REMARKS: (N.A. MEANS NOT AVAILABLE)

DM-B

ARIZONA DEPARTMENT OF WATER RESOURCES

15 South 15th Avenue
Phoenix, Arizona 85007

MICROFILMED

REGISTRATION OF EXISTING WELLS

READ INSTRUCTIONS ON BACK OF THIS FORM BEFORE COMPLETING
PRINT OR TYPE - **FILE IN DUPLICATE**

REGISTRATION FEE (check one)

EXEMPT WELL (No registration fee)		
LATE FEE	- $10.00	XX
NON-EXEMPT WELL	- $10.00	
LATE FEE	- $10.00	
	$20.00	

For Office Use Only
REGISTRATION NO. 55- 806521 L
FILE NO. D(4-9) 28 CAC
FILED 4/20/93 (Date) at _____ (Time)
INA ✓
AMA Pinal
SB ✓ WS 48

1. Name of Well Owner: MAGMA COPPER COMPANY
   7400 North Oracle Road, Suite 200, Tucson, Arizona 85704
   Address City State Zip
2. File and/or Control Number under previous groundwater law: none (File No.) 35- _____ (Control No.)
3. a. The well is located within the SW 1/4 NE 1/4 SW 1/4, Section 28
   of Township 4 N/S, Range 9 E/W, G&SRB&M, in the County of Pinal
   b. If in a subdivision: Name of subdivision N/A
   Lot No. _____ Address _____
4. The principal use(s) of water: Monitor
   (Examples: irrigation, stockwater, domestic, municipal, industrial)
5. If for irrigation use, number of acres irrigated from well N/A
6. Owner of land on which well is located. If same as Item 1, check this box XX
   Name Address City State Zip
7. Well data:
   a. Depth of Well 700 feet
   b. Diameter of casing 5 inches
   c. Depth of casing 611 feet
   d. Type of casing Steel
   e. Maximum pump capacity Less than 35 gallons per minute.
   f. Depth to water 244 feet below land surface.
   g. Date well completed August (Month) (Day) 1974 (Year) **(Required)**
8. The place(s) of use of water. If same as Item 3, check this box XX
   _____ 1/4 _____ 1/4 _____ 1/4, Section _____ Township _____ Range _____

RECEIVED OPERATIONS DIV.

ENTERED APR 21 1993

Date: April 13, 1993 **Signature of Well Owner:** [signature]

DWR-55-65-7/91 (Rev.)

APPENDIX 3

Revised Attachment H Text

FLORENCE COPPER, INC.

UIC PERMIT APPLICATION

FLORENCE COPPER PROJECT – PRODUCTION TEST FACILITY

ATTACHMENT H – OPERATING DATA

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H.1 Introduction

This Attachment H 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 (PTF), to be located at the Florence Copper Project (FCP) property in Pinal County, Arizona. As required for Attachment H under USEPA Form 7520-6, this Attachment includes information regarding proposed operating data for all injection and recovery wells at the PTF. This Attachment provides background information and data in the order that it is requested in the instructions for Attachment H. The requested information includes:

- Average and maximum daily rate and volume of fluids to be injected;
- Average and maximum injection pressures;
- Nature of the annulus fluid; and
- A qualitative analysis and ranges in concentrations of all constituents of injected fluids.

H.2 Background

Florence Copper is proposing to operate the PTF to demonstrate the feasibility of developing an in-situ copper recovery (ISCR) facility at the FCP property that will consist, in part, of a closely spaced array of Class III injection wells and recovery wells. The proposed PTF area is approximately 13.8 acres in size.

The UIC Permit is requested to authorize injection and recovery operations in the oxide zone, the upper portion of the bedrock underlying the PTF. The top of the oxide zone is at approximately 450 feet below ground surface at the PTF well field. It has an average thickness of approximately 750 feet beneath the PTF well field. To prevent vertical excursion of injected fluids, the uppermost 40 feet of the oxide zone will be excluded from injection. Consequently, the injection wells constructed at the PTF will have a typical injection interval of 700 feet. Florence Copper has chosen to divide the injection interval for the PTF wells into multiple intervals to focus injection into targeted areas of the oxide zone.

H.3 Rate and Volume of Fluids to be Injected

Aggregate injection and recovery rates in the PTF well field will be carefully balanced to ensure that hydraulic control will be maintained throughout the portions of the oxide zone in which injection and recovery is occurring from the time that injection begins until the PTF well field is closed in accordance with the requirements of the UIC Permit.

For each well, the rate and daily volume of fluids injected may vary based on the length of the injection interval and the capacity of the oxide zone to transmit fluids at each well site. Because the oxide zone varies in thickness and packers will be used to focus injection, the length of the injection interval in each well will vary accordingly. The rate of fluid injection in wells with longer injection intervals will need to be greater than the rate in wells with shorter injection intervals to maintain a consistent rate of flow through the oxide zone on a per-foot of thickness basis to achieve a target pregnant leach solution (PLS) grade. To maintain PLS grade, injection rates in all wells must be proportionate to the length of the injection interval. Florence Copper proposes an average injection rate of approximately 0.15 gallons per minute per foot (gpm/ft) of injection interval, and a maximum injection rate of approximately 0.20 gpm/ft of injection interval. Injection rates may be lower than the proposed average based on the length of the final injection interval used and the location of packer placement. Typical injection rates may be as low as 0.10 gpm/ft of injection interval depending on formation properties and resulting final packer configuration in each well.

The maximum aggregate injection rate proposed for PTF operations is 240 gpm, and the maximum extraction rate is limited by the capacity of the planned SX/EW plant to 300 gpm. At the maximum injection rate and maximum recovery rate, extraction will exceed injection by 25 percent. The minimum ratio between injection and recovery will be 110 percent. This means that extraction will always be greater than injection by at least 10 percent and as much as 25 percent.

Given the relatively small area of the PTF well field, it is anticipated that the thickness of the oxide zone and the resulting screened interval from well to well will be approximately uniform.

The PTF wells will be constructed with multiple injection intervals separated by sections of blank well casing that will allow packer assemblies to be used to focus injection into targeted intervals of the injection zone.

Table H-1 lists example injection rates and the resulting daily total fluid volumes derived using these rates. The planned aggregate injection rate for the PTF is limited to 240 gpm regardless of well configuration or well performance. If formation performance is uniform, each of the four injection wells will be limited to an injection rate of 60 gpm. Variation in formation performance may require some wells to be operated at rates lower or higher than 60 gpm. In all cases, the aggregate injection rate will be balanced between the four injection wells to ensure that no more than 240 gpm is injected. The values presented in Table H-1 reflect potential injection rates for a variety of well configurations which may be applied to compensate for formation performance. Depending on formation performance, planned injection rates may be less than 0.15 gpm/ft of injection interval.

H.4 Average and Maximum Injection Pressure

Each of the proposed injection and recovery wells will be completed to Class III injection well standards and individually adjusted for the depth, thickness, and hydraulic characteristics of the portion of the oxide zone penetrated by the well. Because injection pressures are calculated based on the distance from the top of the well casing to the top of the injection interval, variations in well construction depth may in turn result in variation of the average and maximum injection pressures at each well. The calculated average and maximum injection pressures, therefore, will be specific to each of the planned wells. Each well will be constructed to ensure that the injection interval is at least 40 feet below the top of the oxide zone, but spans the remainder of the oxide zone below. Based on available formation thickness data, injection pressures have been calculated for the proposed PTF injection wells and are presented in Table H-2.

Typical wells may include one or more injection intervals ranging in length between 190 and 700 feet. The injection pressures presented herein are calculated by multiplying the depth from the top of well casing to top of the injection interval by a pre-determined factor that is designed to moderate injection pressures and prevent hydraulic fracturing of the formation.

H.4.1 Average Injection Pressure

Average injection pressures are calculated as a function of the dynamic elevation of the column of lixiviant standing above the top of the injection interval during PTF well field operations. For the purposes of estimating the average injection pressure, it is assumed that the dynamic elevation of the injected fluid is equal to the elevation of the well head, and that no additional mechanical pressure is applied.

Typical groundwater will exert a pressure equivalent to 0.43 pounds per square inch per foot (psi/ft) of depth. Although composed primarily of water, lixiviant also includes sulfuric acid and dissolved minerals that will increase the density by an estimated 5 percent. Thus, the lixiviant solution is estimated to exert a pressure equal to approximately 0.45 psi/ft of depth. This is the value used to calculate the average injection pressures at the top of each injection interval.

Average injection pressures are calculated by multiplying the depth to the top of the injection interval from the top of well casing by 0.45 psi/ft. This method reflects a well head pressure that is equal to atmospheric pressure, while the well casing is flooded with lixiviant. The pressure generated at the top of the injection interval results solely from the weight of the column of lixiviant with no additional mechanical pressure applied. Examples of average injection pressure at the anticipated depth of the top of the PTF injection intervals are included in Table H-2.

H.4.2 Maximum Injection Pressure

Formation testing conducted in 1995 by BHP Copper Inc. (BHP Copper) determined a minimum fracture gradient of approximately 0.71 psi/ft for rock within the oxide zone. To ensure that injection pressures did not induce additional fracturing of the oxide zone, UIC Permit No. AZ396000001 issued to BHP Copper for the FCP in 1997 established a fracture gradient limit of 0.65 psi/ft. The fracture gradient packer testing data are included in Attachment I of this Application. Florence Copper proposes to use the 0.65 psi/ft fracture gradient to determine the maximum injection pressure for each injection interval.

Maximum injection pressures are determined by multiplying the fracture gradient limit (0.65 psi/ft) by the depth from the top of well casing to the top of the injection interval. This method of calculating maximum injection pressures reflects the pressure generated by the weight of the column of raffinate and an additional pressure applied by mechanical means to achieve the maximum allowable injection pressure at depth.

As described above, packer assemblies may be used to focus injection in targeted areas of the broader injection zone. Because operational injection pressures are calculated to the top of each injection interval, the length of the interval does not affect the calculated injection pressures. Consequently, if multiple injection intervals are used, the injection pressure will be calculated at the top of the each interval.

Example average and maximum injection pressures at selected depths representing the top of potential injection intervals and the corresponding maximum well head pressures are included in Table H-2.

H.5 Nature of the Annulus Fluid

Annulus fluid is the fluid that exists between the injection pipe and the interior of the well casing. Over the operational life of a Class III injection well at the FCP site, the nature of the annulus fluid in a given well will vary between native groundwater from the oxide zone, lixiviant solution, and PLS. The estimated composition of native groundwater and the forecast compositions of lixiviant solution are presented in Exhibit H-1. Exhibit H-1 is discussed further in Section H.6.

H.5.1 Injection

The proposed Class III injection wells may be operated in one of two modes: pressurized at the well head with an injection pipe and packer assembly, or under atmospheric well head pressures with only an injection pipe. The nature of the annulus fluid under each of these injection conditions is described below.

H.5.1.1 Pressurized Injection

Under pressurized operation, an injection pipe and packer assembly will be used to isolate and focus injection into a targeted injection interval. The packer assembly will include packer(s) placed at the top and bottom (if required) of the injection interval. For new wells, the well will contain only native groundwater and when the packer assembly is inflated, native groundwater will be trapped in the annulus above the uppermost packer.

After operations have commenced, the packer assembly may periodically be deflated so the assembly can be moved between injection intervals within the injection zone. Deflation and moving of the packer assembly will result in incidental mixing of the native groundwater from the oxide zone, initially trapped above the uppermost packer with the lixiviant solution until eventually the composition of the annulus fluid reflects lixiviant solution.

H.5.1.2 Injection at Atmospheric Well Head Pressures

Under atmospheric well head pressure, lixiviant solution will be introduced with an injection pipe that discharges below the static fluid level in the well. Groundwater will not be isolated above a packer assembly. Operation under atmospheric well head pressure will flood the annulus with lixiviant solution for the entire length of the well at the commencement of operations and will maintain that condition throughout the period of injection.

H.5.2 Recovery

All wells used for recovering PLS will be constructed to Class III well standards. Annulus fluid within new recovery wells will initially be oxide zone groundwater. As injection begins and fluids are recovered from the injection zone and pumped back to the surface, the annulus of the recovery wells will be flooded with PLS at atmospheric pressure.

H.6 Qualitative Analysis of Constituents in Injected Fluid

Monitoring of injected fluid is required by 40 Code of Federal Regulations (CFR) 146.33(b)(1) at a sufficient frequency to yield representative data describing fluid characteristics. Permittees are required by 40 CFR 146.34(a)(7)(iii) to provide a qualitative analysis and ranges of concentrations of all constituents in the injected fluids. A new analysis is required by 40 CFR 146.33(b)(1) whenever the injected fluid is modified to the extent that the existing data is incomplete or incorrect, and the new data must be submitted pursuant to 40 CFR 146.34(a)(7)(iii).

Florence Copper requests that the UIC Permit authorize the injection of fresh water, solutions of sodium carbonate or other neutralizing agents, and lixiviant used to dissolve copper. The lixiviant solution will be generated on site starting with the commencement of PTF operations. The initial lixiviant solution will be composed of water and sulfuric acid, and can be considered an "immature" solution. Once this solution has been circulated through the oxide zone and recovered as PLS, and the copper has been recovered from the solution by the solvent extraction/electrowinning (SX/EW) process, the solution will be re-acidified and re-injected.

At the outset of PTF operations, the solution may be re-acidified and re-injected without recovering the copper by SX/EW until the copper concentration is sufficiently high to begin SX/EW recovery. With each injection and recovery cycle, the solution will accumulate constituents dissolved from the oxide zone. A "mature" lixiviant solution is one that has been acidified and circulated through the oxide zone and SX/EW process a sufficient number of times to reach equilibrium concentrations of dissolved constituents. The lixiviant solution will be recycled for the duration of PTF operations.

The typical concentrations of dissolved constituents that will occur in the mature lixiviant solution during PTF operations can only be estimated at this time because actual constituent concentrations can only be measured during the injection and recovery of an acidified solution though the oxide zone at a scale and duration representative of PTF operations, and no injection and recovery has yet been conducted at that scale or duration.

H.6.1 Injectate (Lixiviant) Solution Composition

Florence Copper proposes that "lixiviant" be used to refer to the solution prepared for injection and "raffinate" be used to refer to PLS after it has been processed in the SX/EW plant. The composition and constituent concentrations of PLS and raffinate are similar except that the SX/EW process removes approximately 90 percent of the copper from the PLS and causes a downward shift in pH. Florence Copper bases its proposal on the recognition that the "barren" PLS (or raffinate) exiting the SX/EW plant may need to be treated before it is ready for re-injection. Thus, "lixiviant" is proposed to distinguish between the solution that is ready for re-injection and the barren PLS solution, or raffinate, that has exited the SX/EW plant but has not been prepared for re-injection.

Organic constituents in in-situ solutions result from the contact of PLS with organic process chemicals in the SX/EW plant. Florence Copper proposes to limit the total concentration of organic constituents in the lixiviant solution to 10 milligrams per liter (mg/L). The organic constituents include polynuclear aromatic hydrocarbons (PAHs) derived from the kerosene type fluid used in the SX process. The composition of the organic compounds in the lixiviant solution can be controlled by specifying the quality of process chemicals purchased. Their concentrations can be controlled by the equipment process controls and the protocols for the SX/EW plant and mixing facilities.

Inorganic constituents in the in-situ solutions are a product of both process chemicals as well as chemical reactions resulting from the interaction of lixiviant solution with the host rock of the oxide zone during PTF well field operations. They will be variable in both composition and concentration. Some constituents are relatively predictable because their sources are the inorganic chemicals (such as sulfuric acid and calcium carbonate that will be mixed to acidify or neutralize solutions) which are controlled and measurable; however, other constituents are a function of the interaction between the injection fluids, pH of injection fluids, existing groundwater, and the solubility of minerals present in the oxide zone. Their composition and concentration will be difficult to validate until the injection and recovery process has continued for enough time to develop a mature PLS, and sufficient operational data are available. Therefore, a qualitative analysis of constituents in lixiviant solution cannot be definitively provided at this time until a mature PLS solution is produced from PTF operations.

H.6.2 Previous Studies

Two studies have been conducted in an effort to forecast the character and range of constituent concentrations in in-situ solutions that will be produced during ISCR operations at the FCP site. One study was conducted in 1995 and reported in Section 3 of Volume IV of the Aquifer Protection Permit (APP) application that BHP Copper submitted to the Arizona Department of Environmental Quality (ADEQ) in January 1996 (1996 Application), concurrent with its application to USEPA for UIC Permit No. AZ396000001. A summary of the results of that study was included in Table 4.3-1 of Volume 1 of the 1996 Application (included as Exhibit H-2 of this Attachment), and made part of the UIC Permit and of APP No. 101704 that ADEQ subsequently issued to BHP Copper in 1997. Solution compositions were re-evaluated by Daniel B Stephens and Associates in April 2014 on behalf of Florence Copper, to update and expand on the information in Table 4.3-1. Both studies are briefly discussed below.

As explained in Section 3, Volume 4 of the 1996 Application, forecast compositions of in-situ solutions were developed from geochemical models that were based on column tests of core samples collected from the FCP site. The core samples were collected from a number of locations within the oxide zone of the bedrock underlying the FCP site; this is the same bedrock oxide zone proposed for PTF operations. Some of the forecast compositions shown in Table 4.3-1 (Exhibit H-2) were developed from those models; however, the compositions of PLS and lixiviant solution (referred to as raffinate in Table 4.3-1) were based on actual process data from BHP Copper's copper leach in-situ operation at San Manuel, Arizona. The solution data from San Manuel were preferred because those solutions had been in contact with more copper oxide ore for a longer period of time and were therefore more mature than the solutions used in the column tests, and were likely to show more representative mineral concentrations than the less mature solutions from the BHP column tests.

Florence Copper retained the services of Daniel B Stephens & Associates (DBS&A) to use PTF site specific data and current geochemical modeling software to evaluate and refine the composition forecasts reported previously by BHP Copper in Table 4.3-1. As discussed in Exhibit H-1 of this Attachment, DBS&A used data generated by long term leaching test conducted by METCON laboratories of Tucson Arizona, using core samples collected from the oxide zone at the PTF well field site, and groundwater collected from the oxide zone near the PTF well field site. The DBS&A modeling results are presented in Exhibit H-1, and the forecast compositions produced by the modeling results are summarized in Table 3.1 of Exhibit H-1.

The DBS&A model did not use the PLS and raffinate data reported by BHP in Table 4.3-1 (Exhibit H-2) because those data were based on PLS and raffinate produced at BHP Copper's San Manuel deposit, which might have been significantly different geochemically than the oxide zone beneath the FCP site. The hydraulic control test conducted by BHP Copper at the FCP site was too short to produce solutions that could approximate equilibrium conditions of the minerals dissolved in solutions at the FCP. Accordingly, the estimated constituent concentrations derived by DBS&A do not represent anticipated maximum concentrations, or a range of concentrations. Rather, the concentrations provided in Table 3.1 of Exhibit H-1 represent potential typical constituent concentrations that must be validated by field-scale testing.

Florence Copper proposes to construct and operate the PTF to produce process solutions that are representative of commercial scale copper production. The PTF will produce in-situ solutions sufficiently mature to evaluate and fine-tune process treatment technologies and identify opportunities for groundwater conservation. Florence Copper estimates that mature PLS can be produced within 12 months after commencing PTF operations, and that the resulting data can then be used in geochemical models to accurately forecast the range of inorganic constituents in lixiviant solutions and PLS that can be reasonably expected over the life of operations at the FCP. At the conclusion of PTF operations, Table 3.1 will be amended to reflect solution compositions generated during PTF operations.

H.6.3 Forecast Composition of Raffinate

The fourth column form the left of Table 3.1 of Exhibit H-1 shows the estimated forecast composition of raffinate. The composition is based on the assumption that the solution after processing in the SX/EW plant may have a composition similar to the PLS composition (fourth column from the left of Table 3.1), with the exception that it will have lower copper concentrations and lower pH. Raffinate will exit the SX/EW plant and be directed to the raffinate pond before it is piped to the PTF well field and acidified, as needed, prior to injection as lixiviant.

H.6.4 Forecast Composition of Pre-Stacked PLS

No solution stacking is proposed for PTF operations. Solution stacking refers to the practice of staging and re-injecting intermediate grade solutions to manage overall PLS grade during commercial copper recovery.

At PTF startup, recovered solution will be re-acidified and re-injected until copper concentrations reach a level sufficient to achieve SX/EW copper recovery. Once SX/EW operations begin, solutions will only be re-injected following SX/EW copper recovery. Consequently, no pre-stacked solution composition is included in Table 3.1 of Exhibit H-1.

H.6.5 Estimated Composition of 98 Percent H_2SO_4

The third column from the left of Table 3.1 of Exhibit H-1 shows the estimated composition of 98 percent sulfuric acid. Sulfuric acid is typically produced from the recovery of sulfur dioxide at a smelter facility. The composition shown is representative of the sulfuric acid generated at the ASARCO Hayden smelter, and is typical of acid that will be delivered to the PTF for acidifying raffinate during PTF operations.

H.6.6 Estimated Composition of Make-up Water

The extreme right hand column of Table 3.1 of Exhibit H-1 shows the estimated composition of groundwater that would be used as make-up water during PTF operations. Make-up water will be obtained from an existing well named PW2-1, located east of the PTF well field and outside of the AOR.

APPENDIX 4

Revised Table H-1

Table H-1. Injection Rates and Volumes

	Injection Interval Length (Feet)	Typical Injection Rate at 0.15 gpm/ft (gpm)	Typical Injection Rate at 0.20 gpm/ft (gpm)	Daily Injection Volume at 0.15 gpm/ft (gallons)	Daily Injection Volume at 0.20 gpm/ft (gallons)
Well with Shortest Injection Interval	190	29	38	41,760	54,720
Well with Typical Length Injection Interval	400	60*	80*	86,400*	115,200*
Well with Longest Injection Interval	700	105*	140*	151,200*	201,600*

gpm = gallons per minute
gpm/ft = gallons per minute per foot
**The values provided in this Table are for a single injection well using a variety of injection interval lengths and injection rates. The maximum aggregate injection rate for the four injection wells planned for PTF operations is limited to 240 gpm regardless of well configuration or formation performance. It is anticipated that well performance may be variable, and that some of the four injection wells may accept less than 25% of the aggregate injection rate, and that some wells may accept more than 25% of the aggregate injection rate. The upper range of potential injection rates for a single well is reflected in the range of values provided in this Table. The lower range of injection rates will not be defined until the planned injection wells are drilled and the formation exposed to those wells characterized. In all cases, the injection rates at each of the four injection wells will be balanced to ensure that the aggregate injection rate of 240 gpm is not exceeded.*

Table H-2. Example Calculated Average and Maximum Injection Pressures for Selected Injection Intervals

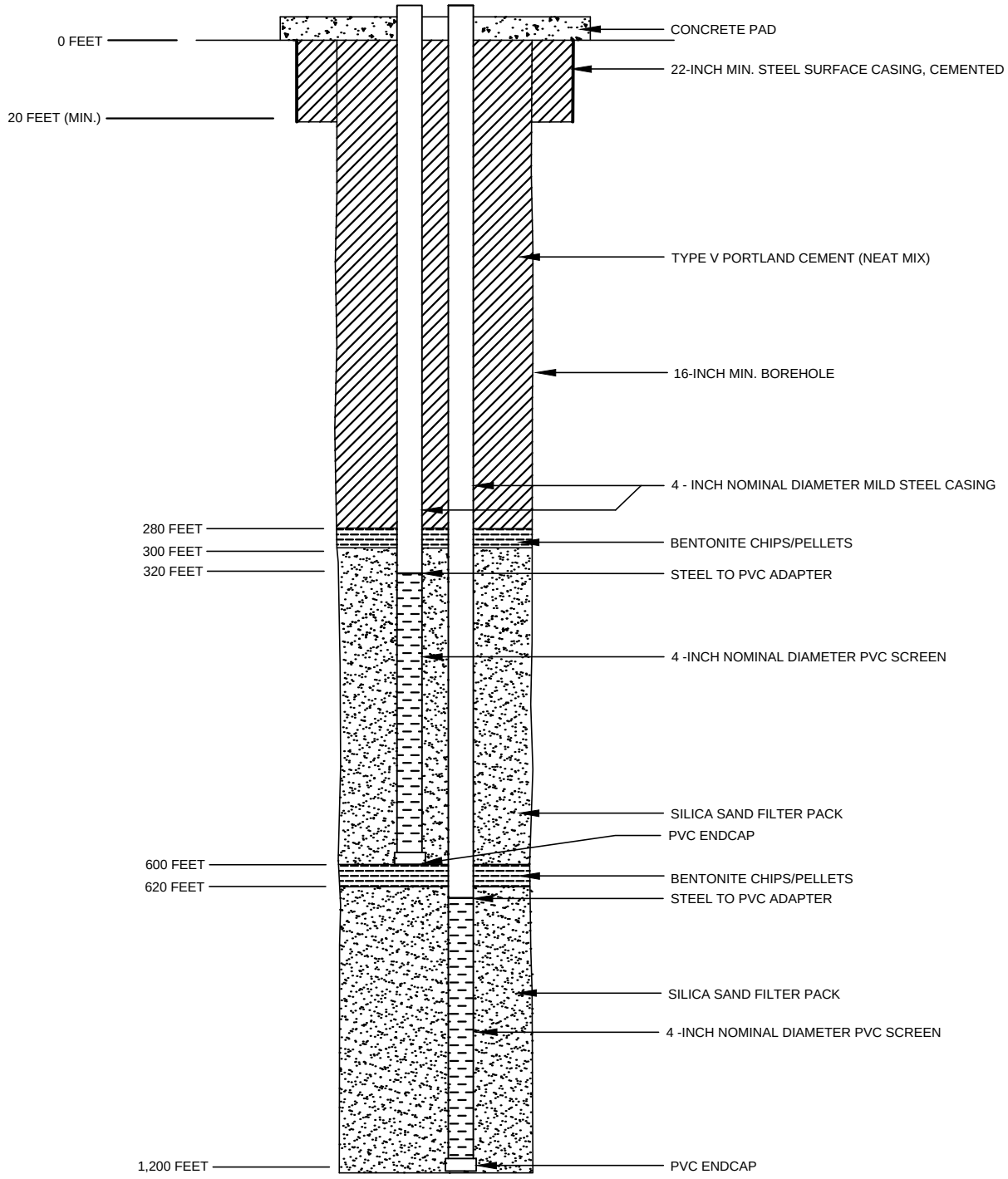
Depth to top of Injection Interval (Feet)	Average Injection Pressure at Top of Injection Interval (psi)	Average Well Head Pressure (psi)	Maximum Injection Pressure at Top of Injection Zone (psi)	Maximum Well Head Pressure (psi)
500	225	Atmospheric	325	100
690	311	Atmospheric	449	138
880	396	Atmospheric	572	176

psi = pounds per square inch

APPENDIX 5

Figure M1-1 (2 copies)

(Replaces Attachment M, Exhibit M-1; Attachment P, Exhibit P-2)



NOTE: LITHOLOGIC UNIT CONTACTS WILL BE DETERMINED ONCE THE FINAL WELL LOCATION HAS BEEN APPROVED BY ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

OPERATIONAL MONITORING WELL
MW-01 PROPOSED DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
SEPTEMBER 2014

FIGURE M1-1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\JULY 2014 UIC APP\MW-01_WELLDIAGRAM.DWG

APPENDIX 6

Table 5.2
(Attachment R, Exhibit R-1)

Registered Professional Engineer (Civil)
CERTIFICATE NO. 41965
JOSHUA G. SANDERS
Date Signed 9/4/14
ARIZONA U.S.A.
Expires 3/31/17

TABLE 5-2. (Revised 9/4/2014) FLORENCE COPPER, INC. PTF CLOSURE AND POST-CLOSURE COST ESTIMATES

OBJECTIVES	DESCRIPTION OF TASKS	UNIT COST	PER UNIT	NO. OF UNITS	ESTIMATED COST
SECTION 1. PTF WELL FIELD					
1. Groundwater Restoration					
Restore groundwater to meet proposed permit criteria by rinsing IRZ and neutralizing/evaporating rinse solution. (Assumed 260 gpm well rinsing, 9 month period.) Well field includes 24 wells (4 injection wells, 9 recovery wells, 7 observation wells and 4 multi-level sampling wells).	1.Rinse wells. [1]	$78,478	Lump Sum	1	$78,478
	2. Operation and maintenance labor (for 9 month period plus 1 month closure period)[2]	$641,328	Lump Sum	1	$641,328
	3. Quicklime Neutralization[3]	$0.07	lbs	1,614,330	$113,003
	4. Evaporation during rinsing[22]	$1.08	1,000 gallons	102,585	$110,792
	5. Rinsing Contingency (6 month duration includes rinsing, neutralization, evaporation, operation and maintenance)[18]	$617,279	Lump Sum	1	$617,279
	6. Sampling Contingency (includes cost to perform sampling and analysis for items 8-10 below if additional rinsing is required)	$91,465	Lump Sum	1	$91,465
	7. Sampling and monitoring during rinsing. Level 1 analysis performed during 9 month rinsing period. (Assumed system is equipped with a manifold and will require 1 sampling location per event)[5]	$683	Sampling Event	7	$4,781
	8. Sampling and monitoring during rinsing. Level 2 analysis performed during 9 month rinsing period. (Assumed system is equipped with a manifold and will require 1 sampling location per event)[6]	$1,663	Sampling Event	3	$4,989
	9. Level 2 sampling and analysis. (To occur before hydraulic control suspension, includes sampling of 24 wells and 2 mine shafts)[6]	$1,663	Well	26	$43,238
	10. Level 2 sampling and analysis. (To occur after hydraulic control suspension, includes sampling of 24 wells and 2 mine shafts)[6]	$1,663	Well	26	$43,238
	Subtotal				**$1,748,591**
2.Abandon PTF Test Wells					
Abandon 24 PTF wells in accordance with Well Abandonment Plan. Well field includes 24 wells (4 injection wells, 9 recovery wells, 7 observation wells and 4 multi-level sampling wells).[7]	1. File NOIs with ADWR.	$54	Well	24	$1,296
	2. Remove electrical conduit, wellhead assemblies and control boxes.	$375	Well	17	$6,375
	3. Remove pumps.	$375	Well	17	$6,375
	4. Remove monuments and cement pads. Cut off casing 5 feet below land surface and backfill hole. (2 crew hours per well)	$150	Crew Hours	48	$7,200
	5. Dispose of liners, wood, and misc. pipe in off-site landfill (5 cy/well).	$54	CY	120	$6,480
	6. Type V Cement ($240/CY, 0.017 cy/ft)	$4.51	LF	28,440	$128,264
	7. Tremie Type V cement from TD to 5 feet below land surface.	$1.07	LF	28,440	$30,431
	8. Crew and equipment (per diem, backhoe, 10T smeal rig)	$4,286	Well	24	$102,864
	9. Mobilization/Demobilization	$1,598	Lump Sum	1	$1,598
	10. File Abandonment Completion Reports with ADWR.	$33	Well	24	$792
	11. Allowance for unexpected conditions.	$214	Well	24	$5,136
	Subtotal				**$296,811**
PTF Test Wells Total					**$2,045,402**

Registered Professional Engineer (Civil)
CERTIFICATE NO.
41965
JOSHUA G.
SANDERS
Date Signed 9/4/14
ARIZONA U.S.A.
Expires 3/31/17

TABLE 5-2. (Revised 9/4/2014) FLORENCE COPPER, INC. PTF CLOSURE AND POST-CLOSURE COST ESTIMATES

OBJECTIVES	DESCRIPTION OF TASKS	UNIT COST	PER UNIT	NO. OF UNITS	ESTIMATED COST
SECTION 2. WATER IMPOUNDMENT AND PIPELINE CORRIDOR					
1. Impoundment Removal					
Includes evaporation/disposal of 9,725,300 gallons of liquid/sediment, removal/disposal of impoundment's liners and LCRS. Also includes removal of pipeline corridor and the backfilling and regrading of disturbed areas. Includes contingency and administrative costs.	1. Closure Cost Estimate by Knight Piesold and Co. May 9, 2012 CPI inflation adjusted to 2014. (RTC1.1)[8]	$430,933	Lump Sum	1	$430,933
	Subtotal				**$430,933**
2. Analysis of Soil Below Liner					
Quantities assume impoundment and pipeline corridor is approximately 9 acres.	1. Prepare Sampling Plan.[17]	$25,000	Lump Sum	1	$25,000
	2. Contingency screening S&A if soil shows evidence of liner leak. (Assumed 5 sample locations per acre)[10]	$710	Sample	45	$31,950
	3. Expanded sampling for select analytes identified during screening.[9]	$473	Sample	90	$42,570
	4. Contingency sampling and analysis for unanticipated costs.	$14,000	Lump Sum	1	$14,000
	Subtotal				**$113,520**
Water Impoundment and Pipeline Corridor Total					**$544,453**
SECTION 3. PROCESSING FACILITIES					
1. Tanks					
Empty tanks of contents, rinse and decommission for re-use. Remove concrete containment/pads. Line item for tank rinse assumes rinse will be required in addition to the extended flow of rinse water from IRZ restoration.	1. Tank rinse and evaporation contingency.[13]	$130	Crew Hour	24	$3,120
	2. Relocate tanks off-site.	$130	Crew hour	16	$2,080
	3. Sample concrete.[14]	$210	Sample	10	$2,100
	4. Analyze concrete.[14]	$410	Sample	10	$4,100
	5. Demo and remove concrete liner.	$7.75	SF	3,140	$24,335
	6. Transport and disposal concrete at off-site landfill.[11]	$64	Ton	458	$29,312
	Subtotal				**$65,047**
2. Buildings					
	1. Demolition/Removal of SX/EW Building. (Assumed metal construction)[15]	$3.51	SF	11,000	$38,610
	2. Sample concrete.[14]	$210	Sample	10	$2,100
	3. Analyze concrete.[14]	$410	Sample	10	$4,100
	4. Demolition/Removal of Concrete Pads, Foundation[15]	$7.86	SF	5,500	$43,230
	5. Removal of Modular Office	$510	Each	2	$1,020
	6. Removal of Septic Holding Tank	$510	Each	1	$510
	Subtotal				**$89,570**
3. Soil Beneath Aboveground Storage Tanks and Buildings					
Characterize and appropriately dispose, as necessary.	1. Contingency screening S&A if soil shows evidence of container leak. (Assumed 5 sample locations per acre)[10]	$710	Sample	5	$3,550
	2. Expanded sampling for select analytes identified during screening.[9]	$473	Sample	10	$4,730
	3. Contingency sampling and analysis for unanticipated costs.	$14,000	Lump Sum	1	$14,000
	Subtotal				**$22,280**
Processing Facilities Total					**$176,897**

TABLE 5-2. (Revised 9/4/2014) FLORENCE COPPER, INC. PTF CLOSURE AND POST-CLOSURE COST ESTIMATES

OBJECTIVES	DESCRIPTION OF TASKS	UNIT COST	PER UNIT	NO. OF UNITS	ESTIMATED COST
SECTION 4. RUN-OFF POND					
1. Liner and Earthwork					
Remove and dispose of liner in properly licensed off-site solid waste landfill. Test and properly manage soil below liner. (Assumed to be non-hazardous)	1. Remove liner.[12]	$0.05	SF	2,400	$120
	2. Dispose of liner in off-site landfill.[11]	$64	Ton	1	$32
	3. Dispose of miscellaneous pipeline in off-site landfill.[11]	$64	Ton	1	$64
	4. Fill, compact, and recontour to near original contours (assumes berm material to be used as fill).[4]	$3	CY	245	$750
	5. Contingency screening S&A if soil shows evidence of liner leak. (Assumed 5 sample locations per acre)[10]	$710	Sample	5	$3,550
	6. Expanded sampling for select analytes identified during screening.[9]	$473	Sample	10	$4,730
	7. Contingency sampling and analysis for unanticipated costs.	$14,000	Lump Sum	1	$14,000
	Subtotal				**$23,246**
Run-off Pond Total					**$23,246**
SECTION 5. MISCELLANEOUS COSTS					
1. Daily Monitoring and Observations					
Perform facility inspections and monitoring required by permit.	Included in Operation and Maintenance Labor, Section 1.				$0
2. Quarterly Well Monitoring					
Perform quarterly monitoring of 14 wells during closure.	Monitoring includes 3 Level 1 events and 1 Level 2 event.[21]	$72,265	Lump sum	1	$72,265
Total Miscellaneous Costs					**$72,265**
Closure Cost Subtotal					**$2,862,263**
Contingency (15%)(does not include item 2.1)					**$364,699**
Administrative and Miscellaneous Expenses (10%)[16] (does not include item 2.1)					**$243,133**
Closure Cost Total					**$3,470,095**

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TABLE 5-2. (Revised 9/4/2014) FLORENCE COPPER, INC. PTF CLOSURE AND POST-CLOSURE COST ESTIMATES

OBJECTIVES	DESCRIPTION OF TASKS	UNIT COST	PER UNIT	NO. OF UNITS	ESTIMATED COST
SECTION 6. POST-CLOSURE MONITORING					
1. Initial monitoring					
Initial monitoring period to last 5 years.[21]	1. Level 2 event (1 per year for 5 year period, cost is for 14 wells).	$21,204	Event	5	$106,020
	2. Level 1 events (3 per year for 5 year period, cost is for 14 wells).	$8,654	Event	15	$129,810
	Subtotal				**$235,830**
2. Maintenance					
	Maintenance of pumps and wells. Perform visual inspection of surface facilities. (cost is for 14 wells)	$4,284	Event	5	**$21,420**
3. Post Closure Summary Report					
	Preparation of Summary Report to include PTF findings and post-closure groundwater modeling.[20] (cost is for 14 wells)	$35,636	Lump Sum	1	**$35,636**
4. AQL Exceedance Contingency Per UIC Permit (Part II.H.2.b)					
	1. Notify director and collect verification sample.	$2,544	Event	1	$2,544
	2. Notify director of verification results.	$424	Event	1	$424
	3. If verification sample indicates exceedance, submit report to ADEQ and USEPA.	$8,480	Event	1	$8,480
	Subtotal				**$11,448**
Post-Closure Monitoring Total					**$304,334**
SECTION 7. POC & SUPPLIMENTAL MONITORING WELLS					
1.Abandon PTF POC & Supplimental Monitoring Wells[23]					
Abandon 7 POC wells and 7 supplimental monitoring wells in accordance with Well Abandonment Plan.[7] The 14 wells include: M14, M15, M22, M23, M52, M54-LBF, M54-O, M55-UBF, M56-LBF, M57-O, M58-O, M59-O, M60-O, M61-LBF.	1. File NOIs with ADWR.	$54	Well	14	$756
	2. Remove electrical conduit, wellhead assemblies and control boxes.	$375	Well	14	$5,250
	3. Remove pumps.	$375	Well	7	$2,625
	4. Remove monuments and cement pads. Cut off casing 5 feet below land surface and backfill hole. (2 crew hours per well)	$150	Crew Hours	28	$4,200
	5. Dispose of liners, wood, and misc. pipe in off-site landfill (5 cy/well).	$54	CY	70	$3,780
	6. Type V Cement ($240/CY, 0.017 cy/ft)	$4.51	LF	11,640	$52,496
	7. Tremie Type V cement from TD to 5 feet below land surface.	$1.07	LF	11,640	$12,455
	8. Crew and equipment (per diem, backhoe, 10T smeal rig)	$4,286	Well	14	$60,004
	9. Mobilization/Demobilization	$1,598	Lump Sum	1	$1,598
	10. File Abandonment Completion Reports with ADWR.	$33	Well	14	$462
	11. Allowance for unexpected conditions.	$214	Well	14	$2,996
	Subtotal				**$146,622**
POC & Supplimental Monitoring Wells Total					**$146,622**

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TABLE 5-2. (Revised 9/4/2014) FLORENCE COPPER, INC. PTF CLOSURE AND POST-CLOSURE COST ESTIMATES

OBJECTIVES	DESCRIPTION OF TASKS	UNIT COST	PER UNIT	NO. OF UNITS	ESTIMATED COST
SECTION 8. OPERATIONS MONITORING WELL (MW-01)					
1.Abandon Operations Monitoring Well[23]					
Abandon operations monitoring well MW-01 in accordance with Well Abandonment Plan.[7]	1. File NOIs with ADWR.	$54	Well	1	$54
	2. Remove monuments and cement pads. Cut off casing 5 feet below land surface and backfill hole. (2 crew hours per well)	$150	Crew Hours	2	$300
	3. Dispose of liners, wood, and misc. pipe in off-site landfill (5 cy/well).	$54	CY	5	$270
	4. Type V Cement ($240/CY, 0.017 cy/ft)	$4.51	LF	1,800	$8,118
	5. Tremie Type V cement from TD to 5 feet below land surface.	$1.07	LF	1,800	$1,926
	6. Crew and equipment (per diem, backhoe, 10T smeal rig)	$4,286	Well	1	$4,286
	7. Mobilization/Demobilization	$1,598	Lump Sum	1	$1,598
	8. File Abandonment Completion Reports with ADWR.	$33	Well	1	$33
	9. Allowance for unexpected conditions.	$214	Well	1	$214
	Subtotal				**$16,799**
Operations Monitoring Well Total					**$16,799**
SECTION 9. BHP TEST WELLS					
1.Abandon BHP Test Wells					
Abandon 20 BHP test wells in accordance with the Well Abandonment Plan. Well field includes 20 wells (4 injection wells, 9 recovery wells, 5 observation wells and 2 chemical observation wells).[7]	1. File NOIs with ADWR.	$54	Well	20	$1,080
	2. Remove monuments and cement pads. Cut off casing 5 feet below land surface and backfill hole. (2 crew hours per well)	$150	Crew Hours	40	$6,000
	3. Dispose of liners, wood, and misc. pipe in off-site landfill (5 cy/well).	$54	CY	100	$5,400
	4. Type V Cement ($240/CY, 0.017 cy/ft)	$4.51	LF	16,000	$72,160
	5. Tremie Type V cement from TD to 5 feet below land surface.	$1.07	LF	16,000	$17,120
	6. Crew and equipment (per diem, backhoe, 10T smeal rig)	$4,286	Well	20	$85,720
	7. Mobilization/Demobilization	$1,598	Lump Sum	1	$1,598
	8. File Abandonment Completion Reports with ADWR.	$33	Well	20	$660
	9. Allowance for unexpected conditions.	$214	Well	20	$4,280
BHP Test Wells Sub Total					**$194,018**
Post Closure Cost Subtotal					**$661,773**
Contingency (15%)					**$99,266**
Administrative and Miscellaneous Expenses (10%)[16]					**$66,177**
POST-CLOSURE TOTAL					**$827,217**
TOTAL CLOSURE AND POST-CLOSURE COST					**$4,297,312**

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SUPPLEMENT TO TABLE 5-2. (Revised 9/4/2014) FLORENCE COPPER, INC. PTF CLOSURE AND POST-CLOSURE COST ESTIMATES
COST EXPLANATION FOR MONITORING

OBJECTIVES	DESCRIPTION OF TASKS	UNIT COST	PER UNIT	NO. OF UNITS	ESTIMATED COST
SECTION 6. POST-CLOSURE MONITORING					
1. Initial monitoring					
Initial monitoring period to last 5 years.	1. Level 2 event (annual, 1 per year for 5 year period).				
	Field Activities	$8,000	Event		
	Analysis and Reporting	$9,000	Event		
	Laboratory Fee	$32,000	Event		
	Subtotal (Includes 2012 to 2014 CPI adjustment of 1.02)	$49,980	Event	5	$249,900
	2. Level 1 events (quarterly, 3 per year for 5 year period).				
	Field Activities	$8,000	Event		
	Analysis and Reporting	$8,000	Event		
	Laboratory Fee	$2,000	Event		
	Contingency	$2,000	Event		
	Subtotal (Includes 2012 to 2014 CPI adjustment of 1.02)	$20,400	Event	15	$306,000
	Total for 33 POC Wells				**$555,900**
Footnote	**Unit Cost Description**				
1	Level 2 event consists of sampling 33 wells for depth to water and collecting sample. Sample events take approximately 7 days and can be performed by one field technician. Additional time is included for expanded data processing and evaluation. Laboratory cost for a level 2 sample is approximately $890 per sample for 33 regular samples and 3 duplicate samples, for total laboratory cost of $32,000. Fee includes approximately $1,500 in supplies and expenses.				
2	Level 1 event consists of sampling 33 wells for depth to water and collecting sample. Sample events take approximately 7 days and can be performed by one field technician. Level 1 analysis consists of Mg, F, SO4, and TDS. Laboratory cost for a level 1 sample is approximately $55 per sample for 33 regular samples and 3 duplicate samples, for total laboratory cost of $2,000. Fee includes approximately $1,500 in supplies and expenses.				

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TABLE 5.2 (Revised 9/4/2014) FLORENCE COPPER, INC. PTF CLOSURE AND POST-CLOSURE COST ESTIMATES

Footnote	Unit Cost Description
1	Well rinsing unit costs assume 4 injection wells and 9 recovery wells, 260gpm for 9 months (102,585,600 gallons). Pumps will use 13 - 15 hp motors @ 11.19kw, $0.08/kwh, = $0.75/1,000 gallons. Assumed on-site water source is provided. 2012 cost of $76,939 CPI inflation adjusted to 2014 is $78,478.
2	Operation and maintenance labor crew assumes 3 day laborers $43.10/hr, 8 hours per day and 1 night laborer $43.10/hr, 16 hours a day; $1,724/day; assumes 10 month period = $517,200. Unit cost source is 2004 RS Means, CPI inflation adjustment to 2014 is 1.24. 2014 cost is $641,328.
3	Quicklime Neutralization assumes 5,979 lbs/day or 1,614,300 lbs for 9 months of rinsing, $135/ton or $0.06/lb lime unit cost. Source is M3 report exhibit 9C. 2012 to 2014 CPI inflation adjustment cost is $138/ton or $0.07/lb.
4	Backfill unit cost - per contractor estimate, includes equipment and operator cost. CPI inflation adjusted to 2014. Assumes backfill material import is not required. Reseeding of disturbed area is included in reclamation plan.
5	Level 1 sampling & analysis unit costs include sampling, lab analysis, and reporting. Costs based on recent similar projects. Lab analysis costs are $59 per sample. CPI inflation adjustment to 2014.
6	Level 2 sampling & analysis unit costs include sampling, lab analysis, and reporting. Costs based on recent similar projects. Lab analysis costs are $910 per sample. CPI inflation adjustment to 2014.
7	Well abandonment unit costs derived from average cost of 4 contractor bids received in May 2010. CPI inflation adjustment to 2014.
8	Cost estimate for closure of the water impoundment and pipeline channel is provided by Knight Piesold and Co. "*Curis Resources (Arizona) Inc. Florence Copper Project PTF Process Solution Impoundment & Pipeline Channel Closure Cost Estimate*" May 9, 2012 and is included in RTC1.1. 2012 cost of $422,483 with CPI adjustment to 2014 is $430,933.
9	Expanded sampling for selected analytes identified during screening analysis. Assumes 2/3 amount of analytes and includes twice the amount of samples.
10	Sampling and Analysis (S&A): Initial S&A will be performed to characterize soil potentially affected by spills and leaks. Follow-up S&A may be required in order to determine the extent of contamination or effectiveness of remediation efforts. The 2014 estimated S&A cost of $710 per sample is based on the following: sampling cost of $133 (2001 estimate of $100 adjusted by 2014 CPI inflation factor of 1.33); analytical cost of $570 for 13 priority pollutants including Ag, As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Se, Tl, Zn, pH, VOC's, SVOC's, SPLP, Acid-Base Accounting as reflected in laboratory quote; and rounding the total cost of $703 to $710. Unit costs based on laboratory quote.
11	Disposal of non-hazardous waste - includes loading, transport, and disposal; unit cost source is 2010 contractor bid for similar project. CPI adjusted for 2014.
12	Liner Removal - unit cost per contractor estimate 2010, CPI inflation adjusted to 2014.
13	It is assumed all pipelines and tanks will be flushed clean during the groundwater restoration phase.
14	Sample and analyze concrete - sample unit costs assume not to exceed $200 per sample, analytical cost assume $150 for sample preparation, $210 for analysis, and $40 for misc. costs. Sampling cost is $200, analysis cost is $400. CPI inflation adjusted to 2014 is $210 for sampling and $410 for analysis.
15	Unit cost source is Racer cost estimate software version 8.1.2. CPI inflation adjusted to 2014.
16	Administrative support and expenses includes utilities and communications cost, miscellaneous equipment and site maintenance, and site management during closure. The closure cost estimate by Knight Piesold, Section 2.1 includes administrative and contingency costs. Therefore, Section 2.1 is not included in the contingency and administrative cost calculations reflected in Section 5.
17	Sampling plan to describe collection, preparation, and analysis of parameters described in note 10.
18	Rinsing contingency assumes an additional 6 month duration of rinsing and operation and maintenance costs in the event that additional rinsing is required beyond the initial 9 month period. Includes rinsing, neutralization, evaporation, maintenance and operation costs.
19	not used
20	Preparation of Summary Report assumes 1 person at $175/hr for 1 month, $28,000. Post closure ground water modeling assumes 2 people at $175/hr for 3 months, $56,000. Total for summary report is $84,000 for 33 POC wells. Report cost for 14 wells is assumed to be 14/33 of that total.
21	Post Closure Monitoring Total includes estimated cost for monitoring the 7 PTF POC wells and 7 supplemental monitoring wells. The 14 wells include M14, M15, M22, M23, M52, M54-LBF, M54-O, M55-UBF, M56-LBF, M57-O, M58-O, M59-O, M60-O, M61-LBF. The total post closure monitoring cost estimate for the FCP is based on 33 POC wells with a total estimated cost of $555,900. A breakdown of the monitoring costs is included as page 6 of this document. Cost for the monitoring of 14 wells was determined by taking 14/33 of that total.
22	Evaporation cost assumes mechanical evaporation rate is 2,250 gallons/hr and $1.06 per 1,000 gallons. Based on Landshark evaporation unit and electric cost of $0.08/kwh. 2012 to 2014 CPI inflation adjusted cost is $1.08/1,000 gallons.
23	Financial assurance for the closure of all POC wells except M54-LBF and M54-O is provided under existing permit.
Note:	Estimated quantities for proposed facilities are based on design plans by Knight Piesold Consulting and M3 Engineering prepared May 2012. Source for existing well data is Arizona Department of Water Resources (ADWR).

APPENDIX 7

Attachment R Text

FLORENCE COPPER, INC.

UIC PERMIT APPLICATION

FLORENCE COPPER PROJECT – PRODUCTION TEST FACILITY

ATTACHMENT R – NECESSARY RESOURCES

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List of Exhibits

Exhibit R-1 Closure and Post-Closure Cost Estimates

Exhibit R-2 Demonstration of Financial Capability

R.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) located in Pinal County, Arizona. This Attachment refers to financial assurance information for the USEPA to consider, in accordance with Section 144.52(d)(7) of the UIC Program, Code of Federal Regulations (CFR) 40 144 *et seq*. Specifically, this Attachment provides evidence to verify that Florence Copper has the financial resources necessary to close, plug, and abandon wells and core holes regulated by the UIC Permit and located on the FCP site.

R.2 Basis of the Financial Assurance

The information in this Attachment R is based on closure and post-closure cost estimates for the PTF that Florence Copper prepared in support of their application for Temporary Aquifer Protection Permit (APP) No. 106360, which was issued by Arizona Department of Environmental Quality (ADEQ). The cost estimates were detailed in Attachment 5 of the temporary APP application and are described below in Sections R.1.1.1 through R.1.1.3. Tables from the temporary APP application summarizing the closure and post-closure cost estimates for the PTF are included herewith as Exhibit R-1.

R.3 PTF Closure and Post-Closure Cost Estimates

The Sections below describe the basis for the PTF closure and post-closure cost estimates presented in support of the Individual APP application form submitted to ADEQ in March 2012. The application submitted to ADEQ resulted in the granting of APP No. 106360 on September 28, 2012. A detailed breakdown of the costs supporting the closure and post-closure cost estimates is shown in Table 5-2 of the March 2012 APP application, which was updated on September 21, 2012 prior to the issuance of APP 106360. These closure costs have been updated again to 2014 dollars and to include the closure of the supplemental monitor wells and the operational monitoring well. The current cost estimates are reflected in the updated Table 5-2 (dated July 2014) provided in Exhibit R-1 of this Attachment. The cost estimates are based on information submitted by Knight Piésold Ltd.) and M3 Engineering and Technology Corporation, and other sources as indicated in Exhibit R-1. Table 5-2a of Exhibit R-1 includes closure costs for the Class III wells constructed by BHP within the Area of Review defined in UIC Permit No. AZ396000001.

R.3.1 Closure

R.3.1.1 PTF Well Field

R.3.1.1.1 Groundwater Restoration

Restoration of groundwater in the portion of the oxide zone in which injection and recovery has occurred (the injection and recovery zone [IRZ]) will be conducted to meet closure criteria specified in the temporary permit. The criteria, described in Attachment 16 of the March 2012 APP application, require groundwater to be restored such that constituents for which Aquifer Water Quality Standards (AWQS) have been established meet either the AWQS or pre-operational concentrations if those concentrations exceed AWQS. The restoration process involves rinsing the IRZ; the injection of sodium bicarbonate or equivalent non-hazardous neutralizing agents as needed to neutralize the groundwater; and the neutralization of the rinse solution with lime or other agents. The estimated volume of rinse water required to adequately restore the groundwater in the IRZ assumes 8 percent porosity in the oxide zone and six to eight pore volumes. For those conditions, it is estimated that rinsing of the IRZ can be completed within nine months at a total recovery rate of up to 260 gallons per minute (gpm). A report will be submitted to ADEQ and USEPA documenting restoration in compliance with the permit requirements of both agencies.

R.3.1.2 Abandon PTF and BHP Well Fields

The 24 wells (four injection wells, nine recovery wells, seven observation wells, and four multi-level sampling wells) located in the PTF well field, and the 20 wells located in the BHP well field, will be abandoned in accordance with the provisions of the temporary APP and UIC Permit. The wells will be abandoned in accordance with the requirements of the Arizona Department of Water Resources (ADWR) and the Well Abandonment Plan, provided as Attachment Q of this Application. The following provides a general description of the well abandonment procedures:

1. Each well will be closed by removing the downhole pumps and electrical equipment. The well will be filled from the bottom to the top with Type V Portland cement, and the collar pipe will be removed to 5 feet below ground surface (bgs). The surface will then be backfilled and leveled out.
2. Groundwater will be used to rinse the piping that connects the wells to the pipelines discussed below. The rinse water will be discharged into the water impoundment. The piping and all electronics, pumps, and other material will be removed off site for reuse, recycling, or landfill disposal.
3. Liners upon which pipes connecting the wells to the pipelines will be removed and samples of the underlying soil will be analyzed using the same procedures used to verify that the soil beneath the pipeline corridor complies with applicable soil remediation standards. The well field area will then be leveled and prepared for post-closure use.
4. A report will be submitted to the ADEQ and USEPA demonstrating that closure conditions required by the APP and the UIC Permit have been met.

R.3.1.3 Pipelines

The pipelines that were placed in the lined corridor connecting the PTF test well area to the beneficiation facility will be rinsed with groundwater and removed for off-site recycling or landfill disposal. The rinse water may be used to rinse equipment, tanks, and the liner of the runoff pond before being discharged to the water impoundment.

R.3.1.4 Soil and Liner Beneath Pipeline Corridor

The liner forming the pipeline corridor will be removed from the corridor and samples of the underlying soil will be collected and analyzed to verify that soil beneath the pipeline corridor complies with the soil remediation standards. The liner will be transported off site for recycling. However, if the liner cannot be recycled, it will be transported to a nearby appropriately licensed commercial landfill for disposal. The corridor will be backfilled with on-site soil, leveled and prepared for post-closure use. The closure cost estimate assumes no impacts to soil beneath the liner.

R.3.1.5 Tanks

The tanks located in and adjacent to the beneficiation area, including tanks and equipment in the solvent extraction/electrowinning (SX/EW) plant, and tanks located in the runoff pond will be rinsed and then moved to a storage area for future use or sold as surplus equipment. Rinse water will be captured in the runoff pond sump and then pumped to the water impoundment. The tank foundation and underlying soils will be sampled and analyzed to determine compliance with applicable regulations and then managed accordingly. The liners beneath the tanks will be rinsed and the rinse water will be drained to the sump of the runoff pond. Rinse water will be pumped from the runoff pond to the water impoundment.

R.3.1.6 Runoff Pond

R.3.1.6.1 Liquid Removal

Any remaining liquid and rinse water will be pumped from the sump in the runoff pond to the water impoundment.

R.3.1.6.2 Sediment

Little sediment is expected to be in the runoff pond at any time. If sediment is in the pond, sampling and analysis will be conducted to verify that the sediment is non-hazardous. Non-hazardous sediment will be placed in the water impoundment or transported to a nearby commercial landfill. The closure cost estimate assumes plant runoff pond sediments are non-hazardous.

R.3.1.6.3 Liner and Earthwork

Concrete tank foundations and the high-density polyethylene (HDPE) liner will be carefully removed to avoid soil contamination. Exposed concrete foundations will be sampled to verify that the concrete is not subject to hazardous waste regulations. The concrete and liner will be transported off site for recycling or disposal. The pond area will be backfilled with on-site berm materials. The backfilled area will be leveled to match surrounding grade and prepared for post-closure use. The closure cost estimate assumes no impacts to soil beneath the liner and disposal of concrete and liner material in a nearby properly licensed landfill.

R.3.1.7 Water Impoundment

R.3.1.7.1 Water Evaporation

Natural and enhanced (mechanical) evaporation will be used during PTF operations. The mechanical evaporators used during PTF operations will be used during the IRZ restoration process to minimize the amount of water remaining in the impoundment at the time IRZ restoration is complete and the commencement of the rinsing and dismantling of the surface facilities is begun. It is anticipated that the evaporation rate will diminish as the solids content in the sediment increases. Time and weather conditions permitting, enhanced evaporation will continue until the sediment can be removed from the impoundment as solids or semi-solids. Otherwise, the sediment will be pumped from the impoundment as slurry. The sediment will be sampled and analyzed to verify that the sediment is not subject to hazardous waste regulation. The removed sediment will be transported to a facility permitted to recycle or dispose of the sediment. The cost associated with evaporation after the in-situ copper recovery (ISCR) operation is discontinued and the cost of managing the removed sediment are included in Exhibit R-1.

R.3.1.7.2 Liner and Earthwork

After liquid and sediment have been removed from the impoundment, the chain link fence will be removed and stored on site for future use or will be transported off site for recycling. The upper liner will be then be carefully removed to avoid damage to the lower liner. The upper liner will be transported off site for recycling or disposal. The geonet and the sump material forming the impoundment's leak collection and removal system (LCRS) will be sampled and analyzed. The geonet and sump material will then be carefully removed to prevent damage to the lower liner and transported to a properly licensed landfill for disposal. The lower liner will be carefully removed to avoid contamination of the soil and transported off site for recycling or disposal. The excavated area will be backfilled with stockpiled soil and berm material and will then be contoured and prepared for post-closure use. The closure cost estimate assumes that (1) the sediment will be shipped to a nearby, properly licensed disposal facility for further solidification, as needed, and disposal; and (2) the liners and LCRS material will be shipped to a nearby properly licensed disposal facility for disposal.

R.3.1.8 Miscellaneous Costs

R.3.1.8.1 Daily Monitoring and Observations

The proposed permit conditions will require that injection and recovery wells, the water impoundment, the tank farm, and beneficiation facilities be monitored and inspected on a daily basis until closure has been completed. Although closure activities are estimated to be completed in less than one year, the estimated costs are based on a 12-month period and included in the operation and maintenance labor costs in Exhibit R-1.

R.3.1.8.2 Quarterly Well Monitoring

The proposed permit will require the compliance groundwater monitoring program be continued through the closure period of IRZ restoration and the closure of the surface facilities. Although it is estimated that the closure activities will be completed in less than one year, the estimated cost included in Exhibit R-1 assumes three quarters of Level 1 monitoring and one quarter of Level 2 monitoring.

R.3.1.8.3 Administrative and Miscellaneous Costs, General Project Support Costs

A general cost allowance is included for 12 months of contractor technical support and miscellaneous facility maintenance activities during the closure period. Maintenance activities may include minor facility maintenance such as road grading or minor repairs. Also included in this category are telephone and electrical utility charges (for office facilities), and miscellaneous office and site expenses (postage, office supplies, chemicals, etc.).

R.3.2 Post-Closure

The post-closure monitoring schedule will be synchronized, to the extent practicable, with the applicable closure/post-closure schedule established under Temporary APP No. 106360 for the PTF site and APP No. 101704 and UIC Permit No. AZ396000001 for the surrounding property. Florence Copper proposes a five-year post-closure period, as described below. Accordingly, Exhibit R-1 includes a cost estimate for a five-year period.

- Years 1 – 4: Two quarterly Level 1 sampling events and two quarterly Level 2 events will be conducted each year. Quarterly reports will be submitted to ADEQ and USEPA.
- Year 5: Three quarterly Level 1 sampling events and one quarterly Level 2 event will be conducted. Quarterly reports will be submitted to ADEQ and USEPA. In addition, during the first quarter, a report will be submitted to ADEQ and USEPA that summarizes trends and describes significant events observed during the previous four years. Based on the information provided in the report, Florence Copper will recommend continuation of post-closure monitoring or cessation of post-closure monitoring. If Florence Copper recommends continuation of monitoring, the recommendation may include proposed changes in the scope and frequency of analysis. Within 180 days following its receipt of the report, ADEQ and USEPA will advise Florence Copper of their decisions. The monitoring program will continue throughout the fifth year until such time that ADEQ and USEPA announce their decisions. If ADEQ's and USEPA's decisions involves continuation of the monitoring program for the next five-year period, or portion thereof, Florence Copper will adjust the cost estimates to reflect estimated costs for implementing ADEQ's decision, and will adjust the financial assurance required for the period covered by ADEQ's decision.

During point-of-compliance (POC) monitoring events, visual inspection of surface facilities will be conducted. Areas to be monitored include POC wells, signage, fences, revegetated areas, and storm water control measures. Conditions noted during inspections will be documented using inspection forms. Photographs and written reports will be used to document completion of indicated repairs. Repairs will be performed as indicated by the inspection monitoring program and will be documented in quarterly reports submitted to ADEQ.

R.4 Contents of the Financial Assurance

Florence Copper warrants that demonstrating financial assurance suitable for PTF closure and post-closure, as required for Temporary APP No. 106360, is also suitable for demonstrating financial assurance as required by the USEPA for this Application. The financial instrument submitted to ADEQ is a Surety Bond issued by the Lexon Insurance Company in the amount of $3,487,743. The financial instrument is sufficient to meet the financial assurance requirements of Temporary APP No. 106360 for the PTF and is provided as Exhibit R-2 of this Attachment.

In addition to the financial assurance instrument required by APP No. 106360, FCI has secured additional financial assurance in the form of a Surety Bond issued by the Lexon Insurance Company in the amount of $1,066,000 for the purpose of closing discharging facilities constructed under APP No. 101704. A copy of the surety bond is included in Exhibit R-2. Discharging facilities to be closed under APP No. 101704 include process solution ponds and runoff ponds which were never constructed, one evaporation pond, and the Class III wells constructed for the BHP pilot test. As noted in Exhibit R-1 the cost to close the BHP class III test wells in 2014 dollars is $194,018 and administrative and contingency costs totaling an additional 25 percent. The total amount required to close the BHP Class III test wells is well within the amount of the instrument established for the closure of discharging facilities under APP No. 101704.

APPENDIX 8

Additional Document for Exhibit R-2
(Attachment R, Exhibit R-2)

STATE OF ARIZONA
DEPARTMENT OF ENVIRONMENTAL QUALITY
PERFORMANCE BOND GUARANTEEING PERFORMANCE OF CLOSURE AND/OR POST-CLOSURE CARE DISCHARGING FACILITY AQUIFER PROTECTION PERMITS

Date bond executed: December 9, 2013

Effective date: December 9, 2013

Principal: Florence Copper Inc.
1575 W. Hunt Highway
Florence, AZ 85132

Type of Organization: Corporation

State of incorporation: Nevada

Surety: Lexon Insurance Company
10002 Shelbyville Road, Suite 100
Louisville, KY 40223

Aquifer Protection Permit Identification Number: APP 101704

Facility Name: Florence Copper Project Production Test Facility
Facility Address: 1575 W. Hunt Highway
Florence, AZ 85132

Total Penal Sum of Bond: $1,066,000.00

Surety's Bond Number: 1099677

KNOW ALL MEN BY THESE PRESENTS, THAT;

We, Florence Copper Inc., hereinafter called "**Principal**", as Principal, and Lexon Insurance Company, a Corporation, organized and existing under the laws of the State of Texas and authorized to transact business in the State of Arizona (hereinafter called "**Surety**"), as Surety are firmly bound to the Arizona Department of Environmental Quality, a State of Arizona Agency ("ADEQ") (hereinafter called "**Obligee**"), as Obligee, in the penal sum of One Million Sixty-Six Thousand and 00/100 Dollars ($1,066,000.00), good and lawful money of the United States of America, for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, *and assigns*, jointly and severally, provided that, where the Sureties are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "*jointly and severally*" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

WHEREAS, said Principal is required under terms and conditions of the Arizona Environmental Quality Act, Arizona Revised Statutes §49-241 and §49-243(N) Article 3 Aquifer Protection Permits, to obtain an Aquifer Protection Permit and to establish financial competence to operate a discharging facility. The discharging facility known as Florence Copper Project Production Test Facility, which Aquifer Protection Permit number APP 101704 is hereby referred to and made a part hereof, as fully and to the same extent as if copied at length herein.

WHEREAS, said Principal is required to provide the ADEQ financial assurance in the amount at least equal to the current closure or post-closure care cost estimate, or corrective action cost estimate, whichever is applicable, as a condition of the permit or interim status;

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION ARE SUCH, that if the Principal shall faithfully, perform closure or post-closure care monitoring according to the plans or strategies submitted under Arizona Administrative Code R18-9-A201(B)(5), whenever required to do so of the discharging facility for which this surety bond guarantees closure or post-closure, or correction action costs, whichever is applicable in accordance with the closure plan or other requirements of the Aquifer Protection Permit as such plan and permit may be amended, pursuant to all applicable laws, statutes, rules and regulations, as such laws, statutes, rules and regulations may be amended from time to time.

And, if the Principal shall faithfully perform post-closure care of the discharging facility for which this bond guarantees post-closure-care, in accordance with the post-closure plan and other requirements of the permit, as such plans and permit may be amended pursuant to all applicable laws, statutes, rules and regulations, as such laws statutes, rules and regulations may be amended.

Or, if the Principal shall provide alternate financial assurance, as specified in Arizona Revised Statutes §49-761(J), or under Arizona Administrative Rules, Title 18, Chapter 9, Article 2 Part A (R18-9-

A203(C), amended by final rule at 11 A.A.R. 4544, effective November 12, 2005 as applicable, and obtain the ADEQ's Director's written approval of such assurance, within 90 days after the date of notice of cancellation is received by both the Principal and the ADEQ Director from the Surety, then this obligation shall be null and void, otherwise it is to remain in full force and effect.

The Surety shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions described below;

Upon notification by the ADEQ Director that the Principal has been found in violation of the closure requirements for the discharging facility, which this bond guarantees performance of closure, the Surety shall either perform closure in accordance with the approved closure plan and other permit requirements or place funds for the total amount of the guaranty sum for the facility directly into a standby trust fund as directed the ADEQ Director.

Upon notification by the ADEQ Director that the Principal has been found in violation of the post-closure care requirements for the discharging facility, which this bond guarantees performance of post-closure care, the Surety shall either perform post-closure care in accordance with the approved post-closure care plan and other permit requirements or place funds for the total amount of the guaranty sum for the facility directly into a standby trust fund as directed the ADEQ Director.

Upon notification by the ADEQ Director that the Principal has failed to provide alternate financial assurance as specified in Arizona Administrative Code R18-9-A203(E) and obtain written approval of such assurance from the ADEQ Director during the 90-days following receipt by both the Principal and the Department of a Notice of Cancellation of the bond. The Surety shall place funds in the amount guaranteed for the facility into a standby trust as directed by the ADEQ Director.

Whenever Principal shall be and is declared by the ADEQ Director to be in default under its Aquifer Protection Permit closure or post-closure care conditions, the ADEQ Director having given written notice of default to the Principal and Principal having failed to commence to cure the default within thirty (30) days after service of such written notice, or if the default is not cured promptly in a continuous and diligent manner within a reasonable time after commencement, the Surety may promptly remedy the default or shall either perform closure or post-closure care in accordance with the approved closure or post-closure care plan and other permit requirements or place funds for the total amount of the guaranteed sum for the facility directly into a standby trust fund as directed by the ADEQ Director.

All written notices to be given under the Performance Bond Agreement shall be given by certified U.S. mail, return receipt requested, to the party entitled thereto at its address set forth below, or at such address as the party may provide to the other parties in writing from time to time.

Obligee:	Arizona Department of Environmental Quality Program Financial Services – Water Programs 1110 West Washington Street Phoenix, Arizona 85007
Principal:	Florence Copper Inc. 1575 W. Hunt Highway Florence, AZ 85132
Corporate Surety:	Lexon Insurance Company 10002 Shelbyville Road, Suite 100 Louisville, KY 40223

The Surety hereby waives notification of amendments to closure plans, permits, applicable laws, statutes, rules, and regulations and agrees that no such amendment shall in any way alleviate its obligation on this bond.

The liability of the Surety shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, which is at least equal to the current closure, post-closure care or corrective cost estimate, whichever is applicable, but in no event shall the obligation of the Surety hereunder exceed the amount of said penal sum.

The Surety may cancel the bond by sending notice of cancellation by certified mail to the Principal and to the ADEQ Director provided, however, that cancellation shall not occur during the ***90*** **days** beginning on the date of receipt of the notice of cancellation by both the Principal and the ADEQ Director, as evidenced by the return receipts.

The Principal may terminate this bond by sending written notice to the Surety provided, however, that no such notice shall become effective until the Surety receives written authorization for termination of the bond by the ADEQ Director.

This Surety bond is governed by and construed in accordance with the laws of the State of Arizona.

In Witness Whereof, the Principal and Surety have executed this Performance Bond and have affixed their seals on the date set forth above.

The persons whose signature appears below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety.

PRINCIPAL Florence Copper Inc.

Signature(s) _____

Names(s) BRIAN F. CAUSEY

Titles CFO

CORPORATE SURETY

Lexon Insurance Company
10002 Shelbyville Road, Suite 100
Louisville, KY 40223

Texas

Liability Limit: $1,066,000.00

Signature _____

Name and Title Jackie C. Koestel, Attorney-in-Fact

[For Every co-surety, provide signature(s), and other information in the same manner as for Surety above.]

Bond Premium: $21,320.00

Liability Limit: N/A

Signature N/A

Names and Title N/A

Please attach to this Bond a certified copy of the Surety's power of attorney authorizing execution of this Bond by Surety's attorney-in-fact.

POWER OF ATTORNEY

LX- 078338

Lexon Insurance Company

KNOW ALL MEN BY THERE PRESENTS, that **LEXON INSURANCE COMPANY**, a Texas Corporation, with its principal office in Louisville, Kentucky, does hereby constitute and appoint:

Brook T. Smith, Raymond M. Hundley, Jason D. Cromwell, James H. Martin, Barbara Duncan,*****

Sandra L. Fusinetti, Mark A. Guidry, Jill Kemp, Jackie C. Koestel, Lynnette Long, Amy Meredith, Deborah Neichter, Sheryon Quinn, Dawson West, Bonnie J. Wortham

its true and lawful Attorney(s)-In-Fact to make, execute, seal and deliver for, and on its behalf as surety, any and all bonds, undertakings or other writings obligatory in nature of a bond.

This authority is made under and by the authority of a resolution which was passed by the Board of Directors of **LEXON INSURANCE COMPANY** on the 1st day of July, 2003 as follows:

Resolved, that the President of the Company is hereby authorized to appoint and empower any representative of the Company or other person or persons as Attorney-In-Fact to execute on behalf of the Company any bonds, undertakings, policies, contracts of indemnity or other writings obligatory in nature of a bond not to exceed $4,000,000.00 Four Million********** dollars, which the Company might execute through its duly elected officers, and affix the seal of the Company thereto. Any said execution of such documents by an Attorney-In-Fact shall be as binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company. Any Attorney-In-Fact, so appointed, may be removed for good cause and the authority so granted may be revoked as specified in the Power of Attorney.

Resolved, that the signature of the President and the seal of the Company may be affixed by facsimile on any power of attorney granted, and the signature of the Assistant Secretary, and the seal of the Company may be affixed by facsimile to any certificate of any such power and any such power or certificate bearing such facsimile signature and seal shall be valid and binding on the Company. Any such power so executed and sealed and certificate so executed and sealed shall, with respect to any bond of undertaking to which it is attached, continue to be valid and binding on the Company.

IN WITNESS THEREOF, **LEXON INSURANCE COMPANY** has caused this instrument to be signed by its President, and its Corporate Seal to be affixed this 21st day of September, 2009.

LEXON INSURANCE COMPANY CORPORATE SEAL MARCH 16, 1954 STATE OF TEXAS

LEXON INSURANCE COMPANY

BY _____
David E. Campbell
President

ACKNOWLEDGEMENT

On this 21st day of September, 2009, before me, personally came David E. Campbell to me known, who be duly sworn, did depose and say that he is the President of **LEXON INSURANCE COMPANY**, the corporation described in and which executed the above instrument; that he executed said instrument on behalf of the corporation by authority of his office under the By-laws of said corporation.

AMY TAYLOR STATE OF TENNESSEE NOTARY PUBLIC DAVIDSON COUNTY

AMY L. TAYLOR
Notary Public- State of Tennessee
Davidson County
My Commission Expires 01-09-16

BY _____
Amy L Taylor
Notary Public

CERTIFICATE

I, the undersigned, Assistant Secretary of **LEXON INSURANCE COMPANY**, A Texas Insurance Company, DO HEREBY CERTIFY that the original Power of Attorney of which the forgoing is a true and correct copy, is in full force and effect and has not been revoked and the resolutions as set forth are now in force.

Signed and Seal at Mount Juliet, Tennessee this 9th Day of December, 2013.

LEXON INSURANCE COMPANY CORPORATE SEAL MARCH 16, 1954 STATE OF TEXAS

BY _____
Andrew Smith
Assistant Secretary

"WARNING: Any person who knowingly and with intent to defraud any insurance company or other person, files and application for insurance of claim containing any materially false information, or conceals for the purpose of misleading, information concerning any fact material thereto, commits a fraudulent insurance act, which is a crime and subjects such person to criminal and civil penalties."

APPENDIX 9

Revised PTF AOR Wells Plugging and Abandonment Forms
(Attachment Q, Exhibit Q-4)

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

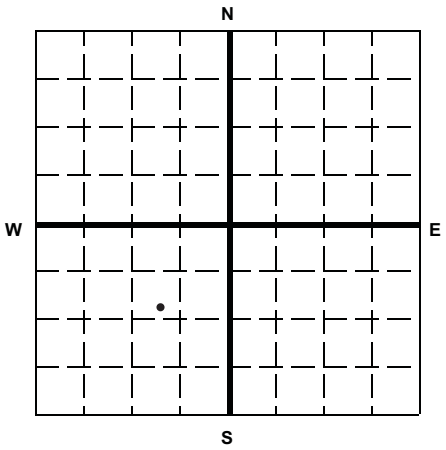
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence Arizona 85132

Name and Address of Owner/Operator
Curis Resources (Arizona) Inc
1575 W Hunt Hwy, Florence, Arizona 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SE 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1130 ft. frm (N/S) N Line of quarter section
and 970 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number CMP11-05

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
5.5	unknown	427	377	6.75
2.5	unknown	950	550	4.38

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4.38	4.38	5.5	6.75			
Depth to Bottom of Tubing or Drill Pipe (ft	NA	NA	427	NA			
Sacks of Cement To Be Used (each plug)	62	3	49	10			
Slurry Volume To Be Pumped (cu. ft.)	79	4	62	12			
Calculated Top of Plug (ft.)	950	427	50	5			
Measured Top of Plug (if tagged ft.)	NM	NM	NM	5			
Slurry Wt. (Lb./Gal.)	15.6	15.6	15.6	15.6			
Type Cement or Other Material (Class III)	V	V	v	V			

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
5	50		
320	390		
427	1200		

Estimated Cost to Plug Wells
$13,715

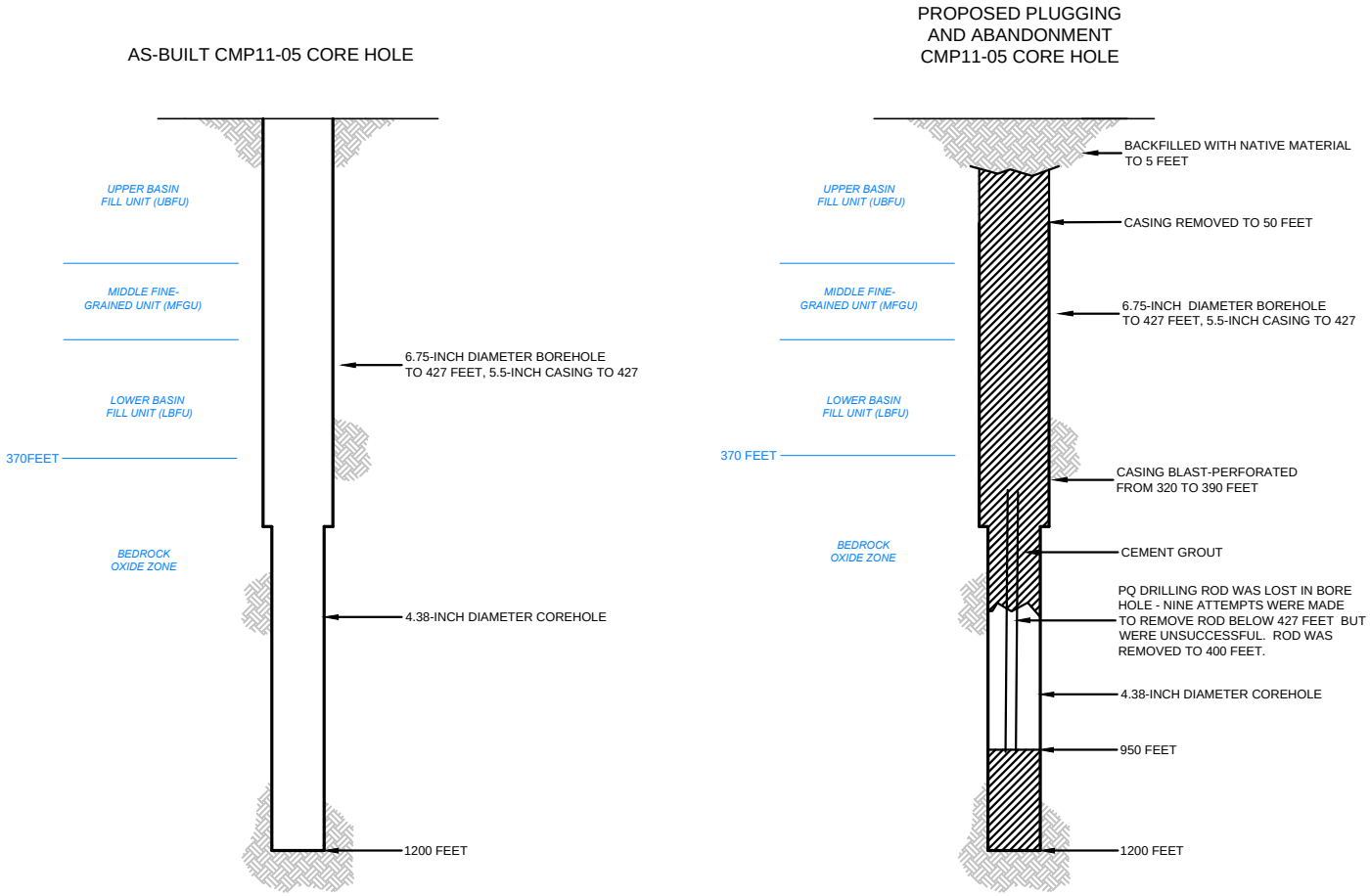
Certification

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)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Dan Johnson, VP Environment and Technical Services		

Paperwork Reduction Act Notice

The public reporting and record keeping burden for this collection of information is estimated to average 4.5 hours for operators of Class I hazardous wells, 1.5 hours for operators of Class I non-hazardous wells, 3 hours for operators of Class II wells, and 1.5 hours for operators of Class III wells.
Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to the collection of information; search data sources; complete and review the collection of information; and, transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR Part 9 and 48 CFR Chapter 15.
Please send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to Director, Office of Environmental Information, Collection Strategies Division, U.S. Environmental Protection Agency (2822), Ariel Rios Building, 1200 Pennsylvania Ave., NW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, Attention: Desk Officer for EPA. Please include the EPA ICR number and OMB control number in any correspondence.



HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

CMP11-05 COREHOLE DIAGRAM

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
SEPTEMBER 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\EPA\WELLABANDON\CMP11-05_ABANDON.DWG

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

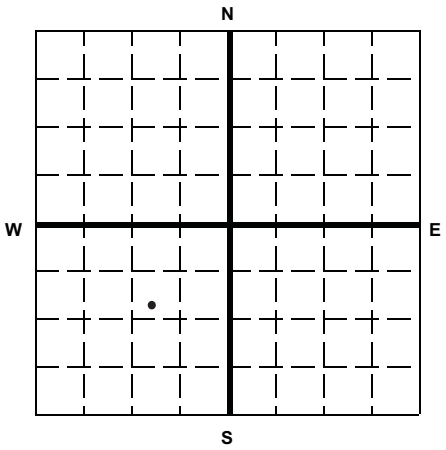
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence Arizona 85132

Name and Address of Owner/Operator
Curis Resources (Arizona) Inc
1575 W Hunt Hwy, Florence, Arizona 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1058 ft. frm (N/S) N Line of quarter section
and 1054 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number CMP11-06

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
5.5	unknown	429	94	6.75

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	6.75						
Depth to Bottom of Tubing or Drill Pipe (ft	NA						
Sacks of Cement To Be Used (each plug)	60						
Slurry Volume To Be Pumped (cu. ft.)	76						
Calculated Top of Plug (ft.)	33						
Measured Top of Plug (if tagged ft.)	5						
Slurry Wt. (Lb./Gal.)	15.6						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
5	335		
429	1145		

Estimated Cost to Plug Wells
$13,715

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)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Dan Johnson, VP Environment and Technical Services		

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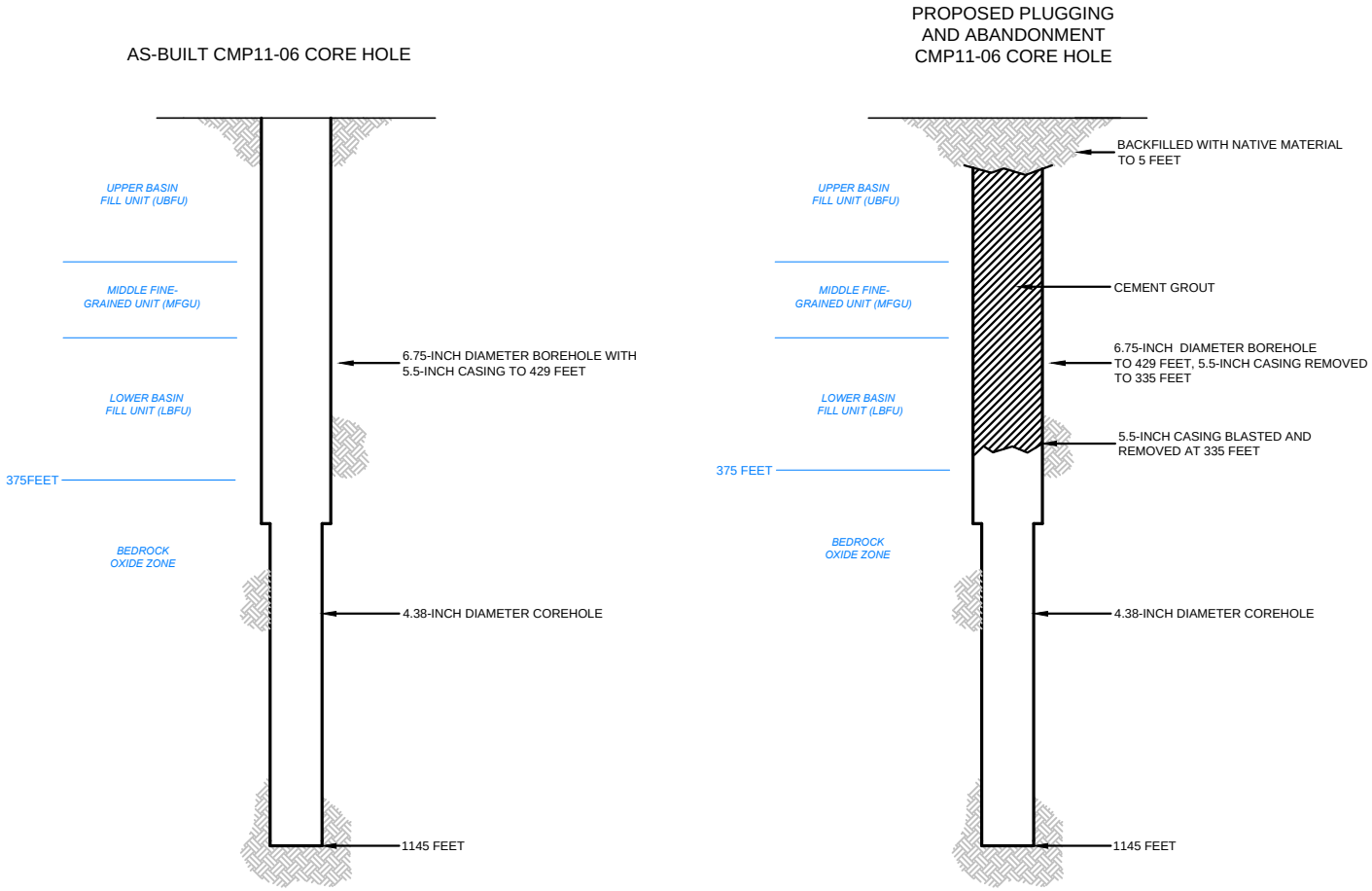
Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to the collection of information; search data sources; complete and review the collection of information; and, transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR Part 9 and 48 CFR Chapter 15.
Please send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to Director, Office of Environmental Information, Collection Strategies Division, U.S. Environmental Protection Agency (2822), Ariel Rios Building, 1200 Pennsylvania Ave., NW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, Attention: Desk Officer for EPA. Please include the EPA ICR number and OMB control number in any correspondence.



HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

CMP11-06 COREHOLE DIAGRAM

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
SEPTEMBER 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\EPA\WELLABANDON\CMP11-06_ABANDON.DWG

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

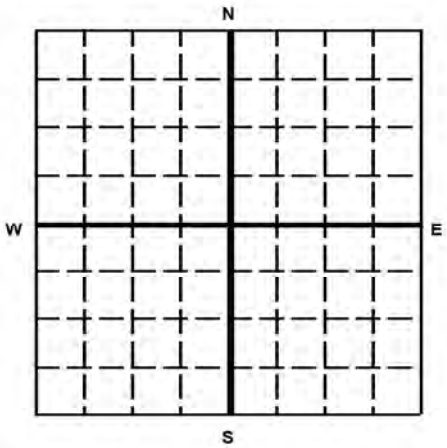
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper, Inc.
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1010 ft. frm (N/S) N Line of quarter section
and 1040 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number I-01

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
24"	94.62	20	20	28"
14"	45.68	490	490	20"
5"	5.61	510	510	14"
5"	3	690	690	12.25"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [x] Other - 20" bore hole will be grouted using the plug displacement method

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	128						
Slurry Volume To Be Pumped (cu. ft.)	163						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	720		
760	960		
1000	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

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)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Dan Johnson, VP Environmental and Technical Services		

Paperwork Reduction Act Notice

The public reporting and record keeping burden for this collection of information is estimated to average 4.5 hours for operators of Class I hazardous wells, 1.5 hours for operators of Class I non-hazardous wells, 3 hours for operators of Class II wells, and 1.5 hours for operators of Class III wells.
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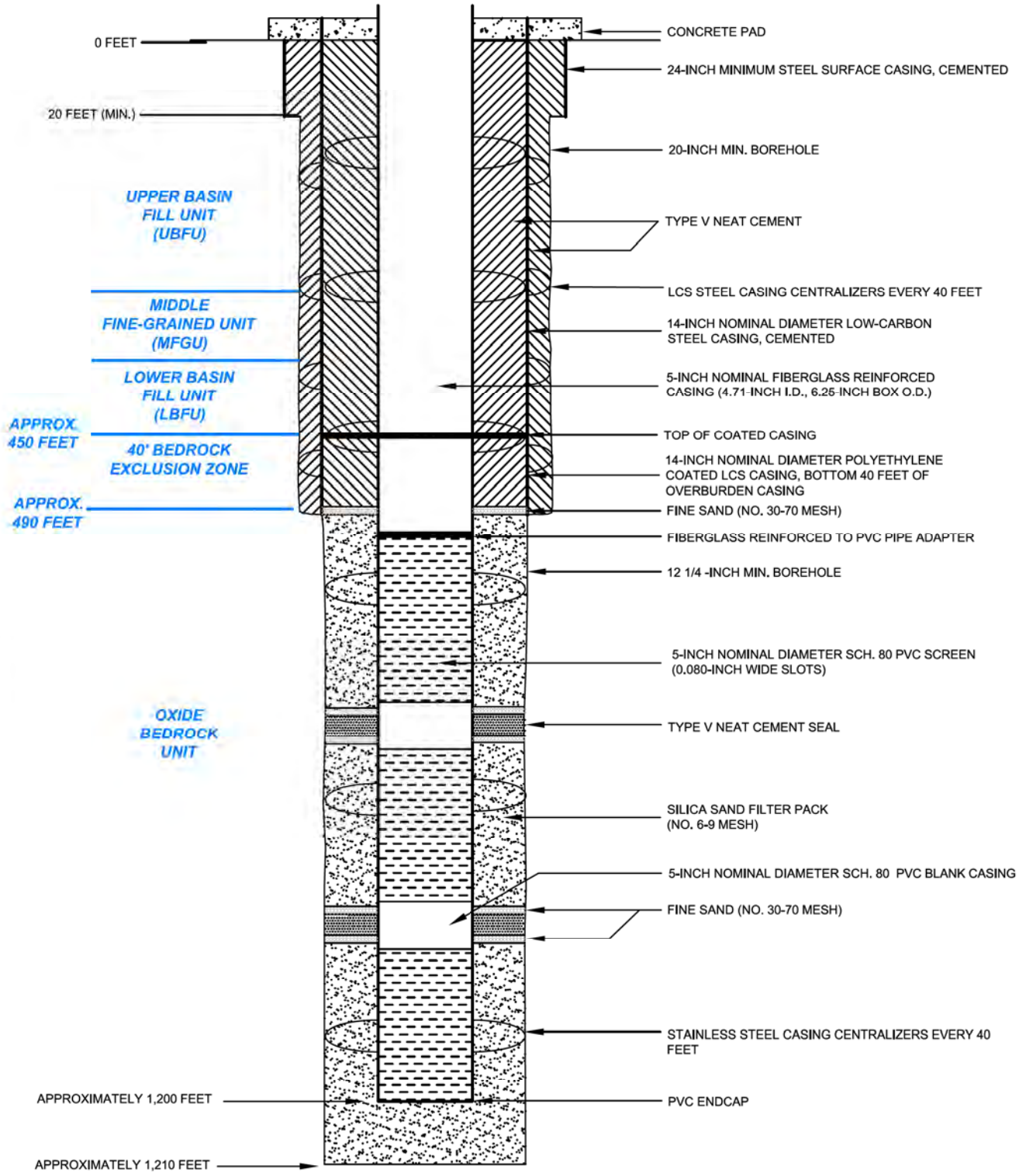


PROPOSED DESIGN FOR WELLS:
I-01, I-02, I-03, I-04, R-01, R-02,
R-03, R-04, R-05, R-06, R-07, R-08

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
INJECTION AND RECOVERY
WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\I-R_WELLDIAGRAM.DWG

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

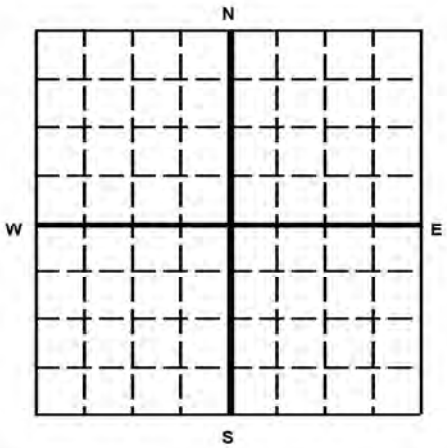
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper, Inc.
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SE 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1080 ft. frm (N/S) N Line of quarter section
and 975 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number I-02

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
24"	94.62	20	20	28"
14"	45.68	490	490	20"
5"	5.61	510	510	14"
5"	3	690	690	12.25"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [x] Other - 20" bore hole will be grouted using the plug displacement method

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	128						
Slurry Volume To Be Pumped (cu. ft.)	163						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	720		
760	960		
1000	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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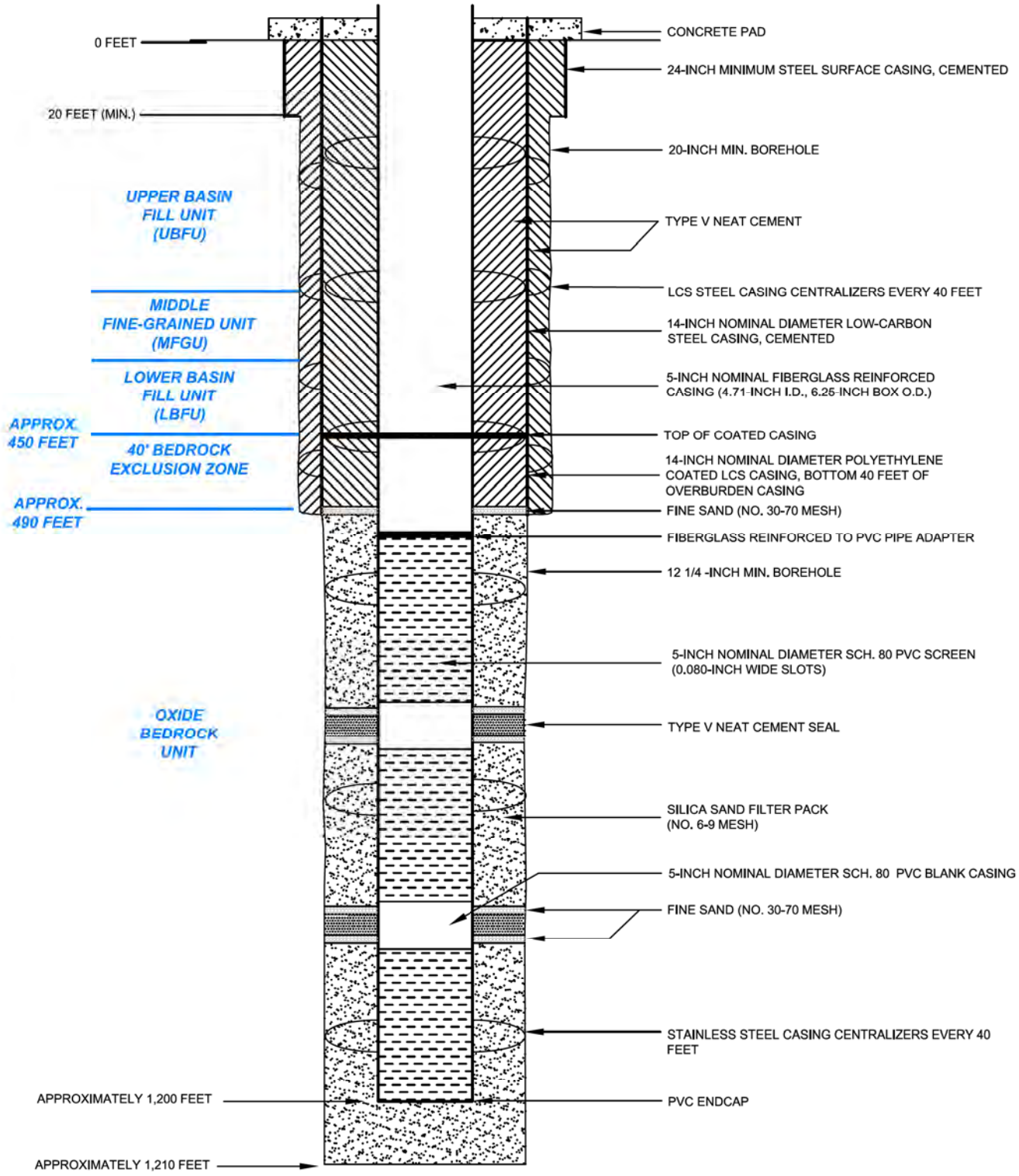


PROPOSED DESIGN FOR WELLS:
I-01, I-02, I-03, I-04, R-01, R-02,
R-03, R-04, R-05, R-06, R-07, R-08

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
INJECTION AND RECOVERY
WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\I-R_WELLDIAGRAM.DWG

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

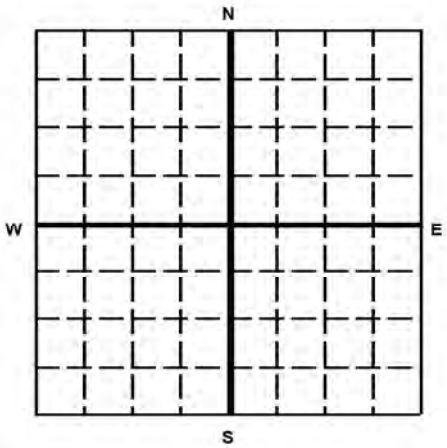
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper, Inc.
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1150 ft. frm (N/S) N Line of quarter section
and 1040 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number I-03

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
24"	94.62	20	20	28"
14"	45.68	490	490	20"
5"	5.61	510	510	14"
5"	3	690	690	12.25"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [x] Other - 20" bore hole will be grouted using the plug displacement method

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	128						
Slurry Volume To Be Pumped (cu. ft.)	163						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	720		
760	960		
1000	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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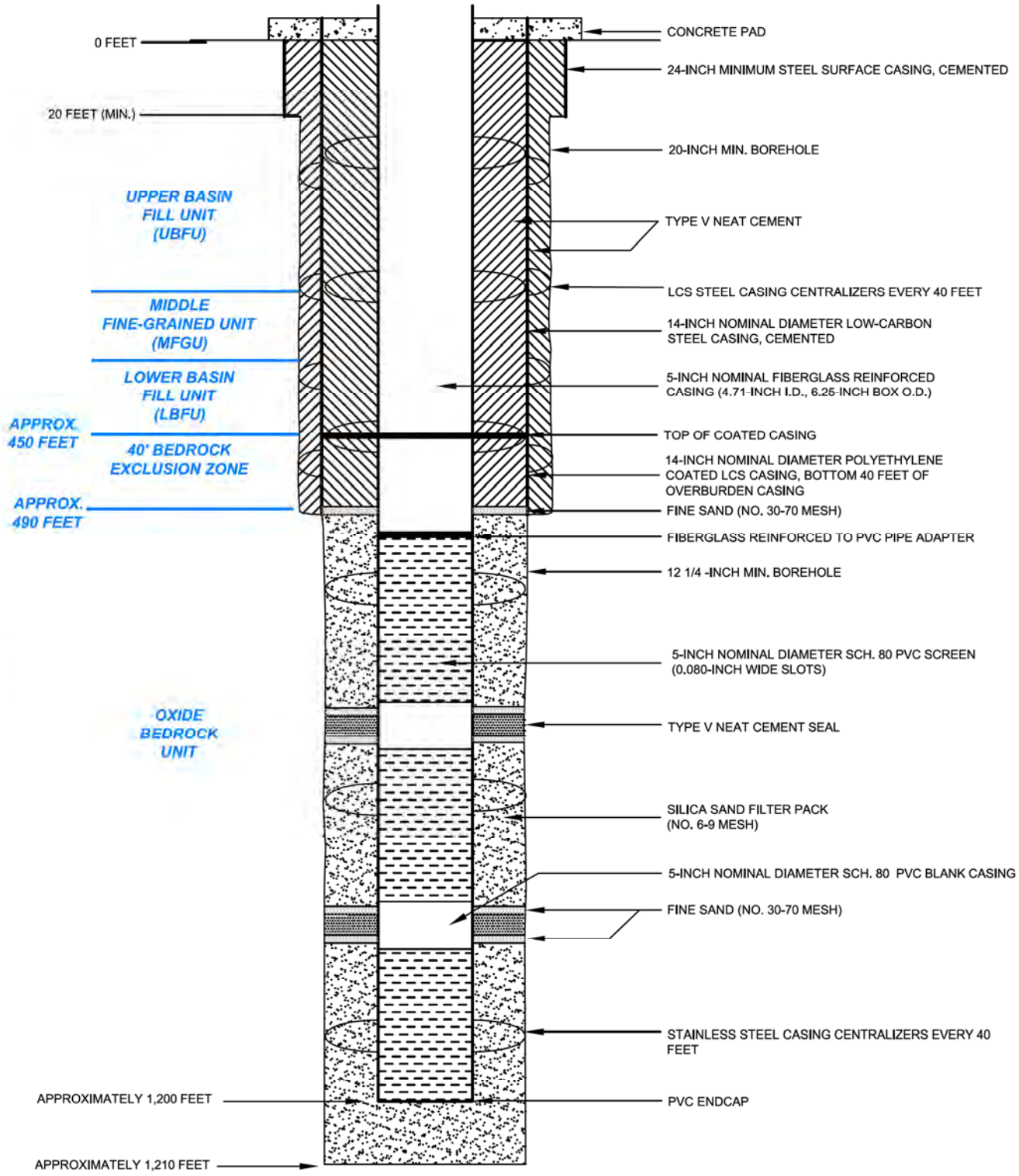


PROPOSED DESIGN FOR WELLS:
I-01, I-02, I-03, I-04, R-01, R-02,
R-03, R-04, R-05, R-06, R-07, R-08

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
INJECTION AND RECOVERY
WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\I-R_WELLDIAGRAM.DWG

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

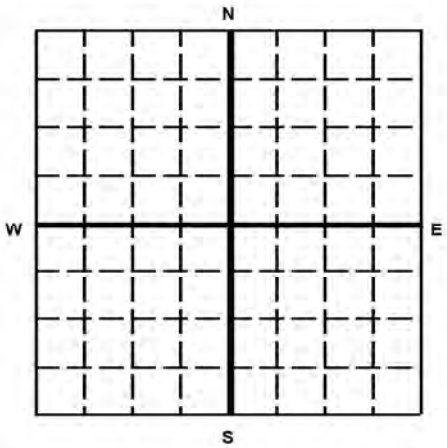
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper, Inc.
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1150 ft. frm (N/S) N Line of quarter section
and 1040 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number I-04

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
24"	94.62	20	20	28"
14"	45.68	490	490	20"
5"	5.61	510	510	14"
5"	3	690	690	12.25"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [x] Other - 20" bore hole will be grouted using the plug displacement method

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	128						
Slurry Volume To Be Pumped (cu. ft.)	163						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	720		
760	960		
1000	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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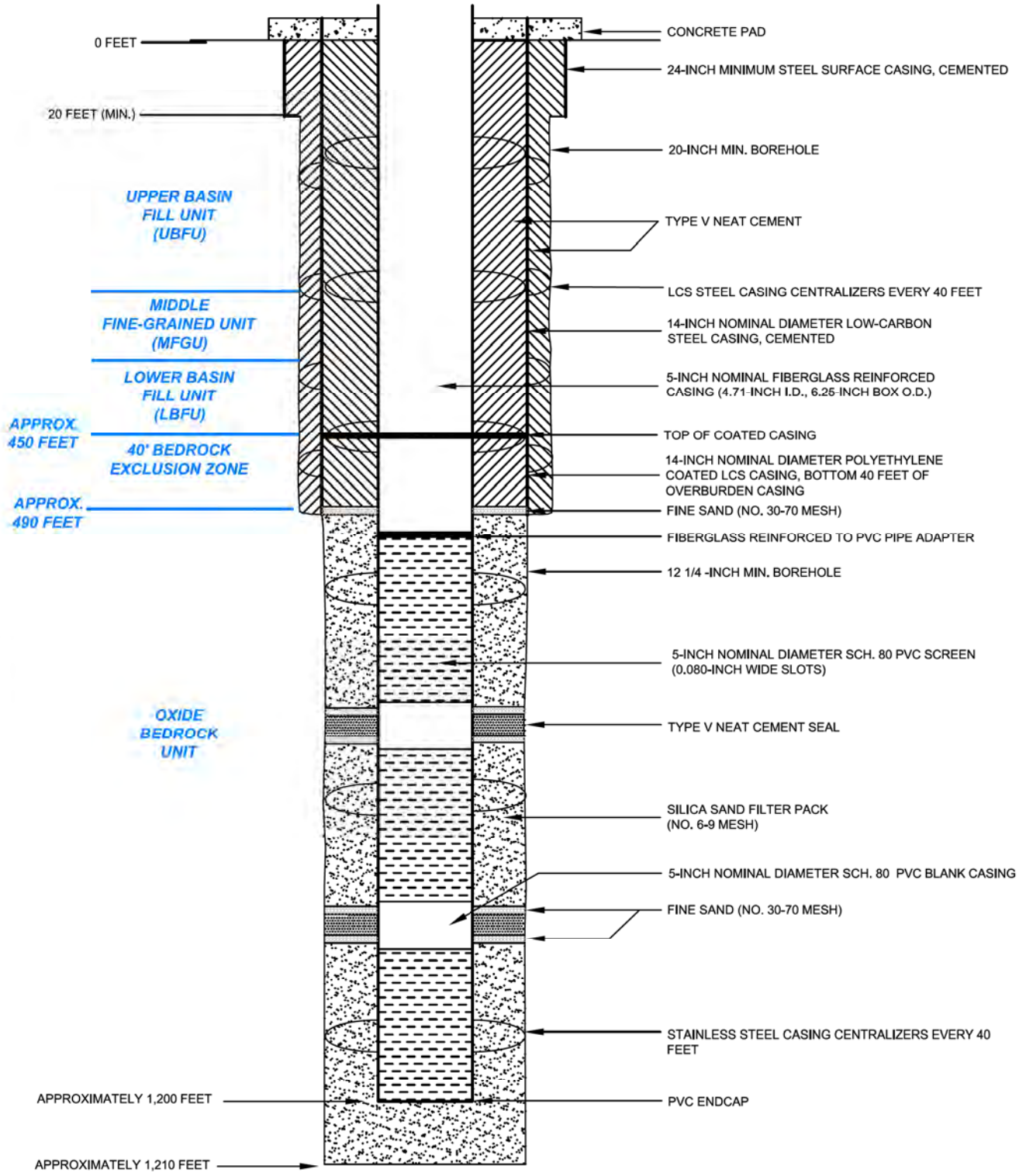

PROPOSED DESIGN FOR WELLS:
I-01, I-02, I-03, I-04, R-01, R-02,
R-03, R-04, R-05, R-06, R-07, R-08

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
INJECTION AND RECOVERY
WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\I-R_WELLDIAGRAM.DWG

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

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Name and Address of Owner/Operator
Florence Copper
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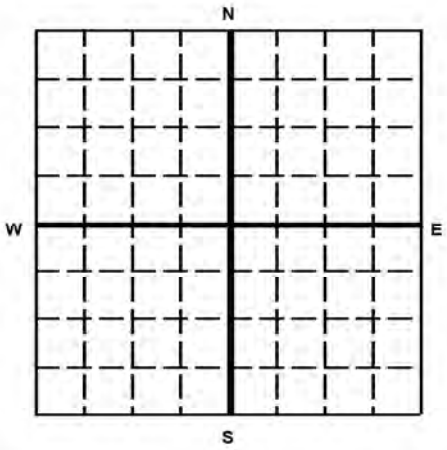
Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
nw 1/4 of sw 1/4 of NE 1/4 of sw 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 955 ft. frm (N/S) N Line of quarter section
and 1175 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number M55-UBF

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
14"	45.68	20	20	20"
4"	45.68	240	240	9.86"
4"	3	20	20	9.86"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4						
Depth to Bottom of Tubing or Drill Pipe (ft	260						
Sacks of Cement To Be Used (each plug)	18						
Slurry Volume To Be Pumped (cu. ft.)	23						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
240	260		

Estimated Cost to Plug Wells
$8,000 - abandonment costs

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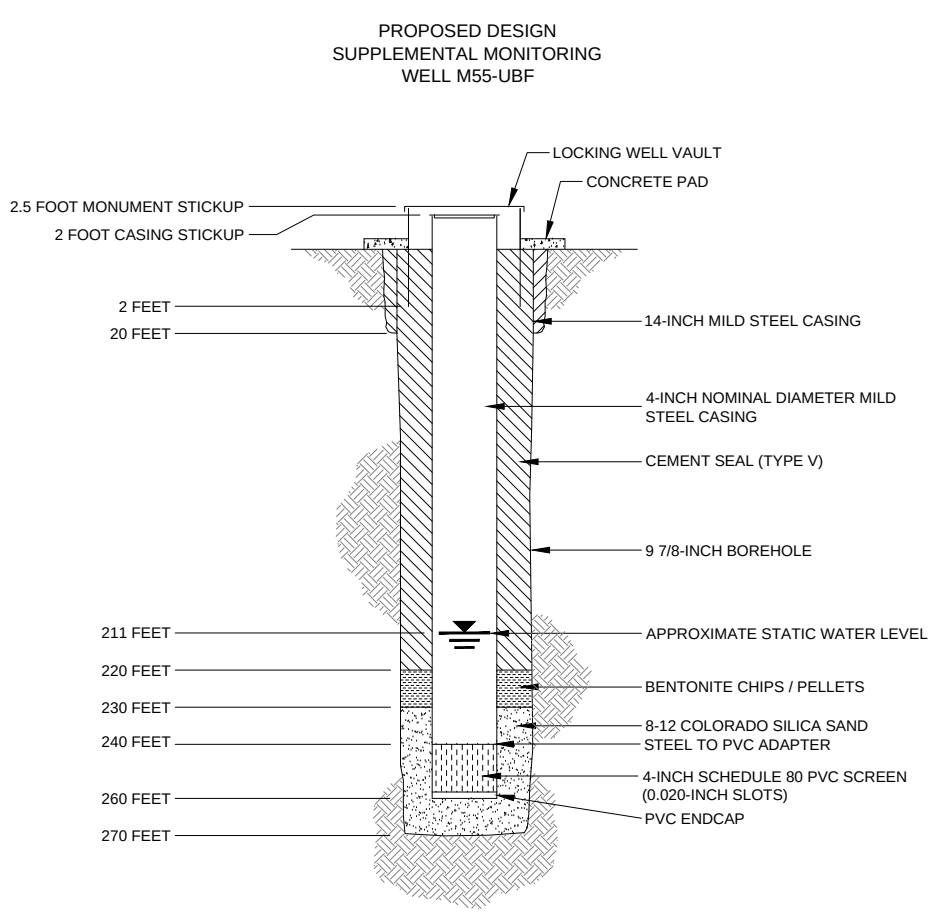
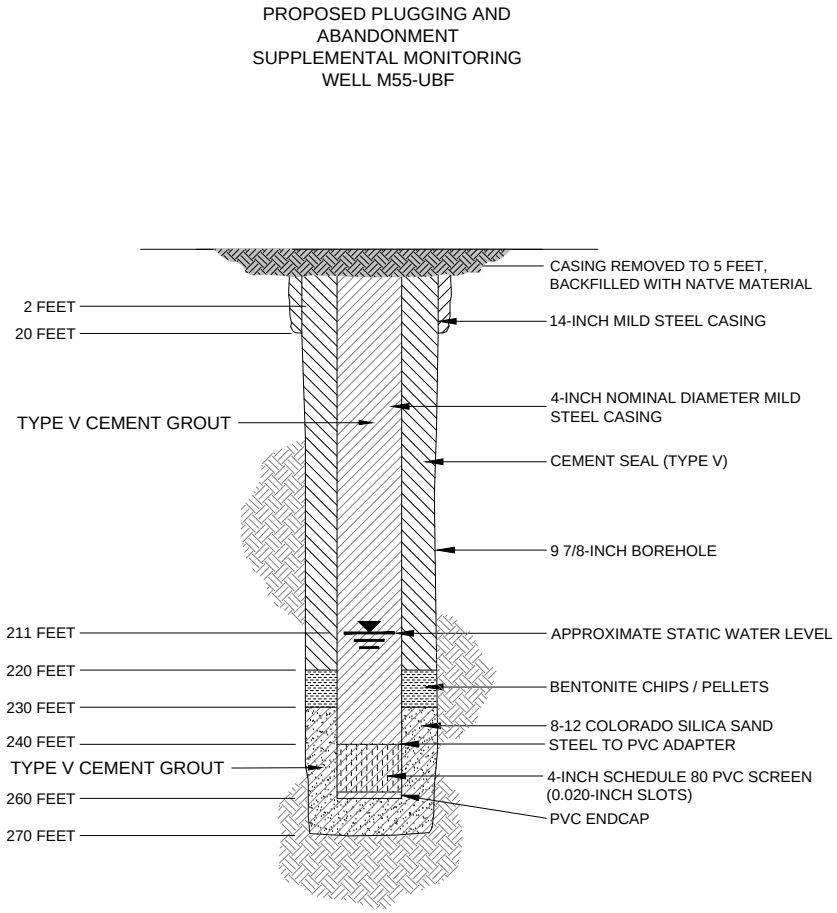
Drawing Name: G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\JULY 2014 UIC APP\PTF PLUGGING\M55_M56_WELLDESIGN.DWG
Operator Name: CANDREVA, LAUREN Plot Date: August 6, 2014 Drawing Layout: HA-FIG-A-M55





NOTES

1. WELL DESIGN DETAILS ARE BASED ON BHP RECORDS.

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED SUPPLEMENTAL MONITORING WELL M55-UBF ABANDONMENT SCHEMATIC

SCALE: NOT TO SCALE
AUGUST 2014

FIGURE 1

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

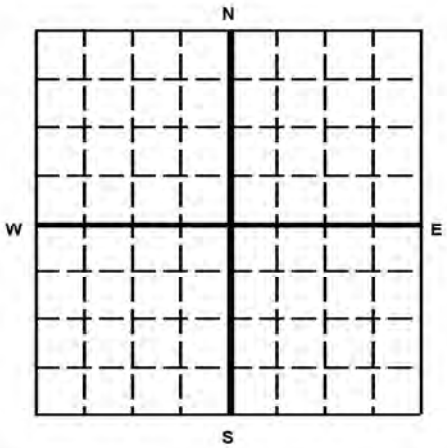
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
nw 1/4 of sw 1/4 of NE 1/4 of sw 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 925 ft. frm (N/S) N Line of quarter section
and 1190 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number M56-LBF

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
14	36.71	20	20	20
4	8.9	320	320	9.86
4	2	20	20	9.86

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4						
Depth to Bottom of Tubing or Drill Pipe (ft	340						
Sacks of Cement To Be Used (each plug)	23						
Slurry Volume To Be Pumped (cu. ft.)	30						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
320	340		

Estimated Cost to Plug Wells
$8,000 - abandonment costs

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)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Dan Johnson, VP Environmental and Technical Services		

Paperwork Reduction Act Notice

The public reporting and record keeping burden for this collection of information is estimated to average 4.5 hours for operators of Class I hazardous wells, 1.5 hours for operators of Class I non-hazardous wells, 3 hours for operators of Class II wells, and 1.5 hours for operators of Class III wells.
Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to the collection of information; search data sources; complete and review the collection of information; and, transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR Part 9 and 48 CFR Chapter 15.
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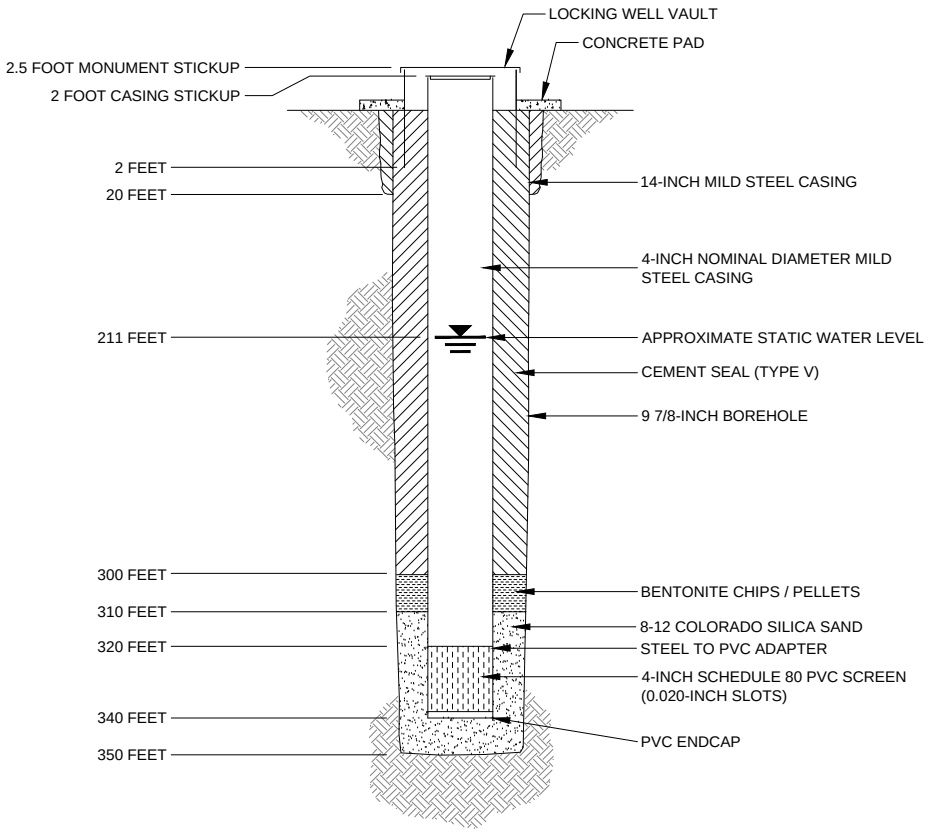
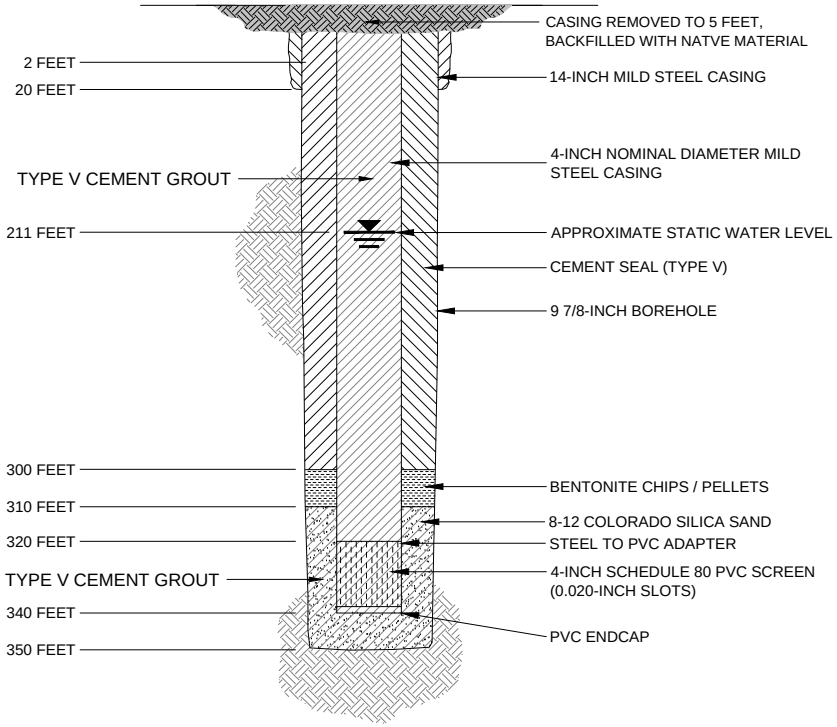
Drawing Name: G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\JULY 2014 UIC APP\PTF PLUGGING\M55_M56_WELLDESIGN.DWG
Operator Name: CANDREVA, LAUREN Plot Date: August 6, 2014 Drawing Layout: HA-FIG-A-M56

PROPOSED DESIGN
SUPPLEMENTAL MONITORING
WELL M56-LBF



PROPOSED PLUGGING AND
ABANDONMENT
SUPPLEMENTAL MONITORING
WELL M56-LBF



NOTES

1. WELL DESIGN DETAILS ARE BASED ON BHP RECORDS.

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED SUPPLEMENTAL
MONITORING WELL M56-LBF
ABANDONMENT SCHEMATIC

SCALE: NOT TO SCALE
AUGUST 2014

FIGURE 1

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

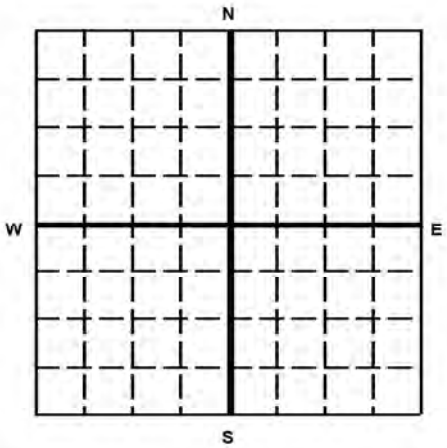
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
NE 1/4 of SE 1/4 of nw 1/4 of sw 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 960 ft. frm (N/S) N Line of quarter section
and 1265 ft. from (E/W) W Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number M57-O

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
14	36.71	20	20	20
4	8.9	525	525	9.86
4	2	675	675	9.86

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	82						
Slurry Volume To Be Pumped (cu. ft.)	105						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
525	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

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)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Dan Johnson, VP Environmental and Technical Services		

Paperwork Reduction Act Notice

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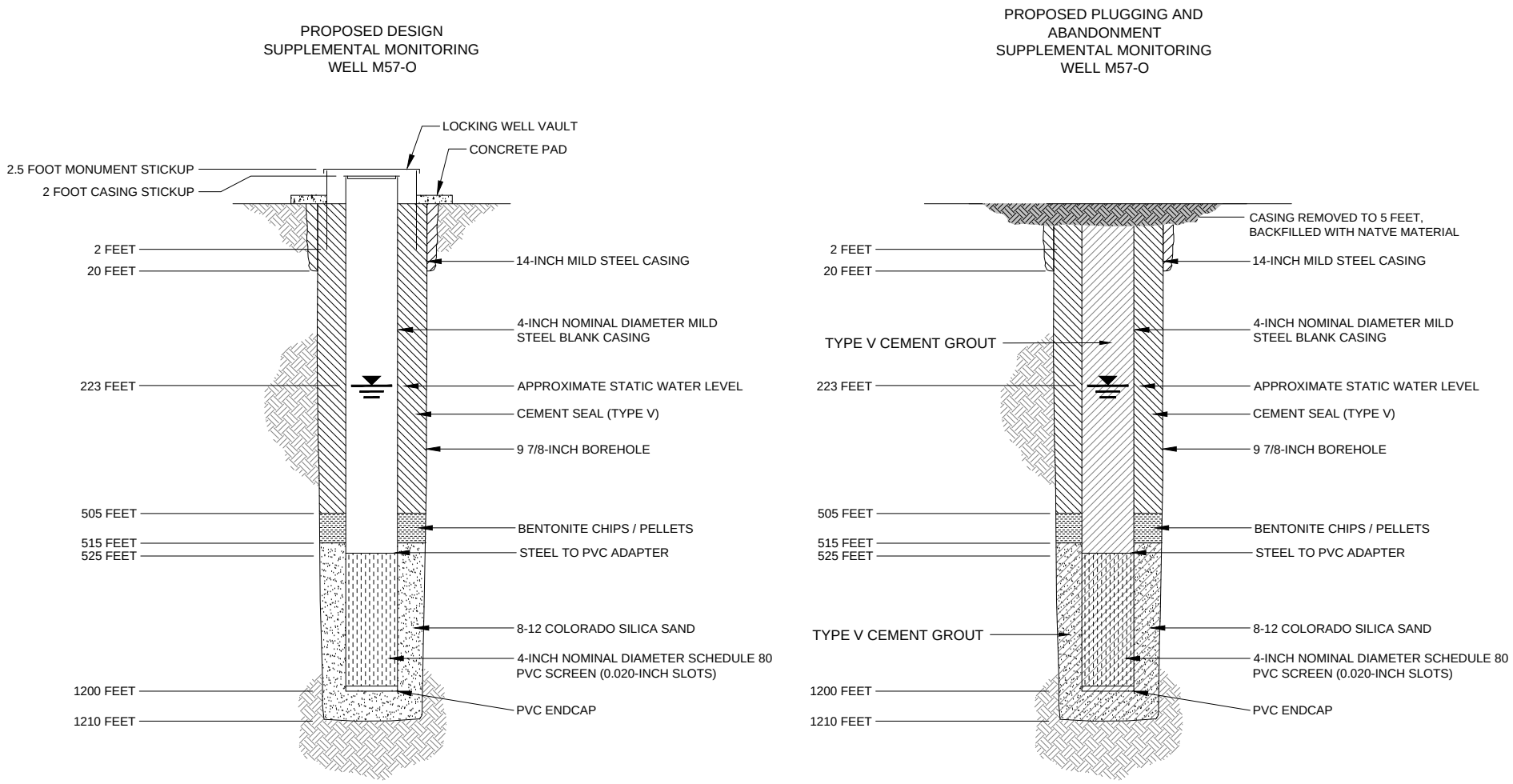
Drawing Name: G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\JULY 2014 UIC APP\PTF PLUGGING\M57WELLDESIGN.DWG
Operator Name: CANDREVA, LAUREN Plot Date: August 6, 2014 Drawing Layout: HA-FIG-A-M57



NOTES

1. WELL DESIGN DETAILS ARE BASED ON BHP RECORDS.

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED SUPPLEMENTAL MONITORING WELL M57-O ABANDONMENT SCHEMATIC

SCALE: NOT TO SCALE
AUGUST 2014

FIGURE 1

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

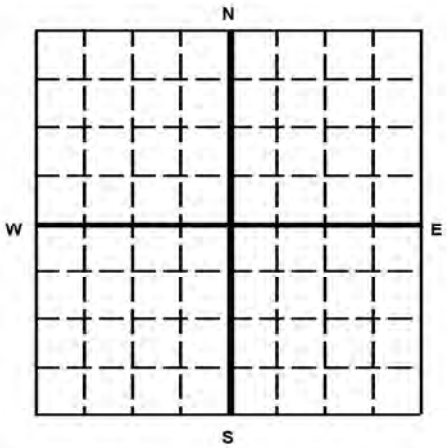
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
sw 1/4 of nw 1/4 of NE 1/4 of sw 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 620 ft. frm (N/S) N Line of quarter section
and 1070 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number M58-O

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
14"	36.71	20	20	20"
4"	8.9	595	595	9.86"
4"	2	605	605	9.86"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	82						
Slurry Volume To Be Pumped (cu. ft.)	105						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
595	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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Name and Official Title *(Please type or print)*	Signature	Date Signed
Dan Johnson, VP Environmental and Technical Services		

Paperwork Reduction Act Notice

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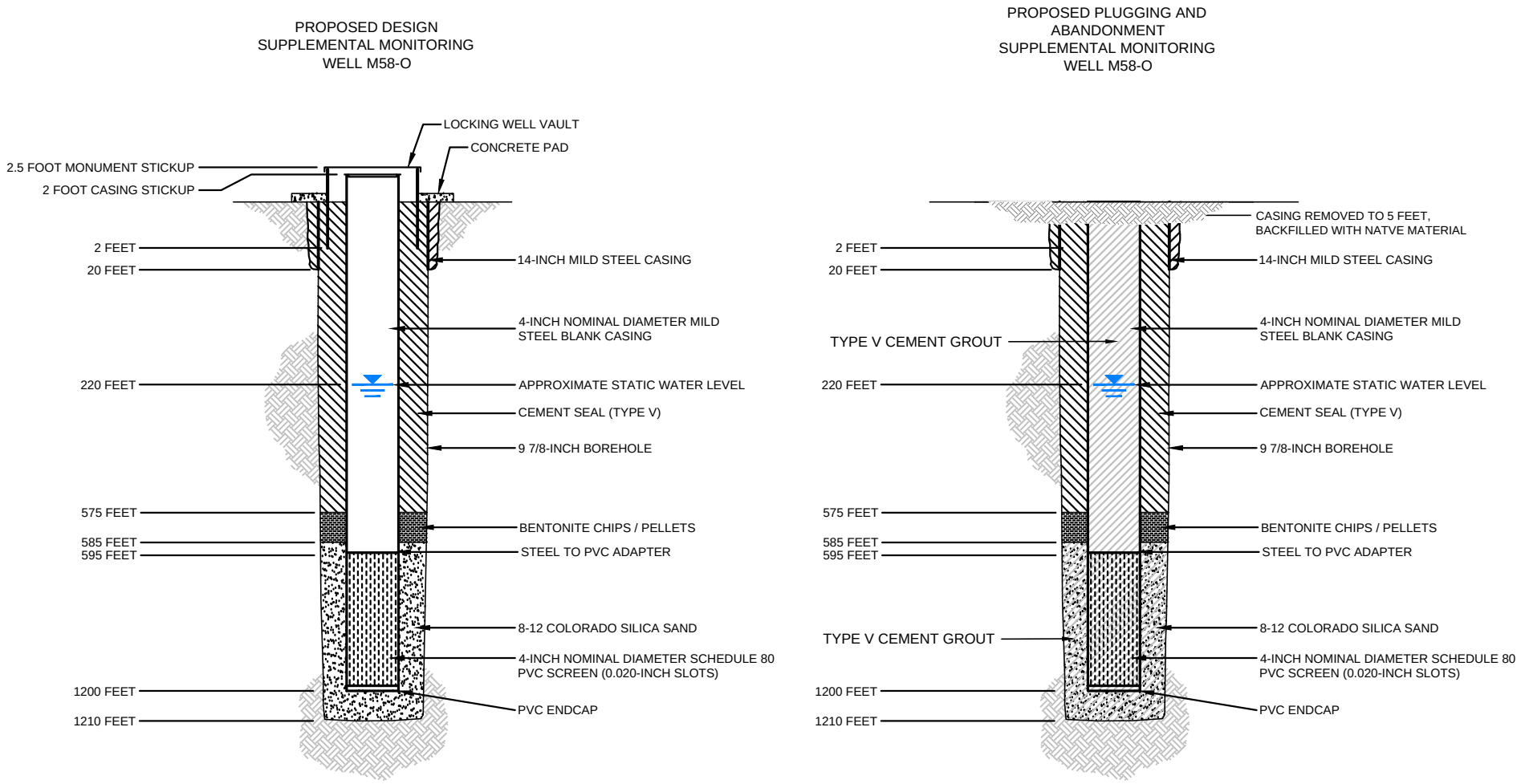
Drawing Name: G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\JULY 2014 UIC APP\PTF PLUGGING\M58WELLDESIGN.DWG
Operator Name: CANDREVA, LAUREN Plot Date: August 6, 2014 Drawing Layout: HA-FIG-A-M58



NOTES

1. WELL DESIGN DETAILS ARE BASED ON BHP RECORDS.

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED SUPPLEMENTAL MONITORING WELL M58-O ABANDONMENT SCHEMATIC

SCALE: NOT TO SCALE
AUGUST 2014

FIGURE 1

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

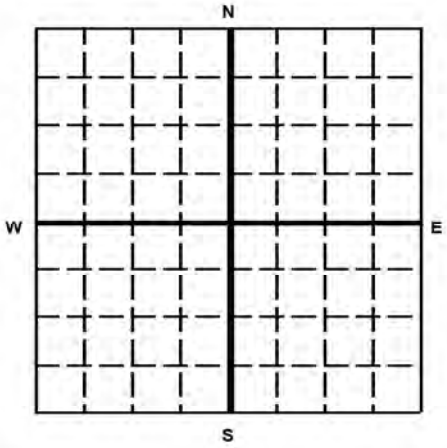
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SE 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 985 ft. frm (N/S) N Line of quarter section
and 840 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number M59-O

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
14	36.71	20	20	20
4	8.9	535	535	9.86
4	2	665	665	9.86

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	82						
Slurry Volume To Be Pumped (cu. ft.)	105						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
535	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

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)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Dan Johnson, VP Environmental and Technical Services		

Paperwork Reduction Act Notice

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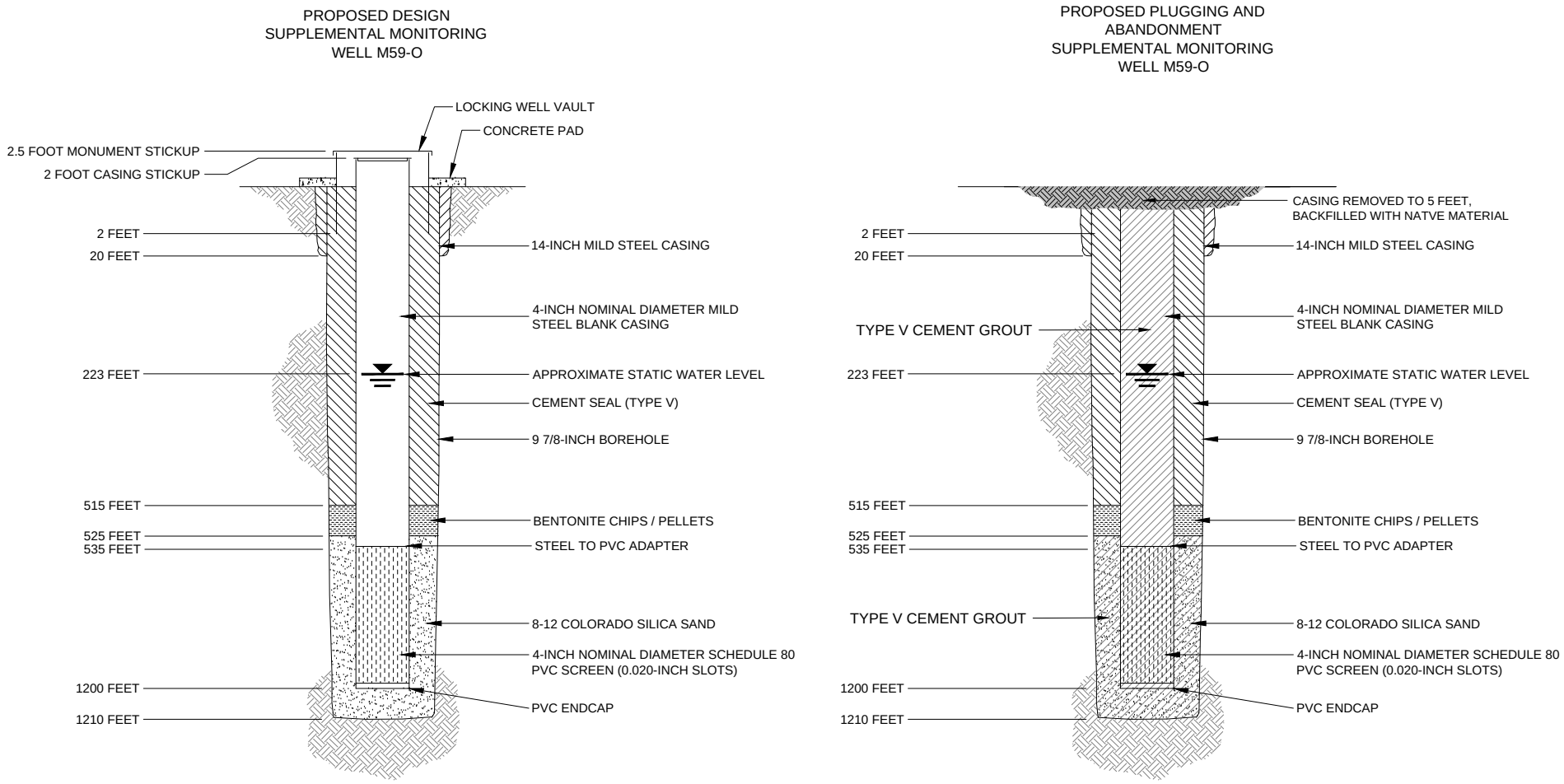
Drawing Name: G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\JULY 2014 UIC APP\PTF PLUGGING\M59WELLDESIGN.DWG
Operator Name: CANDREVA, LAUREN Plot Date: August 6, 2014 Drawing Layout: HA-FIG-A-M59



NOTES

1. WELL DESIGN DETAILS ARE BASED ON BHP RECORDS.

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED SUPPLEMENTAL MONITORING WELL M59-O ABANDONMENT DIAGRAM

SCALE: NOT TO SCALE
AUGUST 2014

FIGURE 1

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

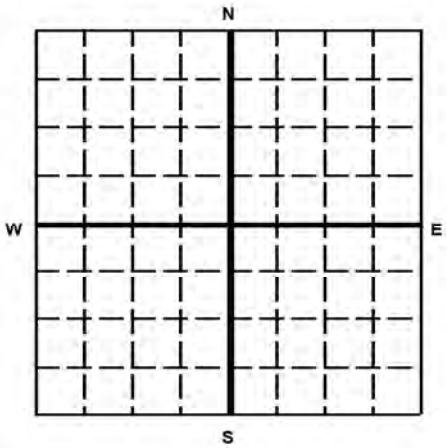
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1280 ft. frm (N/S) N Line of quarter section
and 1140 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number M60-O

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
14"	36.71	20	20	20"
4"	8.9	445	445	9.86"
4"	2	755	755	9.86"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	82						
Slurry Volume To Be Pumped (cu. ft.)	105						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
445	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

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)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Dan Johnson, VP Environmental and Technical Services		

Paperwork Reduction Act Notice

The public reporting and record keeping burden for this collection of information is estimated to average 4.5 hours for operators of Class I hazardous wells, 1.5 hours for operators of Class I non-hazardous wells, 3 hours for operators of Class II wells, and 1.5 hours for operators of Class III wells.
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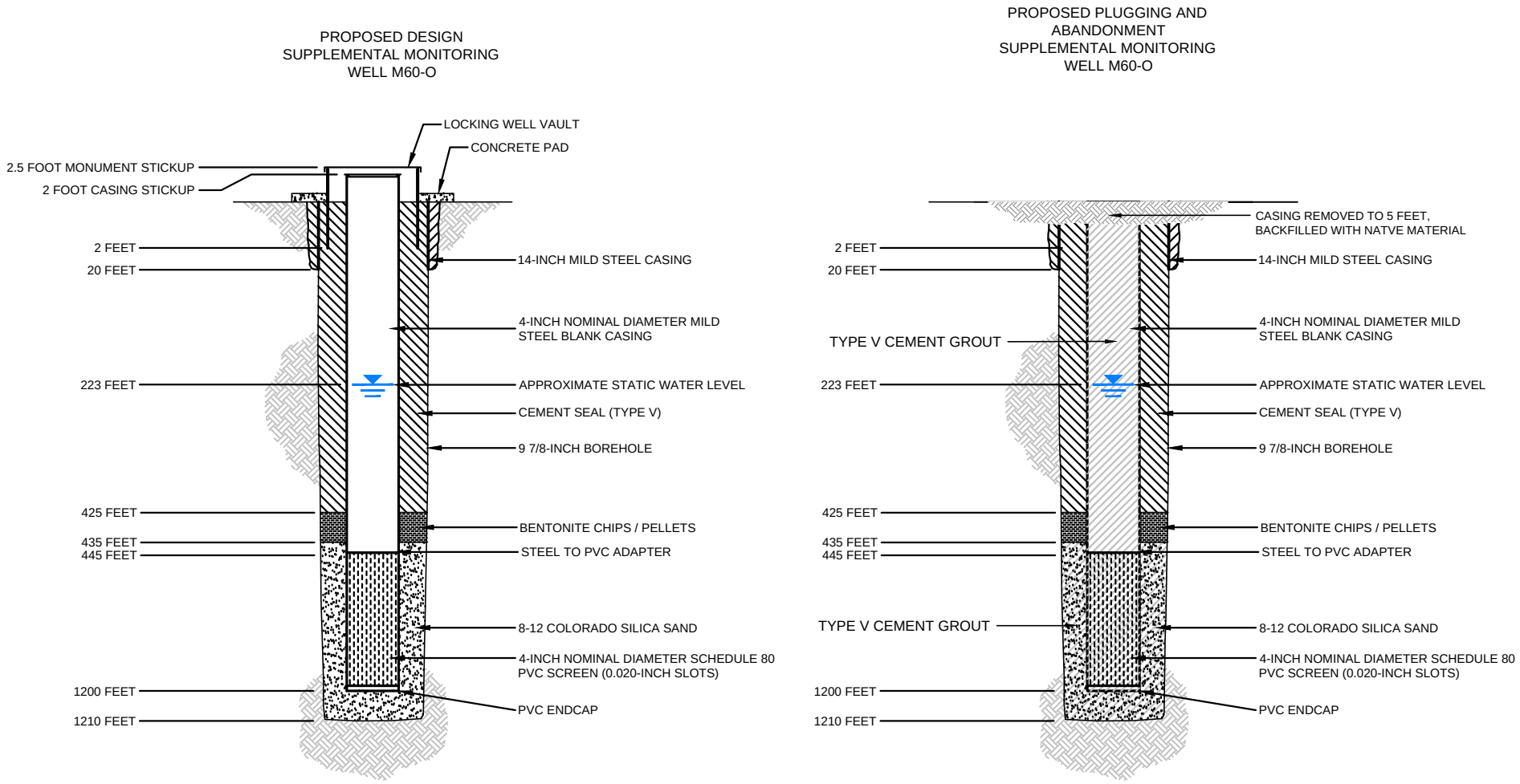
Drawing Name: G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\JULY 2014 UIC APP\PTF PLUGGING\M60WELLDESIGN.DWG
Operator Name: CANDREVA, LAUREN Plot Date: August 6, 2014 Drawing Layout: HA-FIG-A-M60



NOTES

1. WELL DESIGN DETAILS ARE BASED ON BHP RECORDS.

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED SUPPLEMENTAL MONITORING WELL M60-O ABANDONMENT SCHEMATIC

SCALE: NOT TO SCALE
AUGUST 2014

FIGURE 1

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

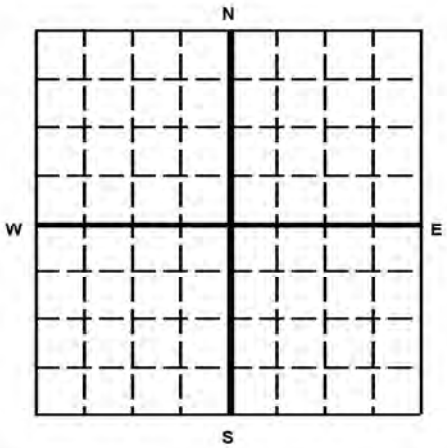
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SW 1/4 of SE 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1060 ft. frm (N/S) N Line of quarter section
and 555 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number M61-LBF

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
14	36.71	20	20	20
4	8.9	435	435	9.86
4	2	200	200	9.86

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4						
Depth to Bottom of Tubing or Drill Pipe (ft	635						
Sacks of Cement To Be Used (each plug)	44						
Slurry Volume To Be Pumped (cu. ft.)	55						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
435	635		

Estimated Cost to Plug Wells
$8,000 - abandonment costs

Certification

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Name and Official Title *(Please type or print)*	Signature	Date Signed
Dan Johnson, VP Environmental and Technical Services		

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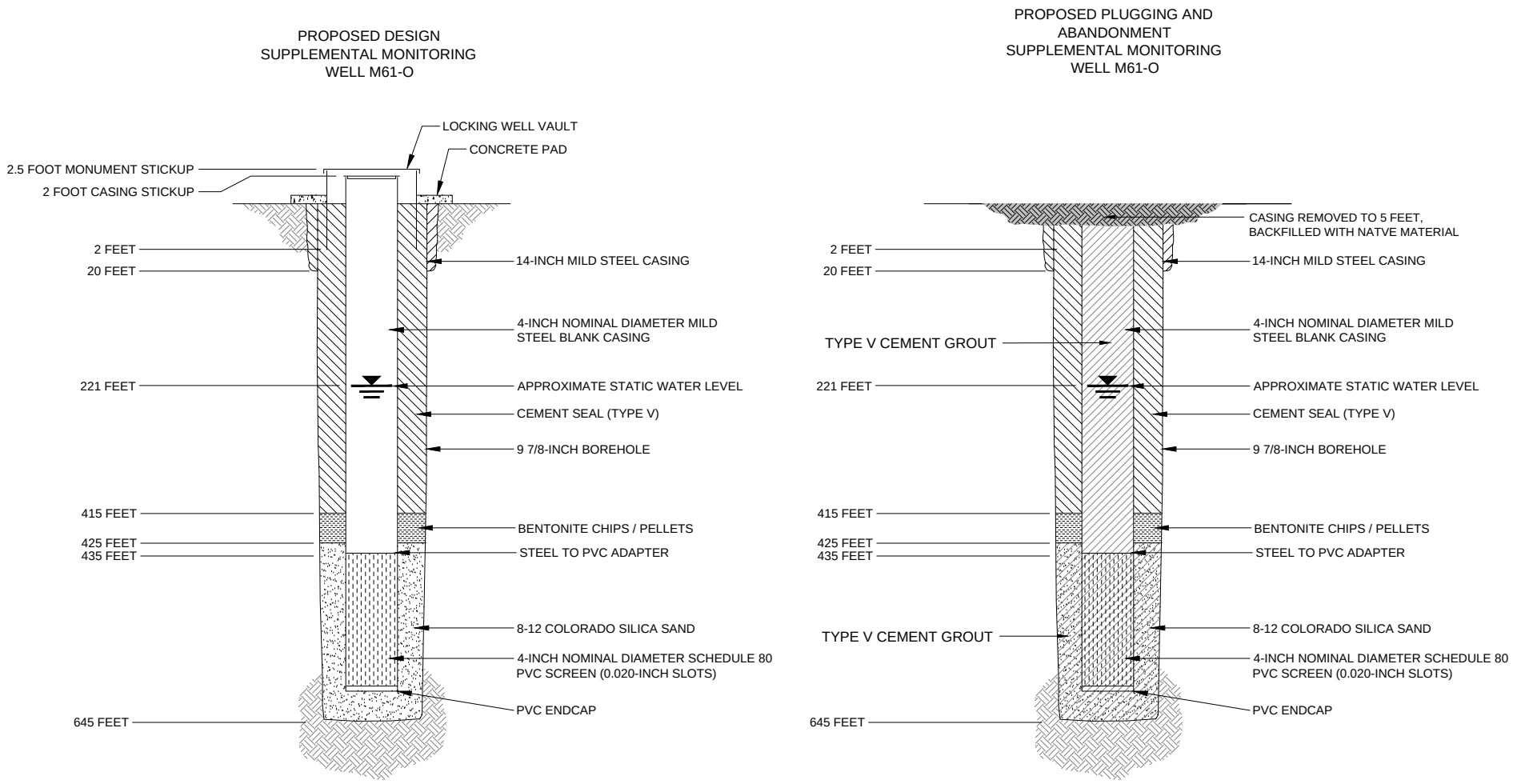
Drawing Name: G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\JULY 2014 UIC APP\PTF PLUGGING\M61WELLDESIGN.DWG
Operator Name: CANDREVA, LAUREN Plot Date: August 6, 2014 Drawing Layout: HA-FIG-A-M61



NOTES

1. WELL DESIGN DETAILS ARE BASED ON BHP RECORDS.

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED SUPPLEMENTAL MONITORING WELL M61-O ABANDONMENT DIAGRAM

SCALE: NOT TO SCALE
AUGUST 2014

FIGURE 1

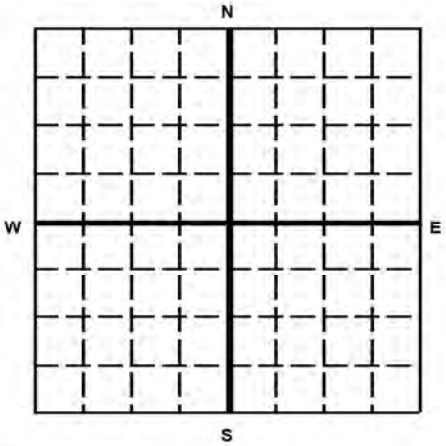
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
Florence Copper Project 1575 W Hunt Hwy, Florence, AZ 85132	Florence Copper 1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description

NE 1/4 of SE 1/4 of nw 1/4 of sw 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 730 ft. frm (N/S) N Line of quarter section and 1300 ft. from (E/W) W Line of quarter section.

TYPE OF AUTHORIZATION

- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells ____

Lease Name NA

WELL ACTIVITY

- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [ ] CLASS III

Well Number MW-01

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [ ] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche							
Depth to Bottom of Tubing or Drill Pipe (ft							
Sacks of Cement To Be Used (each plug)							
Slurry Volume To Be Pumped (cu. ft.)							
Calculated Top of Plug (ft.)							
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)							
Type Cement or Other Material (Class III)							

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To

Estimated Cost to Plug Wells

Certification

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Name and Official Title *(Please type or print)*	Signature	Date Signed

Paperwork Reduction Act Notice

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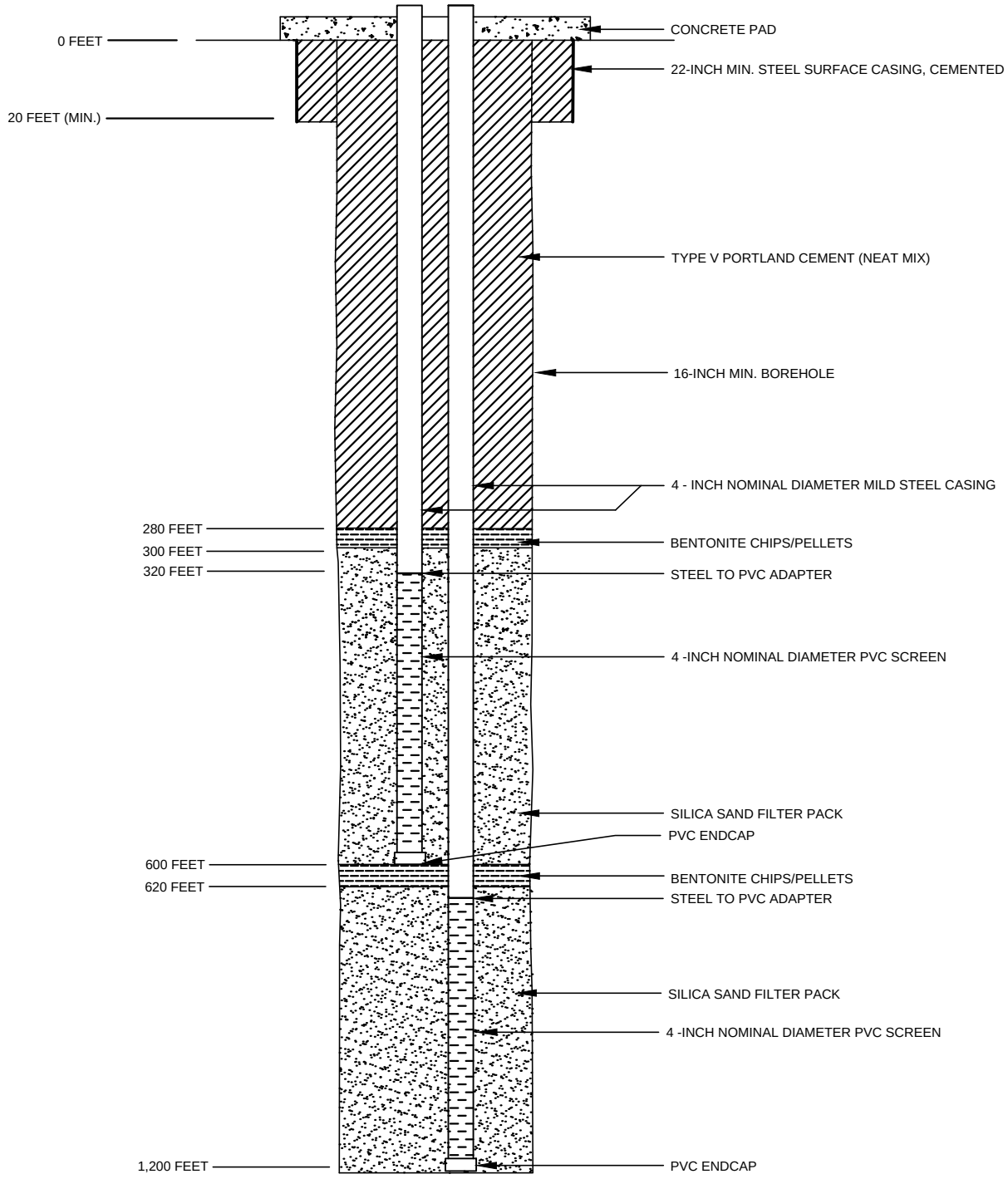


NOTE: LITHOLOGIC UNIT CONTACTS WILL BE DETERMINED ONCE THE FINAL WELL LOCATION HAS BEEN APPROVED BY ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

OPERATIONAL MONITORING WELL
MW-01 PROPOSED DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
SEPTEMBER 2014

FIGURE M1-1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\JULY 2014 UIC APP\MW-01_WELLDIAGRAM.DWG

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

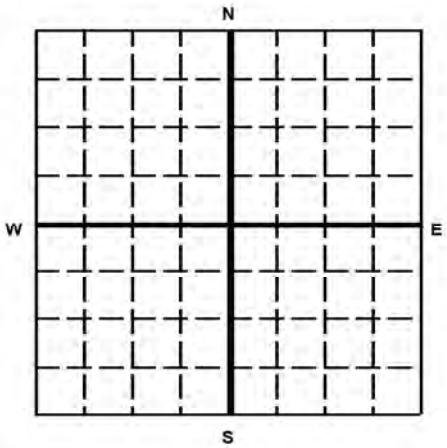
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper, Inc.
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
NE 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1010 ft. frm (N/S) N Line of quarter section
and 1040 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number O-01

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
14"	27.66	20	20	20"
2.5"	5.61	510	510	10"
2.5"	2	690	690	10"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	2.5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	32						
Slurry Volume To Be Pumped (cu. ft.)	41						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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Name and Official Title *(Please type or print)*	Signature	Date Signed
Dan Johnson, VP Environmental and Technical Services		

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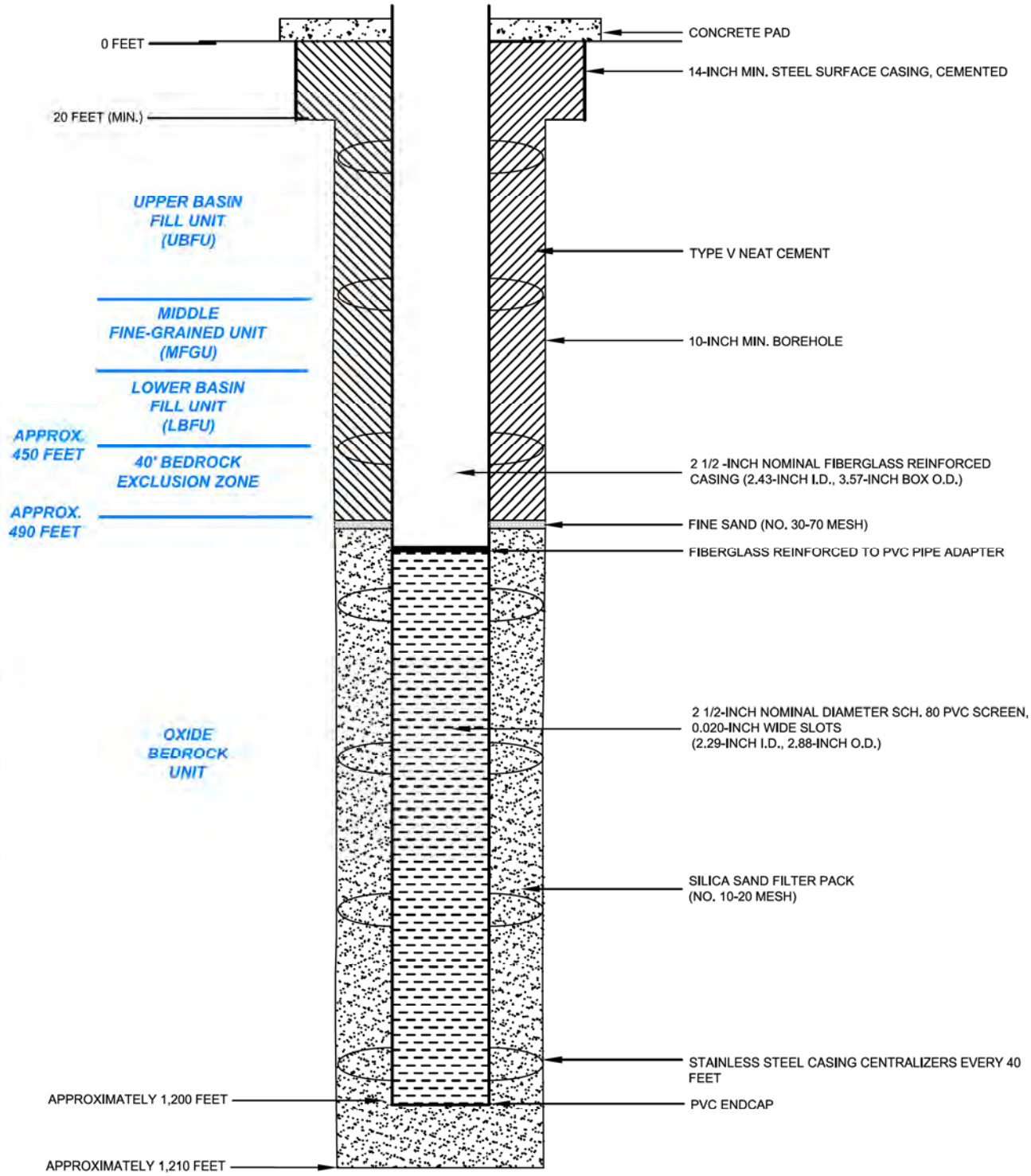


PROPOSED WELL DESIGN FOR:
O-01, O-02, O-03, O-04, O-05, O-06, O-07

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
OBSERVATION WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\OBS_WELLDIAGRAM.DWG

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

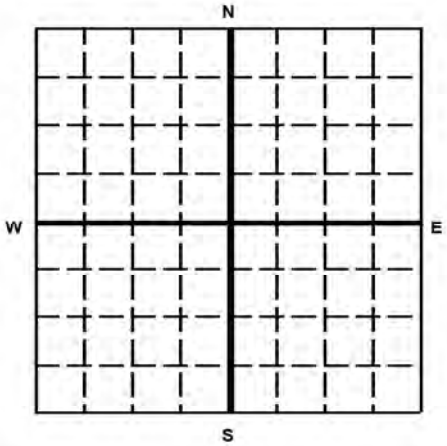
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper, Inc.
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SE 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1010 ft. frm (N/S) N Line of quarter section
and 900 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number O-02

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
14"	27.66	20	20	20"
2.5"	5.61	510	510	10"
2.5"	3	690	690	10"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	2.5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	32						
Slurry Volume To Be Pumped (cu. ft.)	41						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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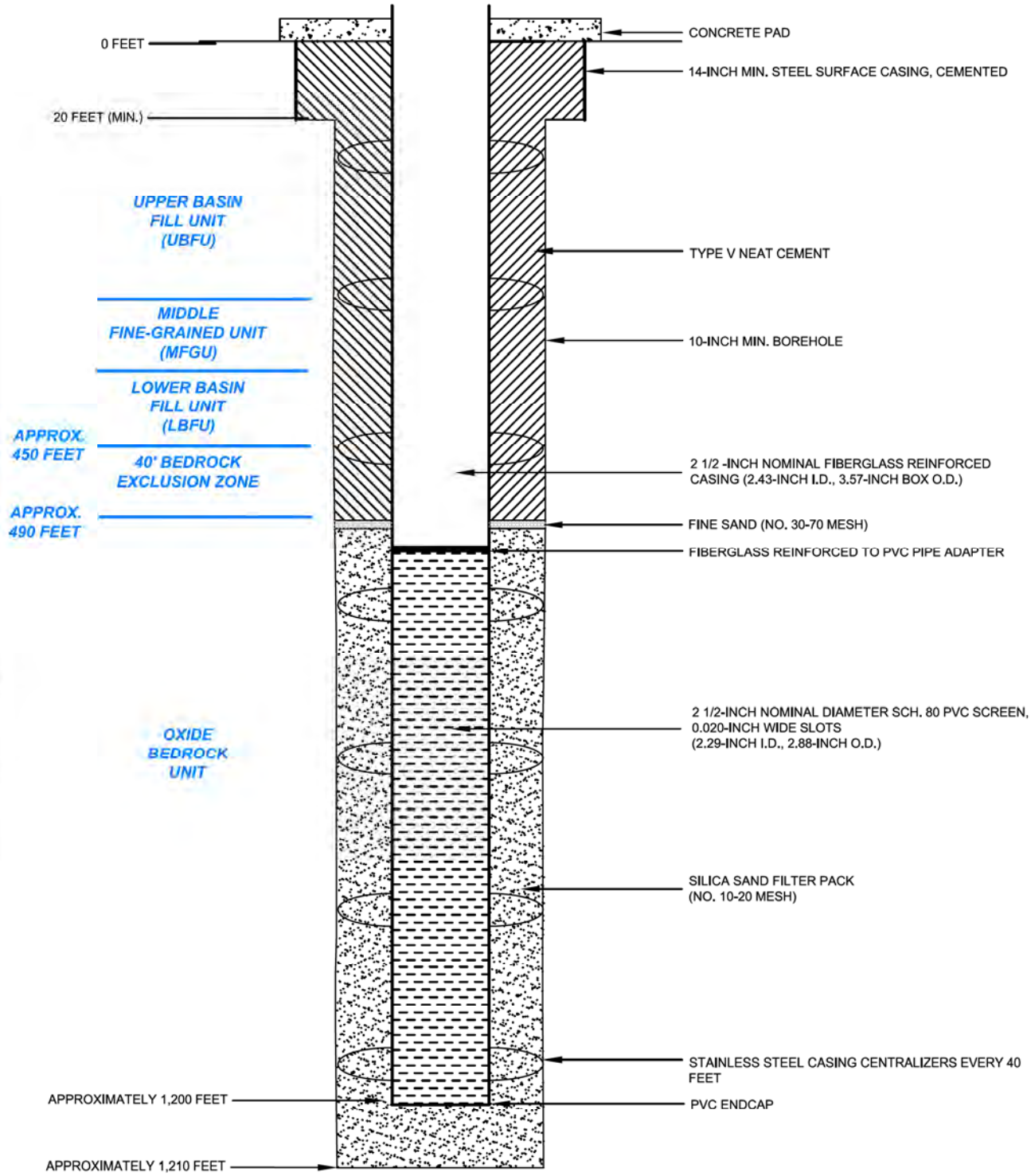


PROPOSED WELL DESIGN FOR:
O-01, O-02, O-03, O-04, O-05, O-06, O-07

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
OBSERVATION WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\OBS_WELLDIAGRAM.DWG

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

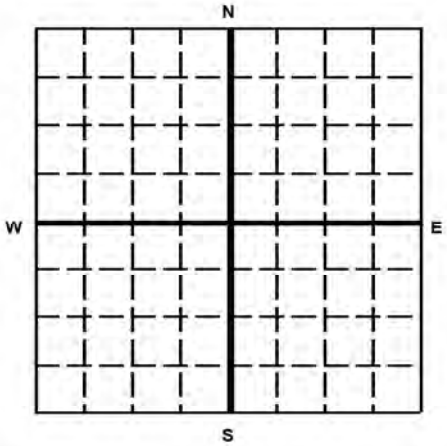
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper, Inc.
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SE 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1150 ft. frm (N/S) N Line of quarter section
and 900 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number O-03

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
14"	27.66	20	20	20"
2.5"	5.61	510	510	10"
2.5"	2	690	690	10"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	2.5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	32						
Slurry Volume To Be Pumped (cu. ft.)	41						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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Name and Official Title *(Please type or print)*	Signature	Date Signed
Dan Johnson, VP Environmental and Technical Services		

Paperwork Reduction Act Notice

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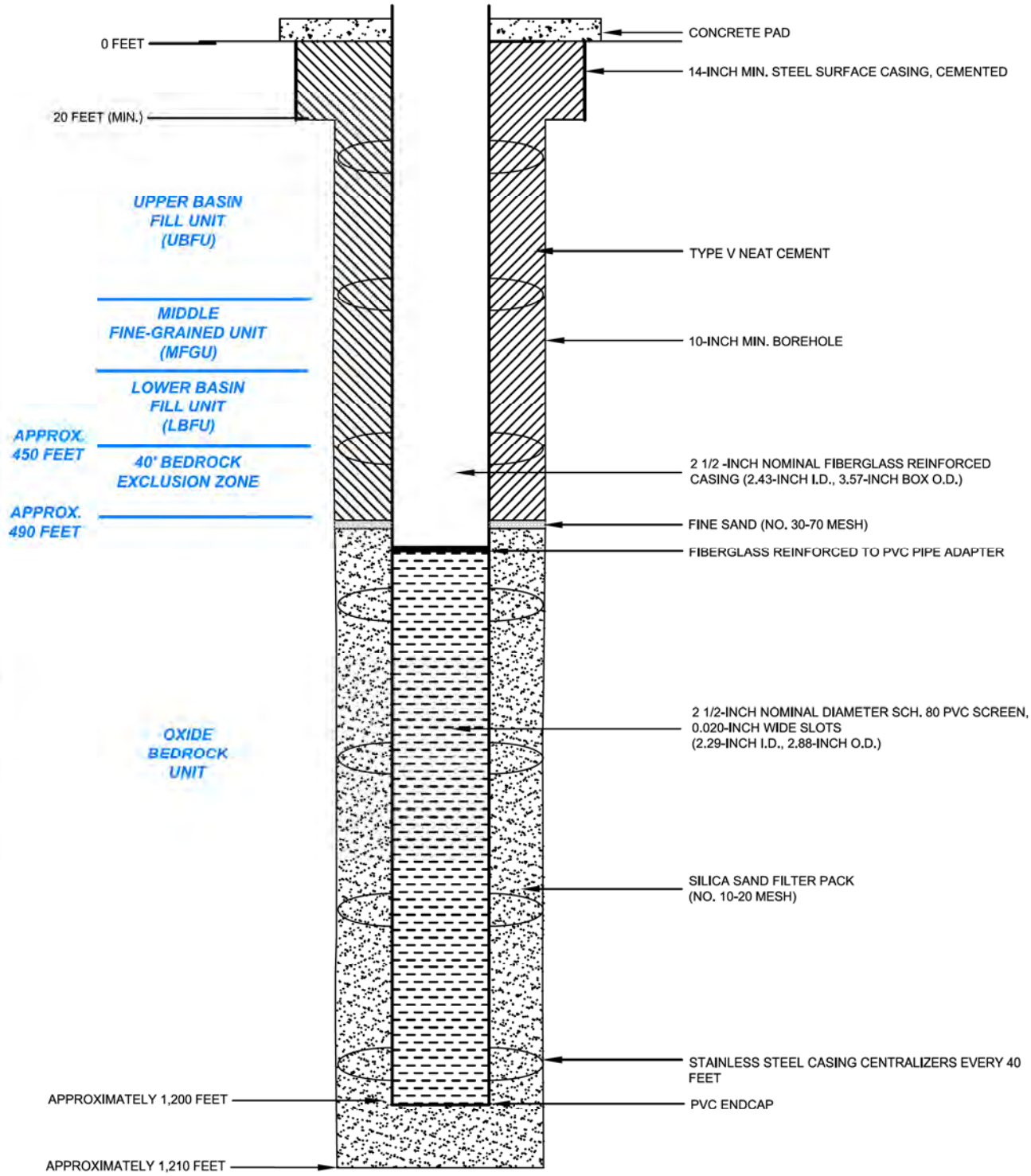


PROPOSED WELL DESIGN FOR:
O-01, O-02, O-03, O-04, O-05, O-06, O-07

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
OBSERVATION WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\OBS_WELLDIAGRAM.DWG

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

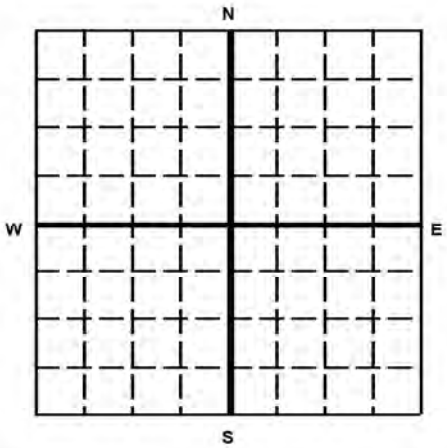
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper, Inc.
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1225 ft. frm (N/S) N Line of quarter section
and 1115 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number O-04

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
14"	27.66	20	20	20"
2.5"	5.61	510	510	10"
2.5"	2	690	690	10"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	2.5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	32						
Slurry Volume To Be Pumped (cu. ft.)	41						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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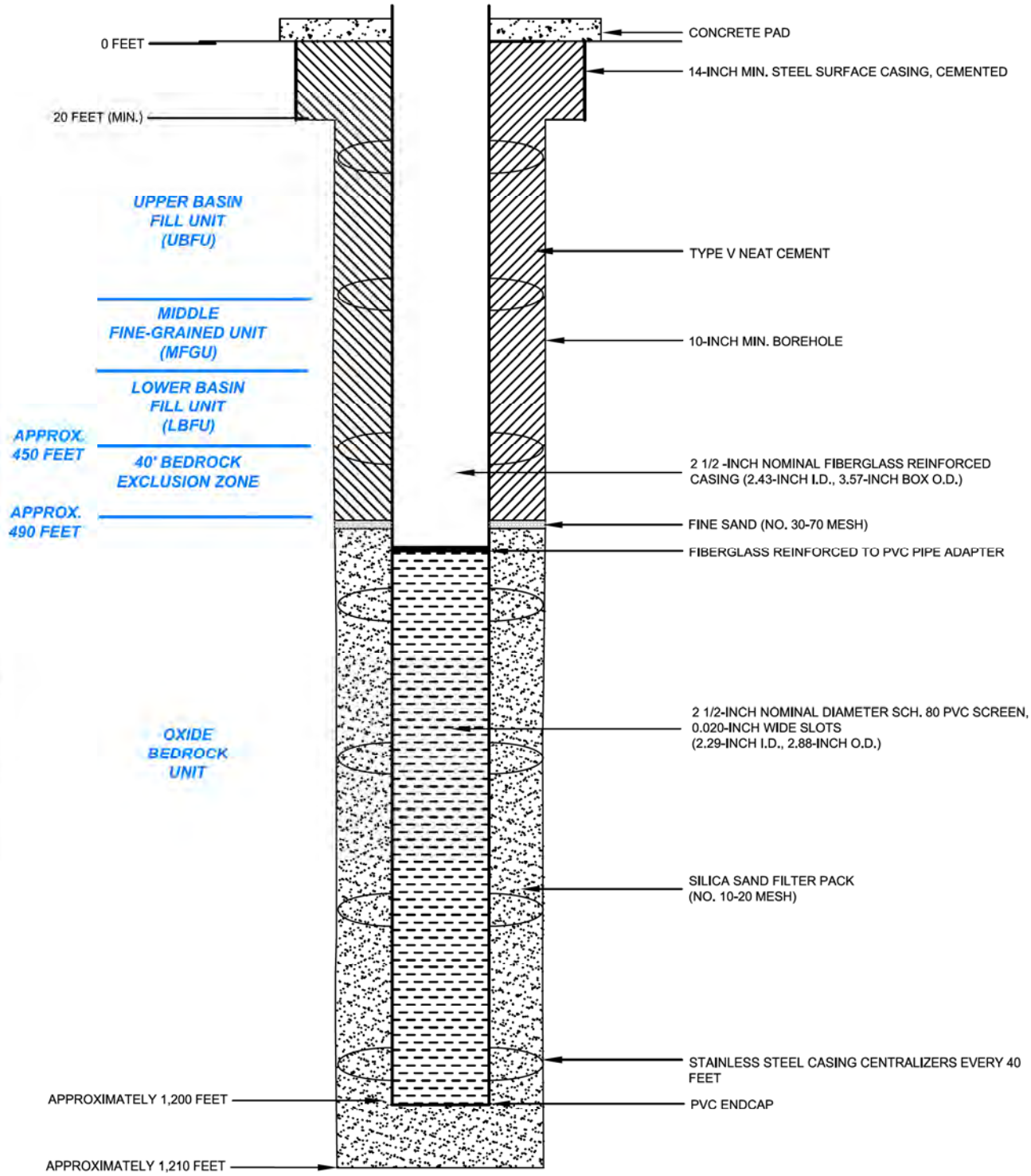

PROPOSED WELL DESIGN FOR:
O-01, O-02, O-03, O-04, O-05, O-06, O-07

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
OBSERVATION WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\OBS_WELLDIAGRAM.DWG

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

United States Environmental Protection Agency
Washington, DC 20460

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Name and Address of Facility
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1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
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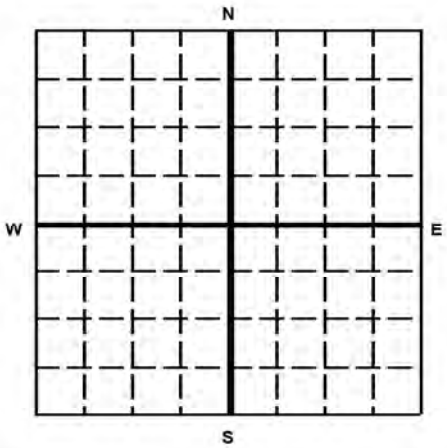
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1155 ft. frm (N/S) N Line of quarter section
and 1180 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number O-05

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
14"	27.66	20	20	20"
2.5"	5.61	510	510	10"
2.5"	2	690	690	10"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	2.5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	32						
Slurry Volume To Be Pumped (cu. ft.)	41						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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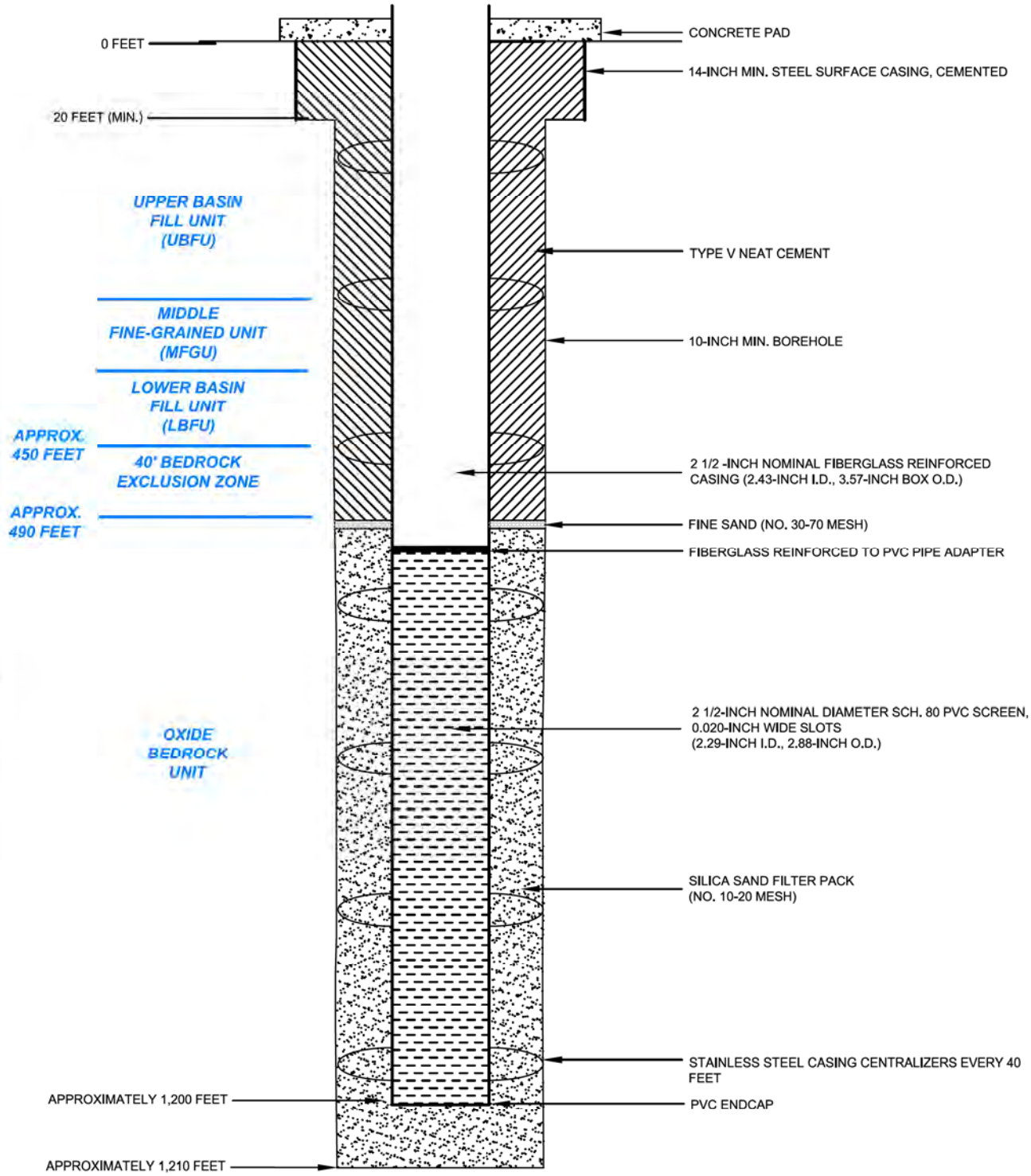

PROPOSED WELL DESIGN FOR:
O-01, O-02, O-03, O-04, O-05, O-06, O-07

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
OBSERVATION WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\OBS_WELLDIAGRAM.DWG

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

United States Environmental Protection Agency
Washington, DC 20460

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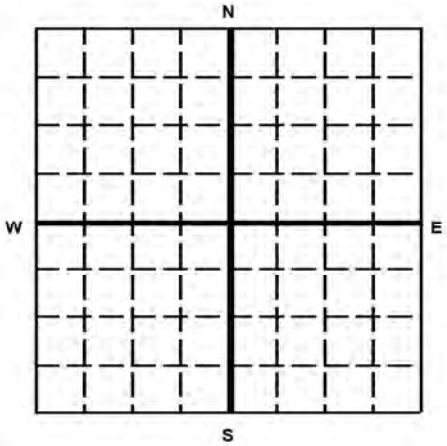
Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1010 ft. frm (N/S) N Line of quarter section
and 1180 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number O-06

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
14"	27.66	20	20	20"
2.5"	5.61	510	510	10"
2.5"	3	690	690	10"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	2.5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	32						
Slurry Volume To Be Pumped (cu. ft.)	41						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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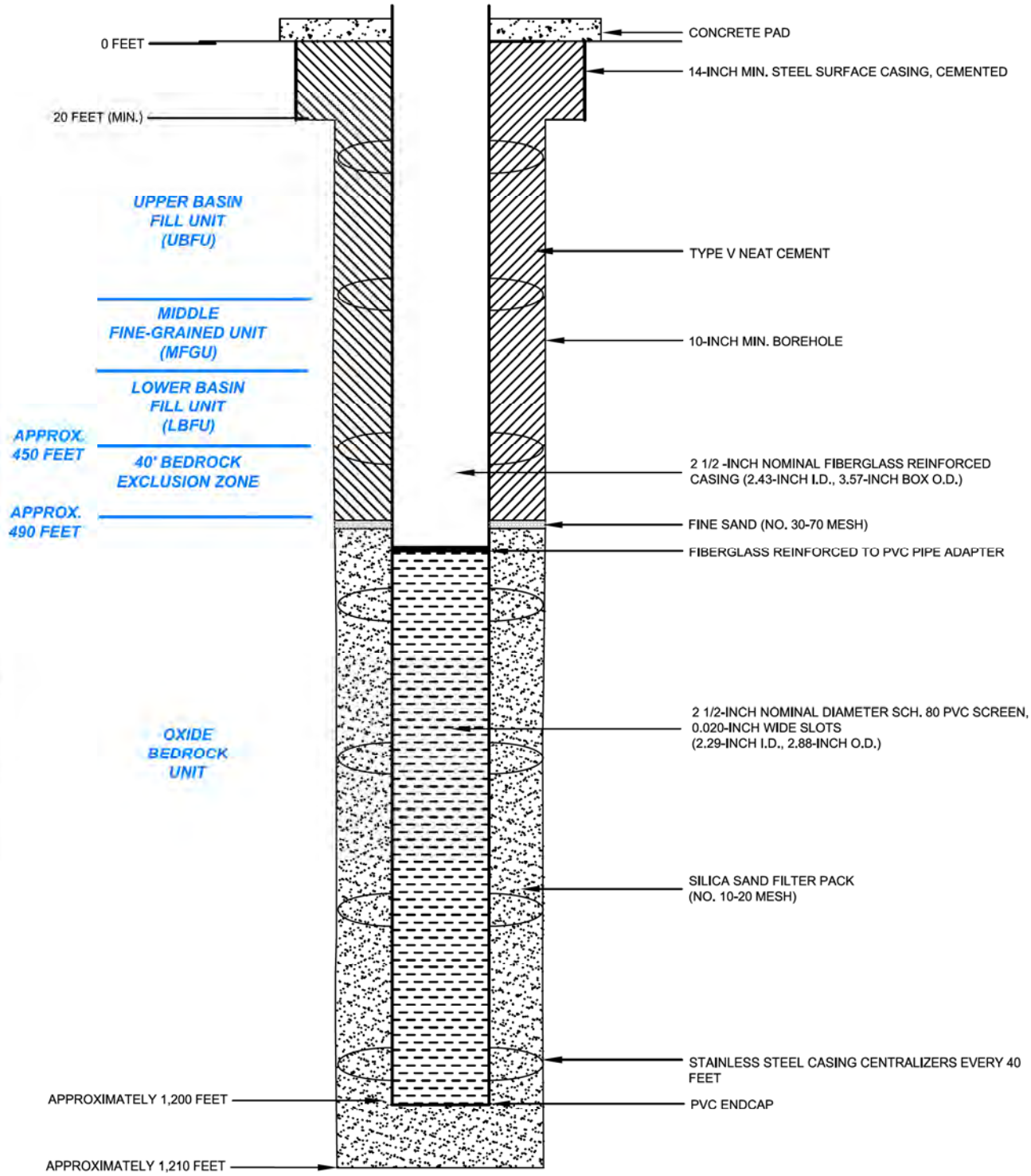

PROPOSED WELL DESIGN FOR:
O-01, O-02, O-03, O-04, O-05, O-06, O-07

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
OBSERVATION WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\OBS_WELLDIAGRAM.DWG

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Washington, DC 20460

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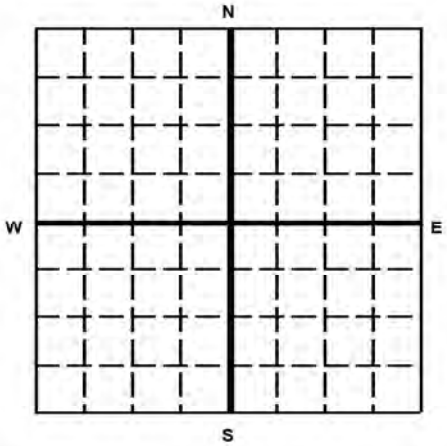

State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
NW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 940 ft. frm (N/S) N Line of quarter section
and 1120 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number O-07

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
14"	27.66	20	20	20"
2.5"	5.61	510	510	10"
2.5"	2	690	690	10"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	2.5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	32						
Slurry Volume To Be Pumped (cu. ft.)	41						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

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From	To	From	To
520	1200		

Estimated Cost to Plug Wells
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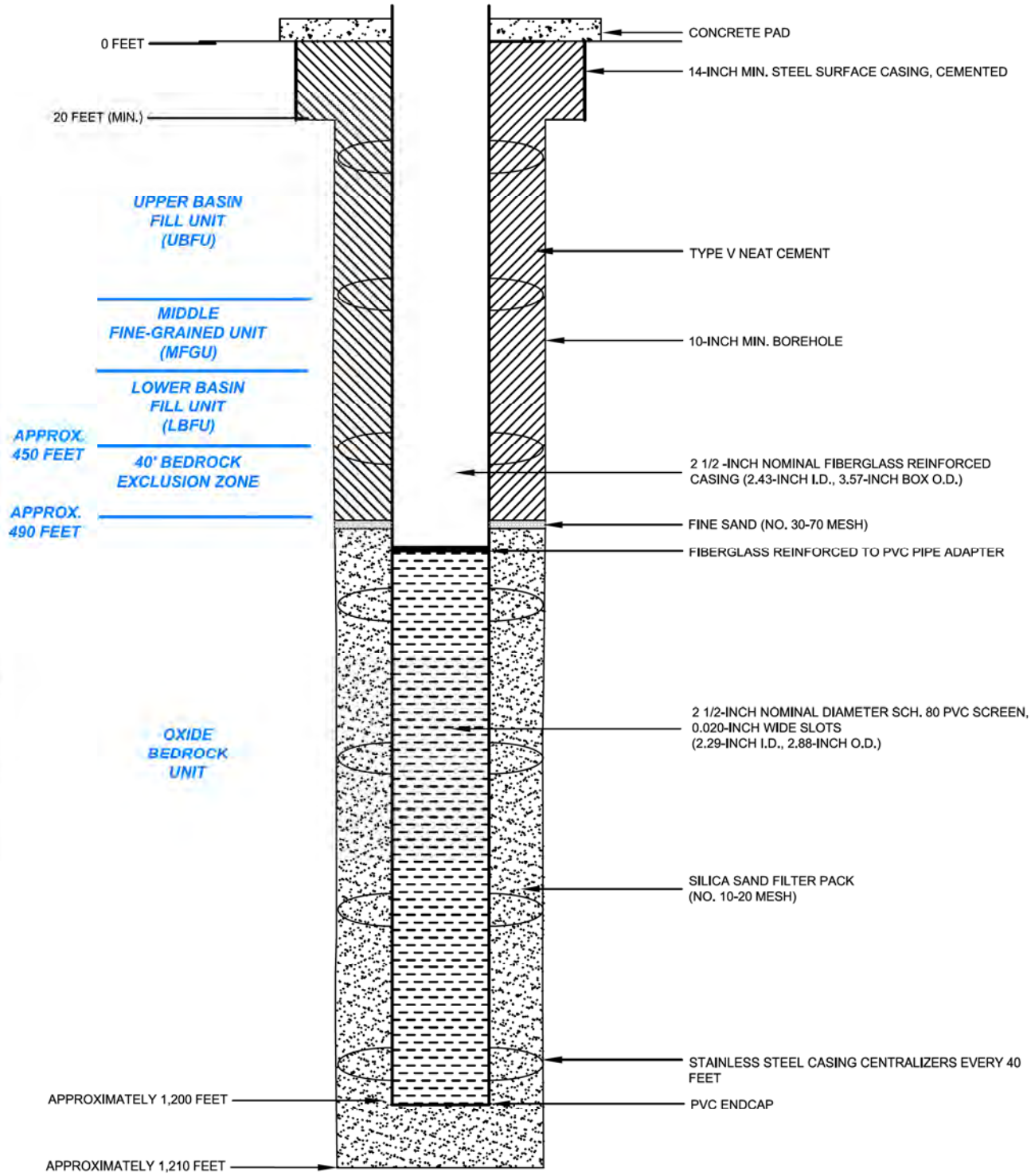

PROPOSED WELL DESIGN FOR:
O-01, O-02, O-03, O-04, O-05, O-06, O-07

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
OBSERVATION WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

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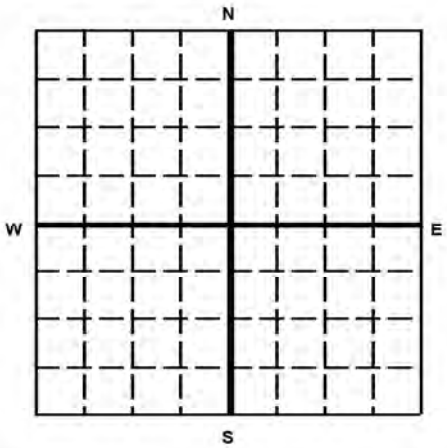

State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
NW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 940 ft. frm (N/S) N Line of quarter section
and 1050 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number R-01

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
24"	94.62	20	20	28"
14"	45.68	490	490	20"
5"	5.61	510	510	14"
5"	3	690	690	12.25"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [x] Other- 20" bore hole will be grouted using the plug displacement method

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4 [1]	PLUG #5 [1]	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	128						
Slurry Volume To Be Pumped (cu. ft.)	163						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	720		
760	960		
1000	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

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)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Dan Johnson, VP Environmental and Technical Services		

[1] Intermediate plugs between screened intervals

Paperwork Reduction Act Notice

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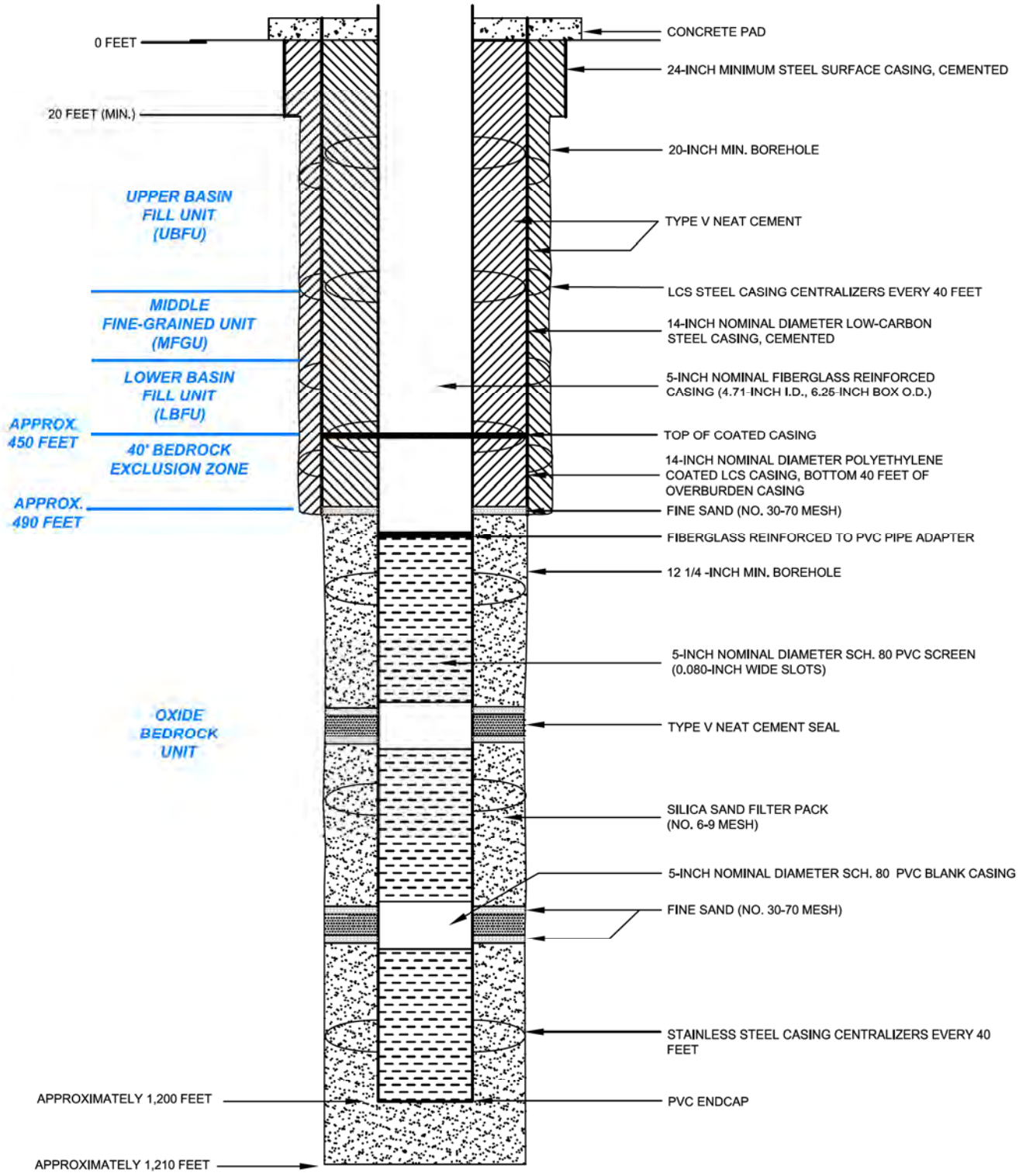


PROPOSED DESIGN FOR WELLS:
I-01, I-02, I-03, I-04, R-01, R-02,
R-03, R-04, R-05, R-06, R-07, R-08

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
INJECTION AND RECOVERY
WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\I-R_WELLDIAGRAM.DWG

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

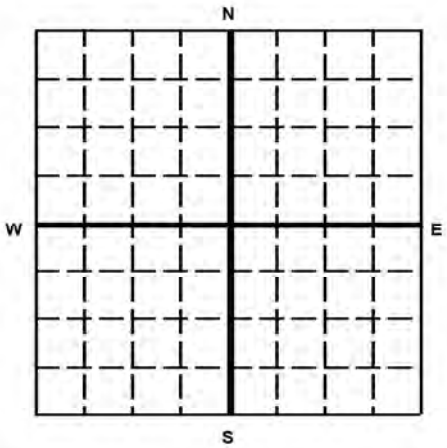
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper, Inc.
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SE 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1015 ft. frm (N/S) N Line of quarter section
and 980 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number R-02

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
28"	94.62	20	20	28"
14"	45.68	490	490	20"
5"	5.61	510	510	14"
5"	3	690	690	12.25"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [x] Other -20" bore hole will be grouted using the plug displacement method

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	128						
Slurry Volume To Be Pumped (cu. ft.)	163						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	720		
760	960		
1000	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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Name and Official Title *(Please type or print)*	Signature	Date Signed
Dan Johnson, VP Environmental and Technical Services		

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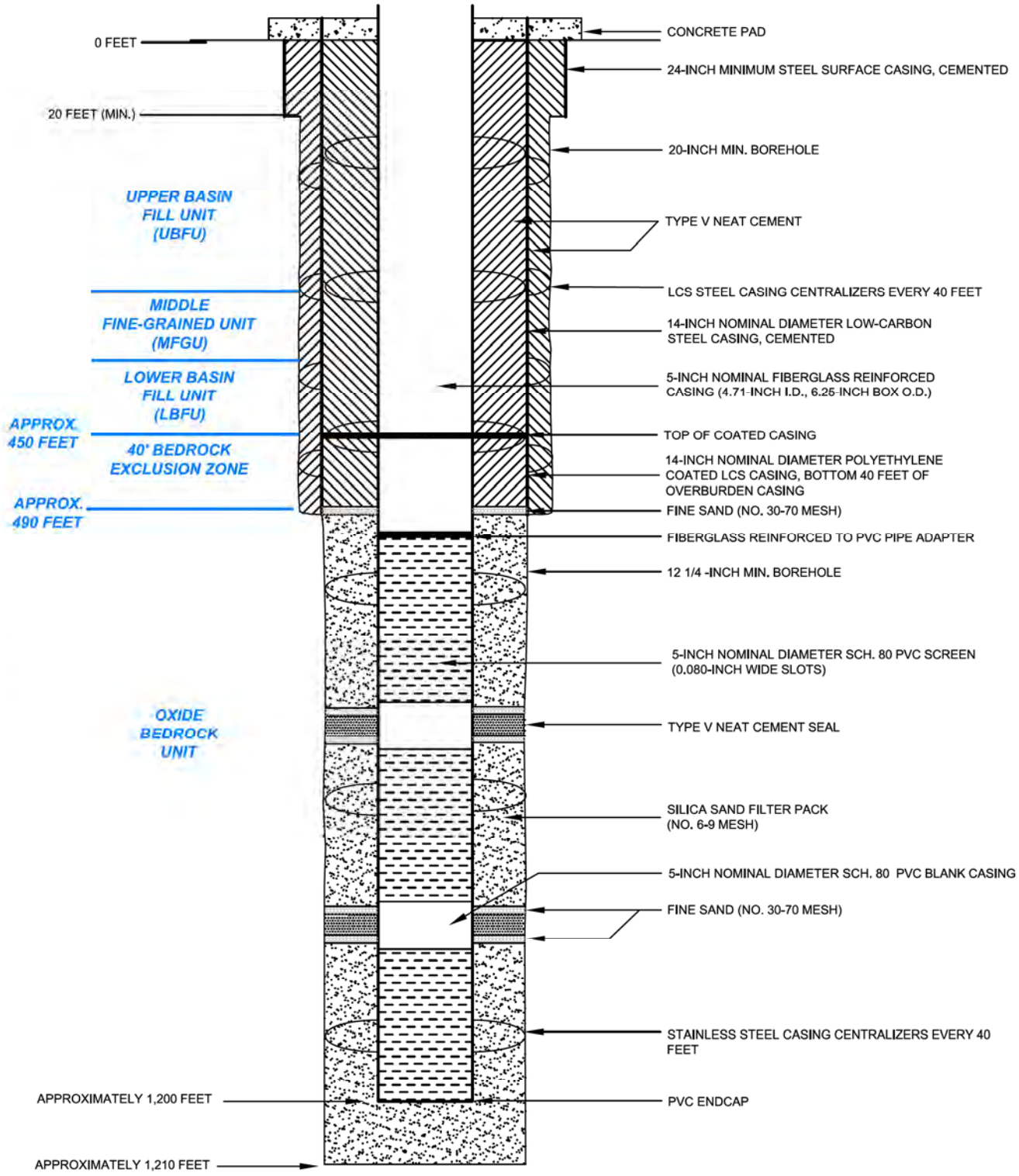


PROPOSED DESIGN FOR WELLS:
I-01, I-02, I-03, I-04, R-01, R-02,
R-03, R-04, R-05, R-06, R-07, R-08

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
INJECTION AND RECOVERY
WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\I-R_WELLDIAGRAM.DWG

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

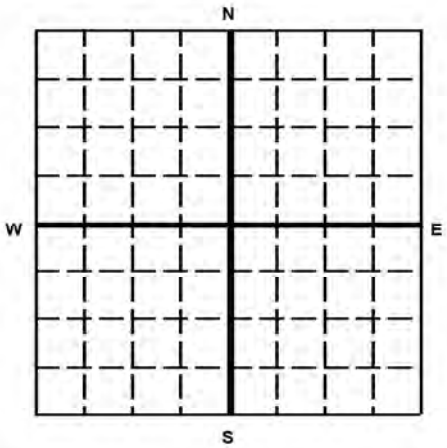
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SE 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1080 ft. frm (N/S) N Line of quarter section
and 900 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number R-03

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
24"	94.62	20	20	28"
14"	45.68	490	490	20"
5"	5.61	510	510	14"
5"	3	690	690	12.25"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4 [1]	PLUG #5 [1]	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	128						
Slurry Volume To Be Pumped (cu. ft.)	163						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	720		
760	960		
1000	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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Dan Johnson, VP Environmental and Technical Services		

[1] Intermediate plugs between screened intervals

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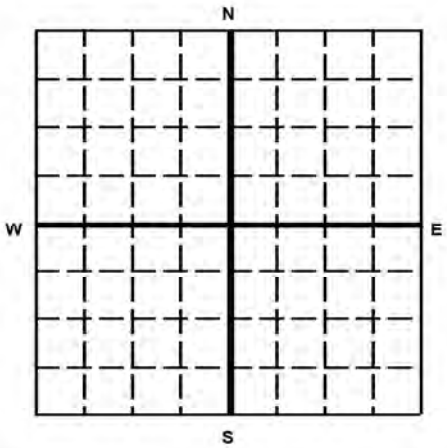
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper, Inc.
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SE 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1160 ft. frm (N/S) N Line of quarter section
and 975 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number R-04

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
24"	94.62	20	20	28"
14"	45.68	490	490	20"
5"	5.61	510	510	14"
5"	3	690	690	12.25"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [x] Other- 20" bore hole will be grouted using the plug displacement method

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	128						
Slurry Volume To Be Pumped (cu. ft.)	163						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	720		
760	960		
1000	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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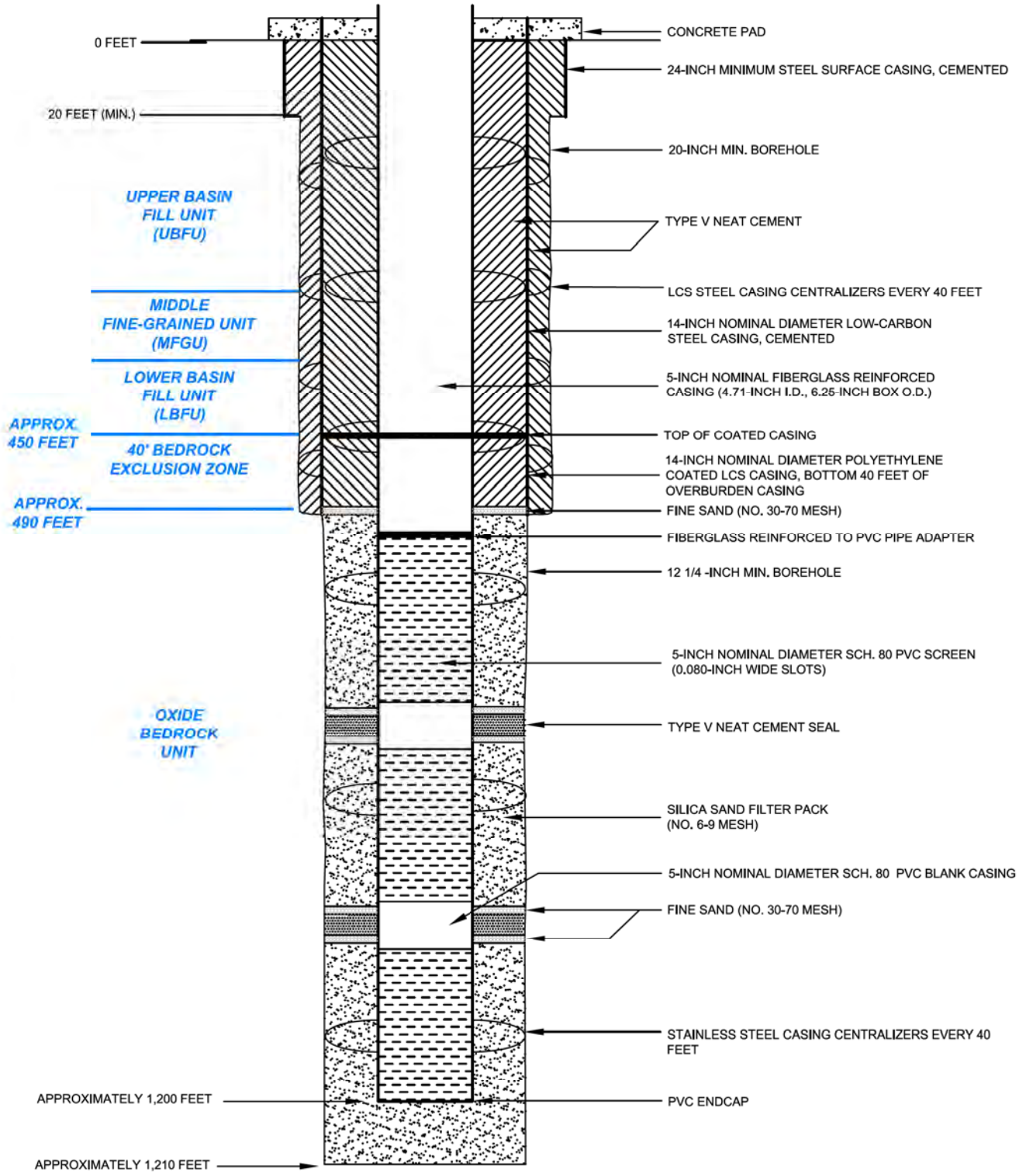

PROPOSED DESIGN FOR WELLS:
I-01, I-02, I-03, I-04, R-01, R-02,
R-03, R-04, R-05, R-06, R-07, R-08

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
INJECTION AND RECOVERY
WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\I-R_WELLDIAGRAM.DWG

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

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
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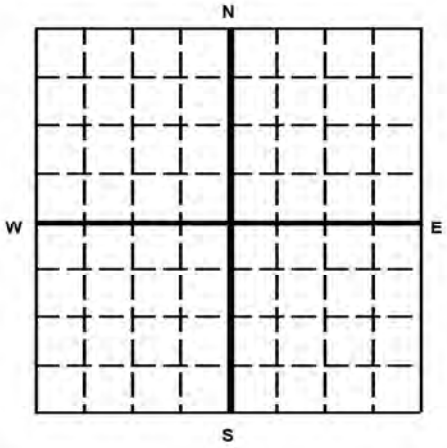
Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1020 ft. frm (N/S) N Line of quarter section
and 1040 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number R-05

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
24"	94.62	20	20	28"
14"	45.68	490	490	20"
5"	5.61	510	510	14"
5"	3	690	690	12.25"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [x] Other -20" bore hole will be grouted using the plug displacement method

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	128						
Slurry Volume To Be Pumped (cu. ft.)	163						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	720		
760	960		
1000	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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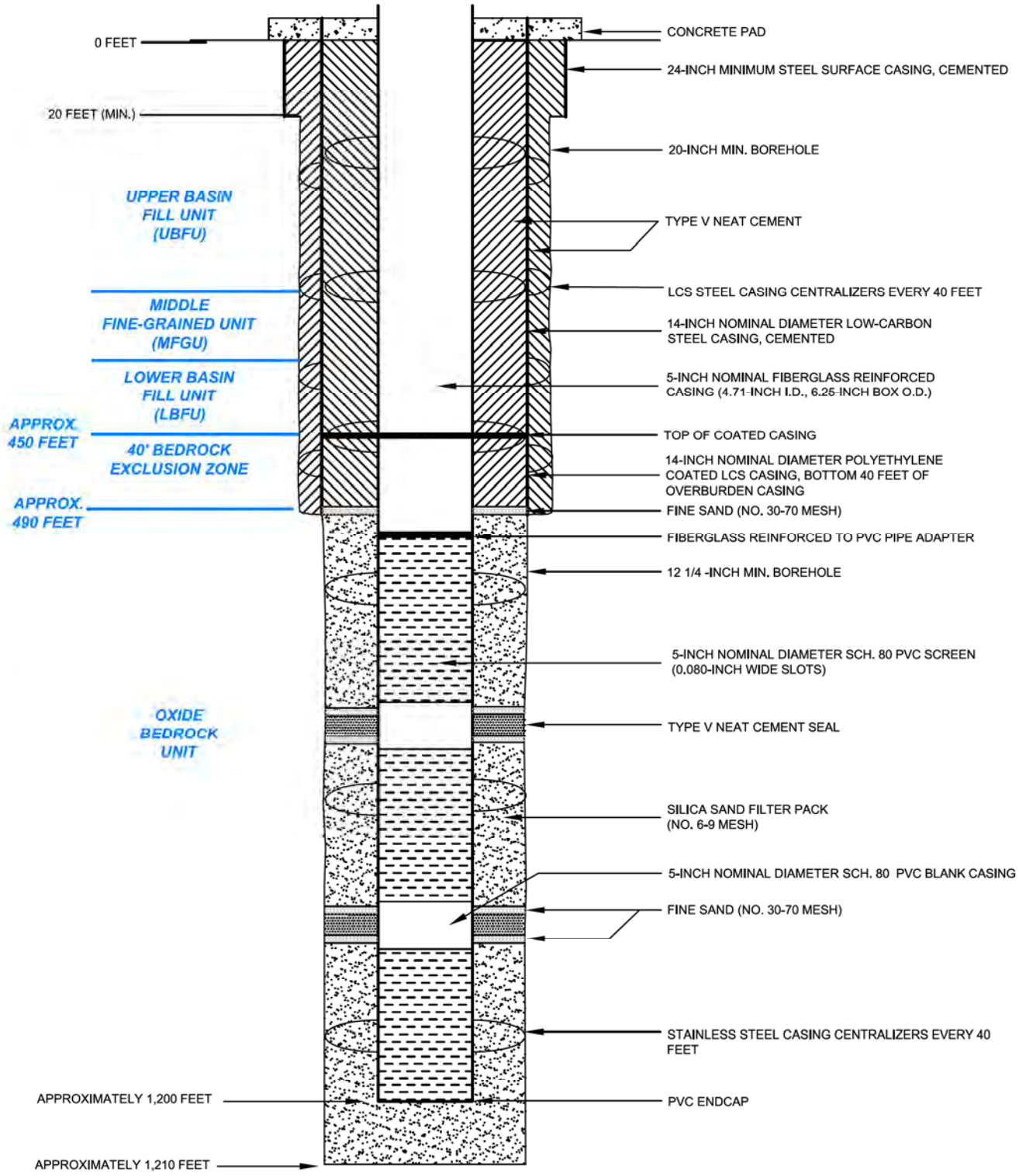

PROPOSED DESIGN FOR WELLS:
I-01, I-02, I-03, I-04, R-01, R-02,
R-03, R-04, R-05, R-06, R-07, R-08

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
INJECTION AND RECOVERY
WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\I-R_WELLDIAGRAM.DWG

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

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

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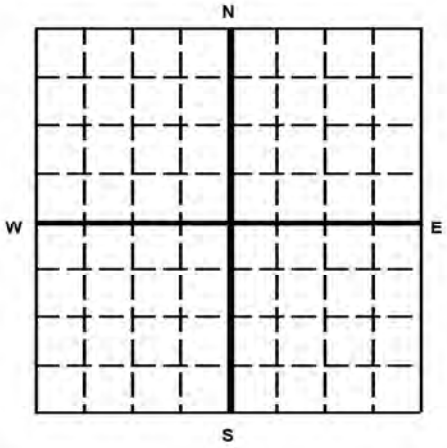
Name and Address of Owner/Operator
Florence Copper
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1150 ft. frm (N/S) N Line of quarter section
and 1120 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number R-06

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
24"	94.62	20	20	28"
14"	45.68	490	490	20"
5"	5.61	510	510	14"
5"	3	690	690	12.25"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [x] Other 20" bore hole will be grouted using the plug displacement method

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	128						
Slurry Volume To Be Pumped (cu. ft.)	163						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	750		
760	960		
1000	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

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)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Dan Johnson, VP Environmental and Technical Services		

Paperwork Reduction Act Notice

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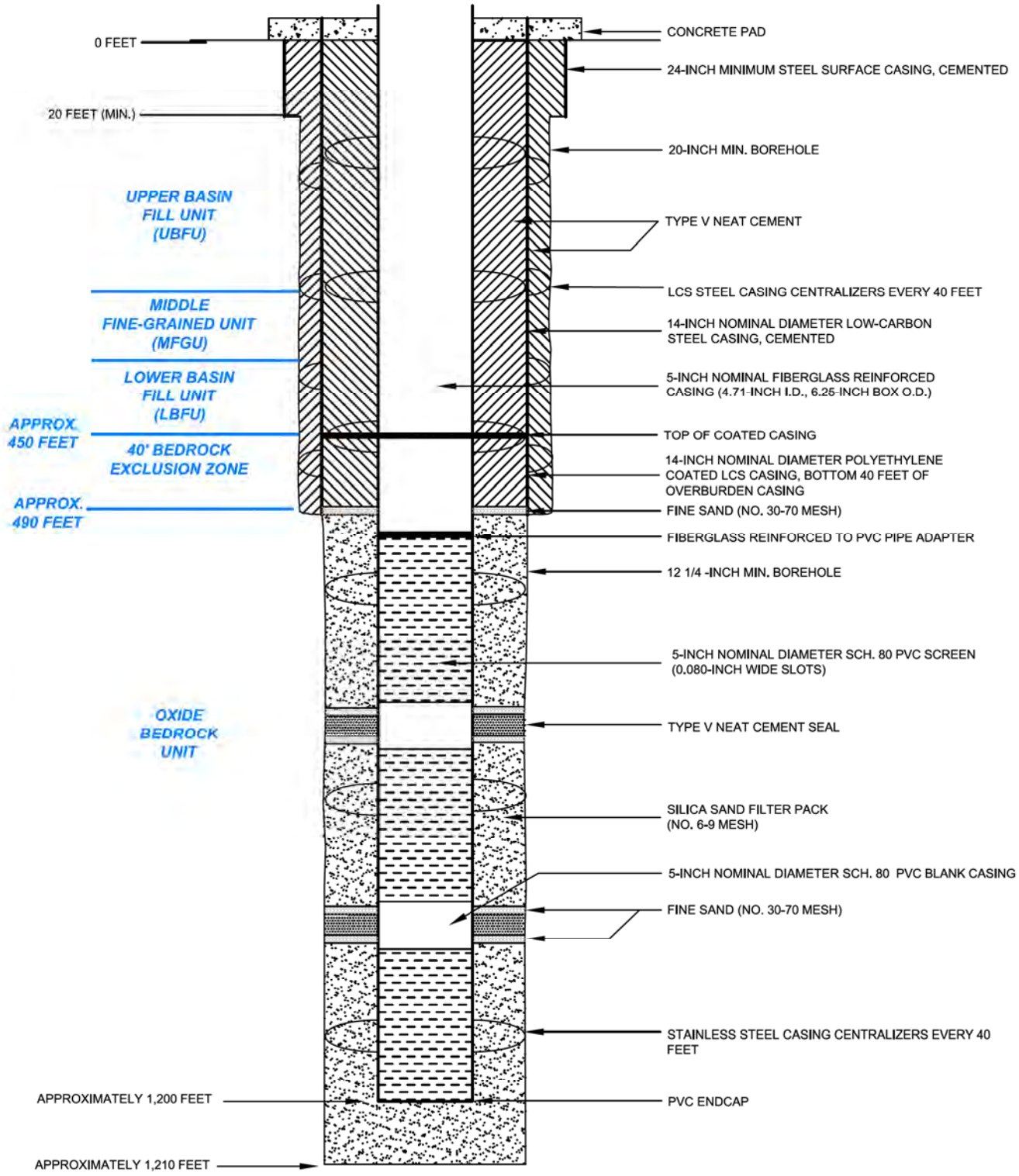


PROPOSED DESIGN FOR WELLS:
I-01, I-02, I-03, I-04, R-01, R-02,
R-03, R-04, R-05, R-06, R-07, R-08

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
INJECTION AND RECOVERY
WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\I-R_WELLDIAGRAM.DWG

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

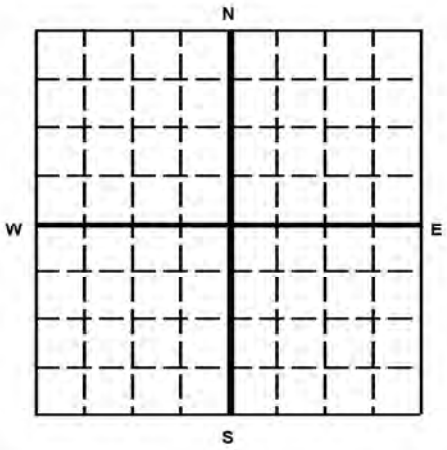
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1080 ft. frm (N/S) N Line of quarter section
and 1190 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number R-07

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
24"	94.62	20	20	28"
14"	45.68	490	490	20"
5"	5.61	510	510	14"
5"	3	690	690	12.25"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [x] Other-20" bore hole will be grouted using the plug displacement method

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	128						
Slurry Volume To Be Pumped (cu. ft.)	163						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	720		
760	960		
1000	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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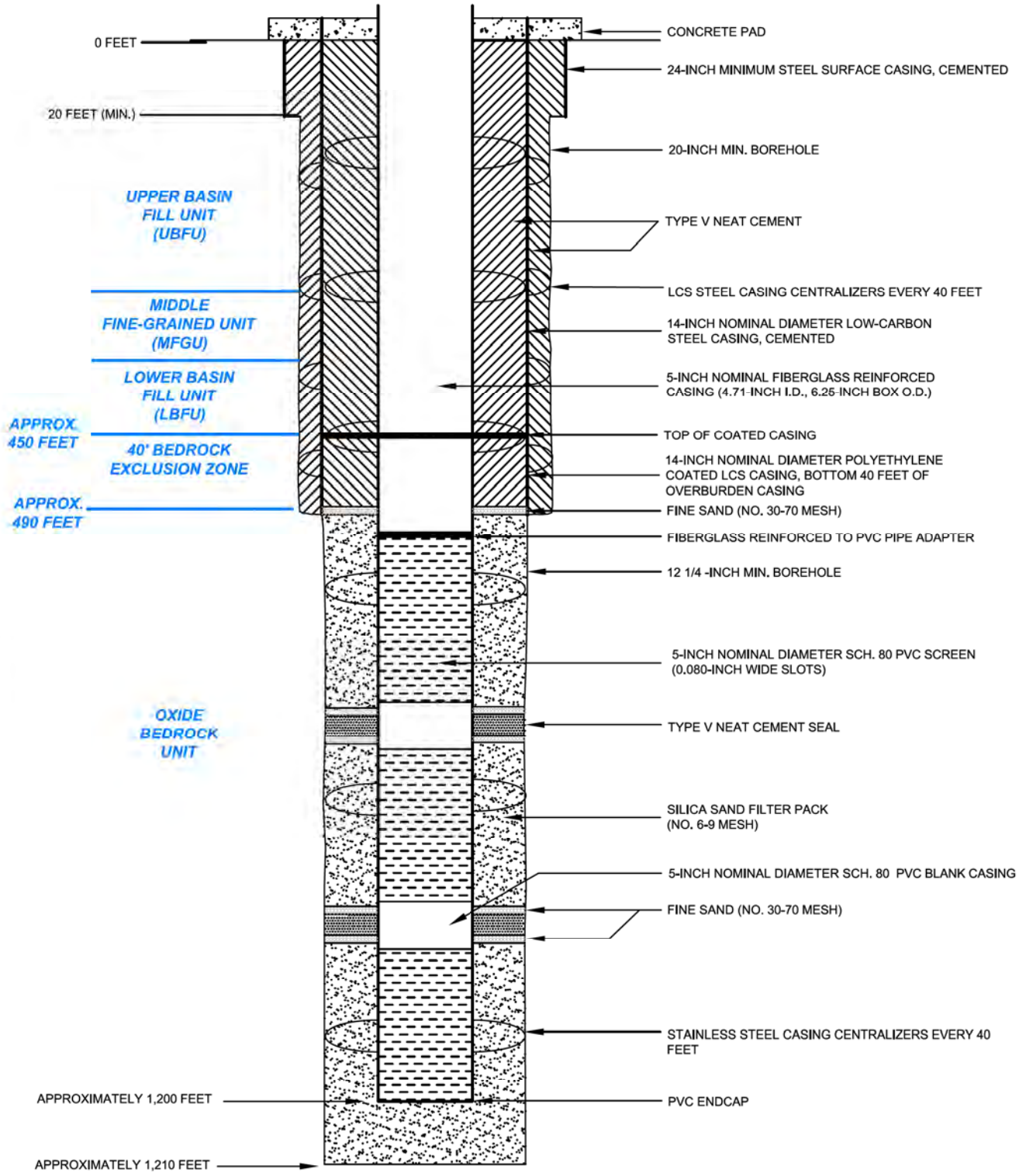


PROPOSED DESIGN FOR WELLS:
I-01, I-02, I-03, I-04, R-01, R-02,
R-03, R-04, R-05, R-06, R-07, R-08

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
INJECTION AND RECOVERY
WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\I-R_WELLDIAGRAM.DWG

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

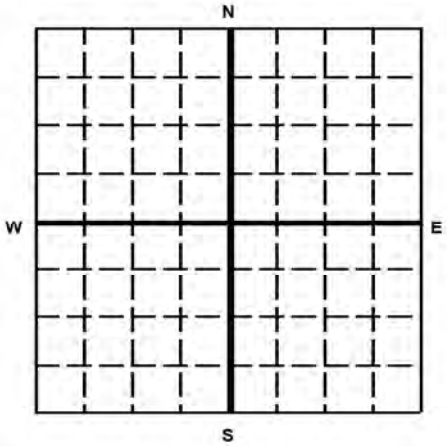
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper, Inc.
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1010 ft. frm (N/S) N Line of quarter section
and 1120 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number R-08

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
24"	94.62	20	20	28"
14"	45.68	490	490	20"
5"	5.61	510	510	14"
5"	3	690	690	12.25"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [x] Other -20" bore hole will be grouted using the plug displacement method

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	5						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	128						
Slurry Volume To Be Pumped (cu. ft.)	163						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	720		
760	960		
1000	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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Dan Johnson, VP Environmental and Technical Services		

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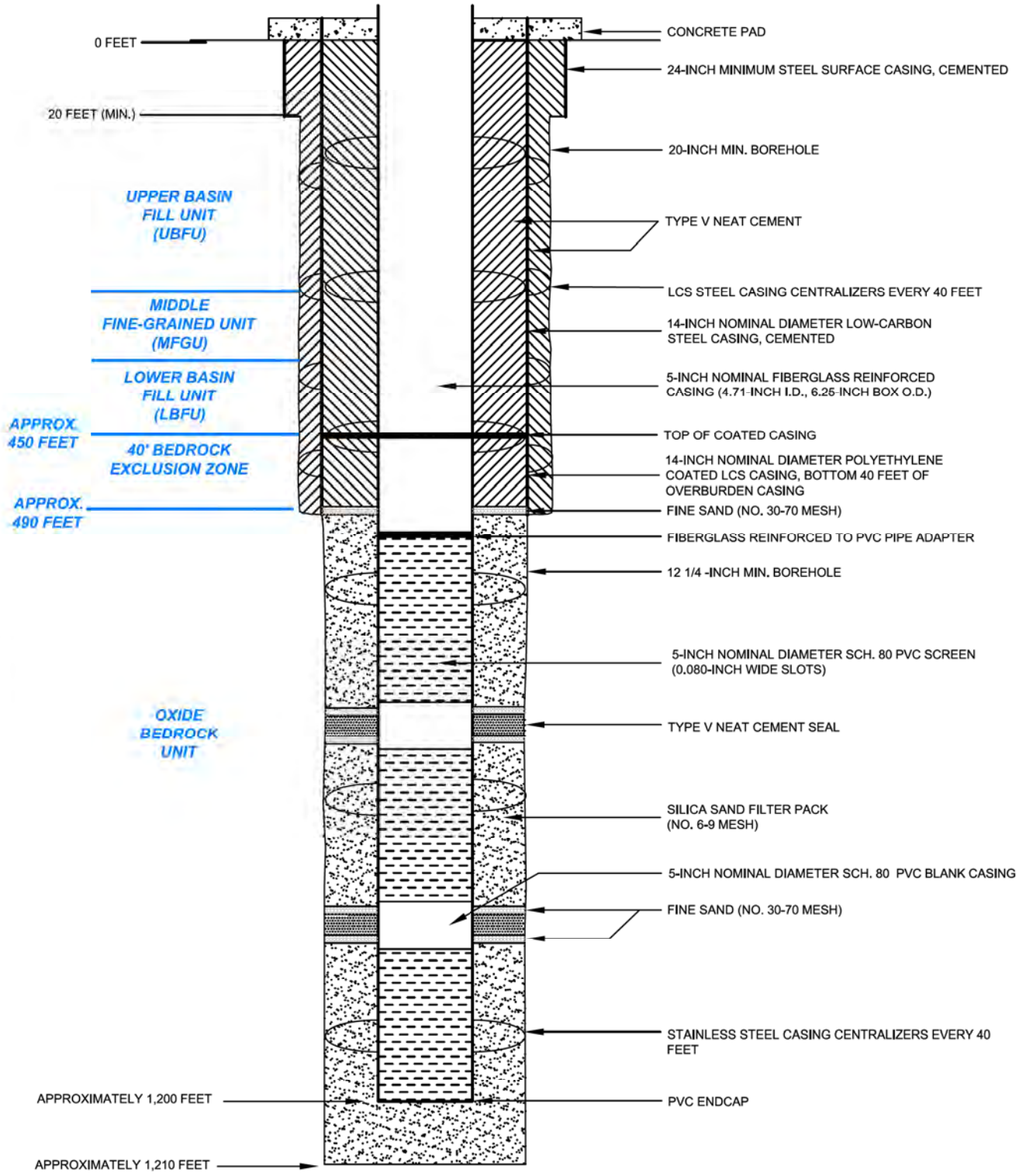


PROPOSED DESIGN FOR WELLS:
I-01, I-02, I-03, I-04, R-01, R-02,
R-03, R-04, R-05, R-06, R-07, R-08

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FACILITY
INJECTION AND RECOVERY
WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\I-R_WELLDIAGRAM.DWG

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

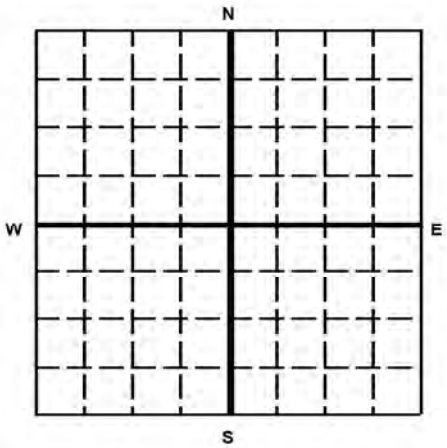
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper, Inc.
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1080 ft. frm (N/S) N Line of quarter section
and 1135 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number R-09

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
26"	102.6	20	20	28"
16"	52.6	490	490	20"
8"	8.2	510	510	14"
8"	8	690	690	12.25"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	8						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	329						
Slurry Volume To Be Pumped (cu. ft.)	419						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
520	720		
760	960		
1000	1200		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

Certification

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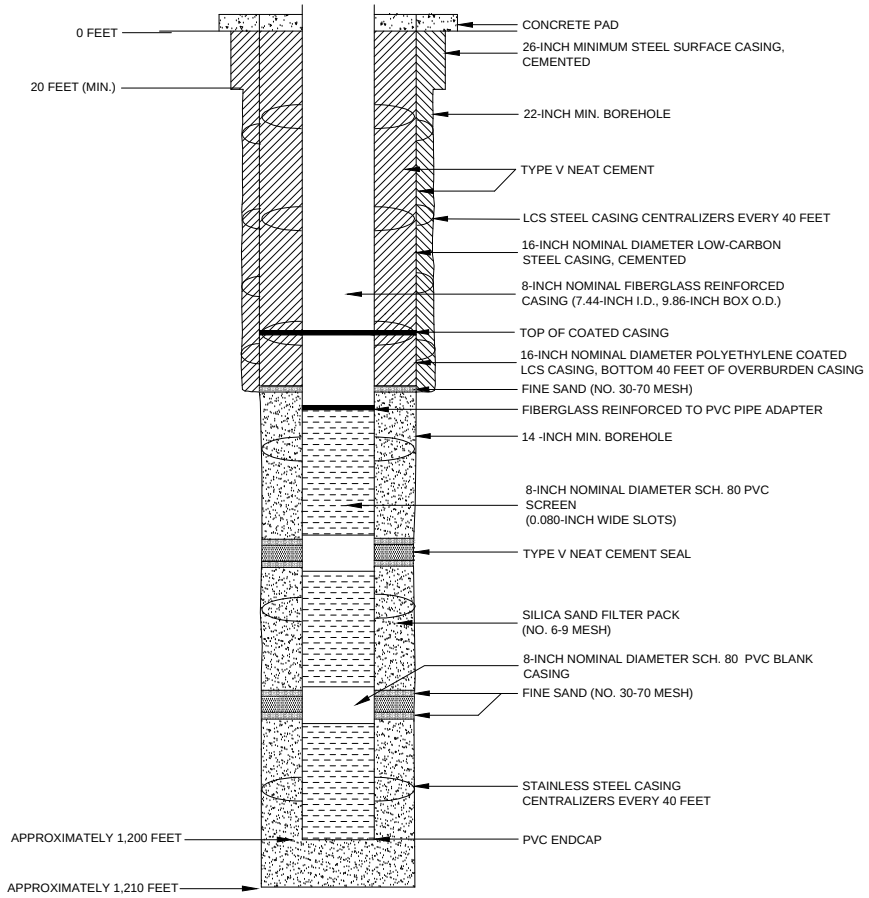
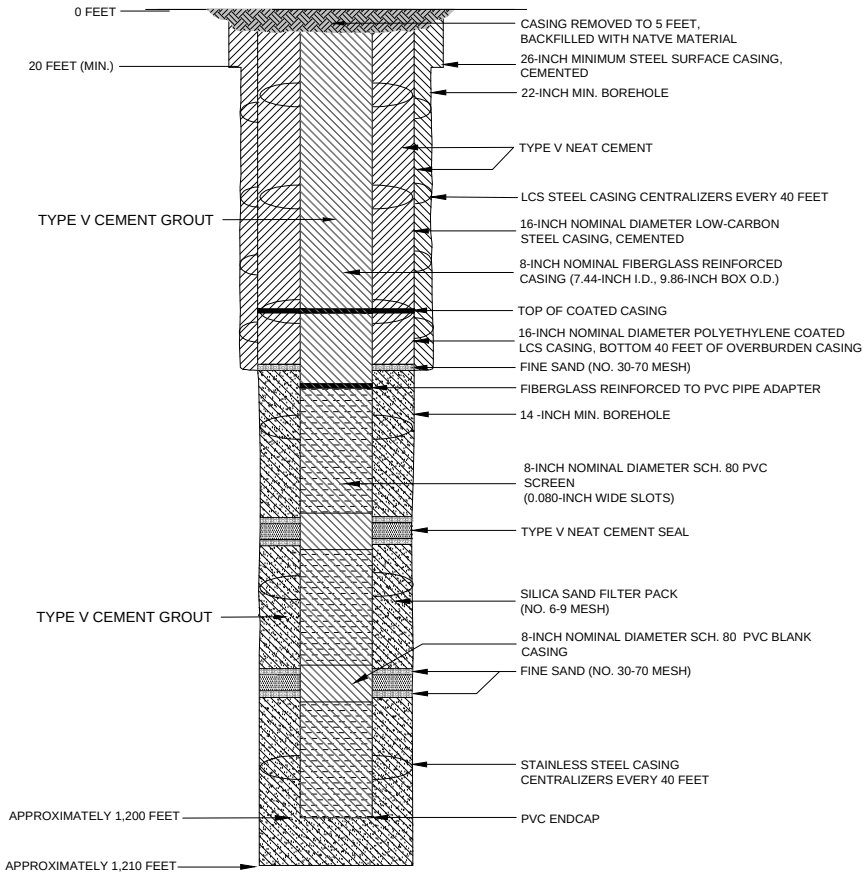
Drawing Name: G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\JULY 2014 UIC APP\PTF PLUGGING\38706-300-000-CENTER-RECOVERY WELL_3SCREENS.DWG
Operator Name: CANDREVA, LAUREN Plot Date: August 6, 2014 Drawing Layout: OPTION A-1

PROPOSED WELL DESIGN
R-09 CENTRAL RECOVERY WELL



PROPOSED PLUGGING AND
ABANDONMENT
R-09 CENTRAL RECOVERY WELL



NOTES

1. WELL DESIGN DETAILS ARE BASED ON BHP RECORDS.

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

R-09 CENTRAL RECOVERY
PROPOSED WELL
ABANDONMENT SCHEMATIC

SCALE: NOT TO SCALE
AUGUST 2014

FIGURE 1

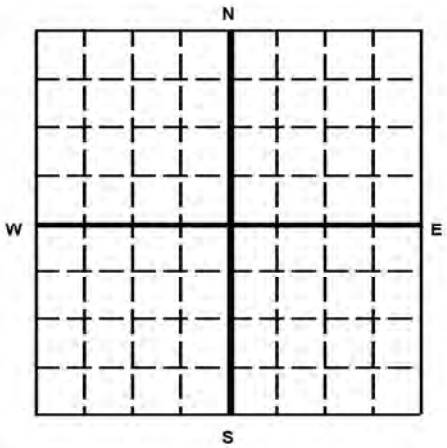
OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
Florence Copper Project 1575 W Hunt Hwy, Florence, AZ 85132	Florence Copper, Inc. 1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description

SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1045 ft. frm (N/S) N Line of quarter section and 1045 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION

- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY

- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number WB-01

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
16"	31.66	20	20	20"
4"	5.61	510	510	10"
4"	2	690	690	10"

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	82						
Slurry Volume To Be Pumped (cu. ft.)	105						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
525	600	1125	1200
675	750		
825	900		
975	1050		

Estimated Cost to Plug Wells

$12,500 - abandonment costs

Certification

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Dan Johnson, VP Environmental and Technical Services		

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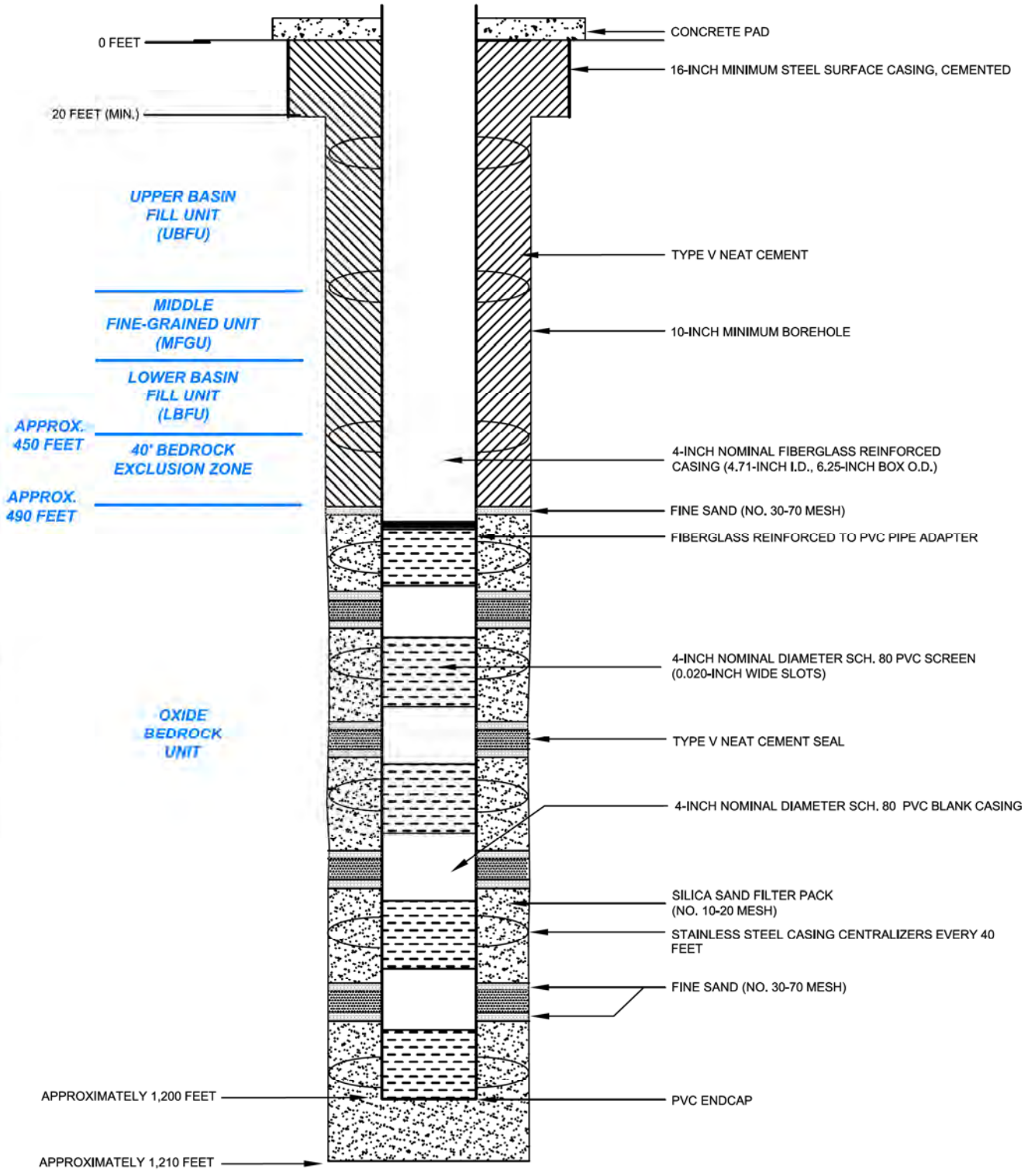


PROPOSED DESIGN FOR WELLS:
WB-01, WB-02, WB03, WB-04

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FIELD
WESTBAY WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\WORKING\EPA FORMS - AOR WELL INSTALLS\PTF AOR WELLS\WBY_WELLDIAGRAM.DWG

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

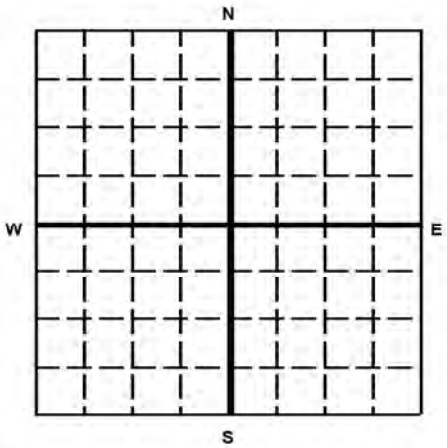
United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Florence Copper Project
1575 W Hunt Hwy, Florence, AZ 85132

Name and Address of Owner/Operator
Florence Copper, Inc.
1575 W Hunt Hwy, Florence, AZ 85132

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1080 ft. frm (N/S) N Line of quarter section
and 1000 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number WB-02

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
16"	31.66	20	20	20"
4"	5.61	510	510	10"
4"	2	690	690	10"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4						
Depth to Bottom of Tubing or Drill Pipe (ft	1200						
Sacks of Cement To Be Used (each plug)	82						
Slurry Volume To Be Pumped (cu. ft.)	105						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
525	600	1125	1200
675	750		
825	900		
975	1050		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

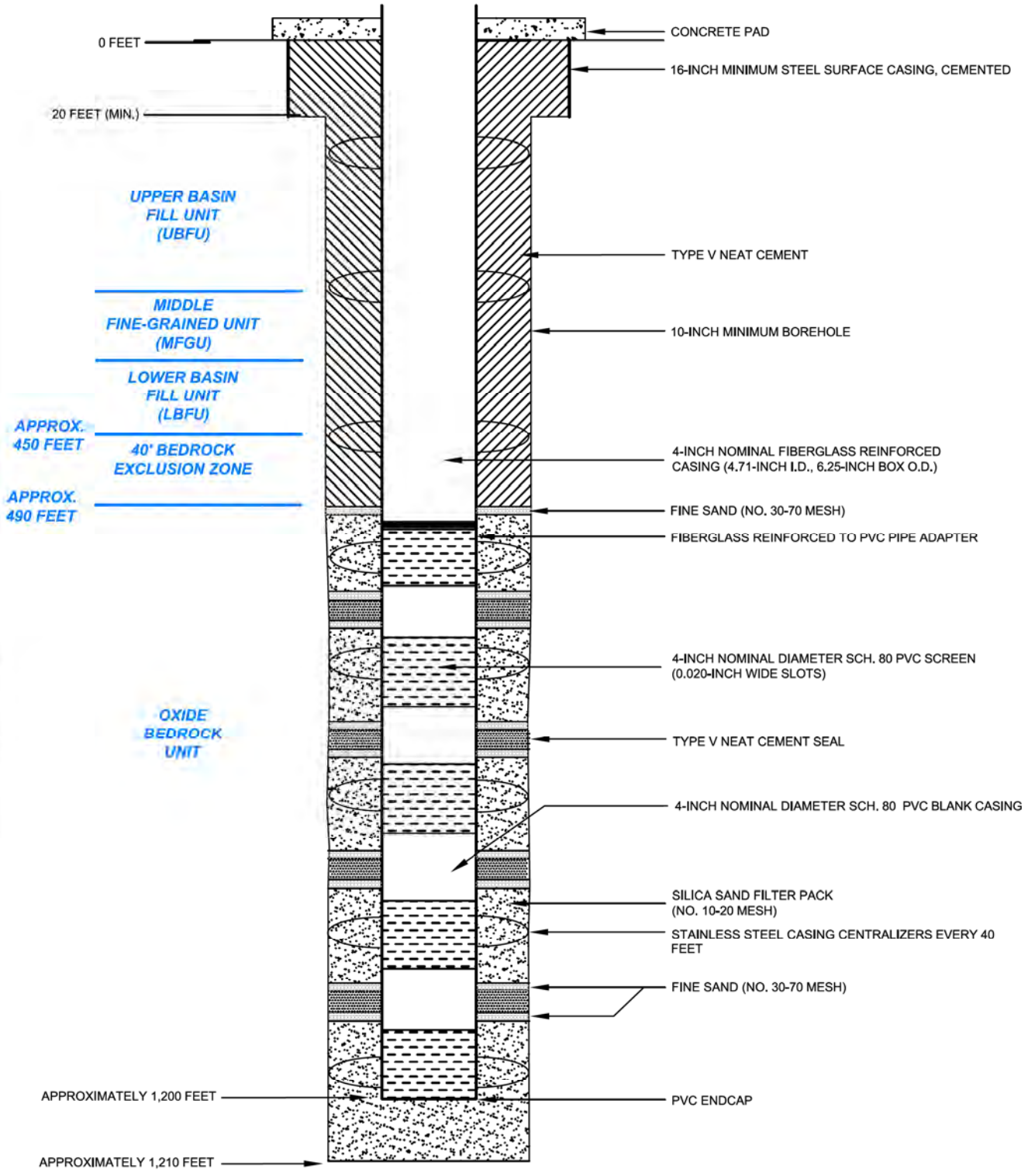
Certification

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)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Dan Johnson, VP Environmental and Technical Services		

Paperwork Reduction Act Notice

The public reporting and record keeping burden for this collection of information is estimated to average 4.5 hours for operators of Class I hazardous wells, 1.5 hours for operators of Class I non-hazardous wells, 3 hours for operators of Class II wells, and 1.5 hours for operators of Class III wells.
Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to the collection of information; search data sources; complete and review the collection of information; and, transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR Part 9 and 48 CFR Chapter 15.
Please send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to Director, Office of Environmental Information, Collection Strategies Division, U.S. Environmental Protection Agency (2822), Ariel Rios Building, 1200 Pennsylvania Ave., NW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, Attention: Desk Officer for EPA. Please include the EPA ICR number and OMB control number in any correspondence.



PROPOSED DESIGN FOR WELLS:
WB-01, WB-02, WB03, WB-04

HALEY & ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

PROPOSED TEST FIELD
WESTBAY WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

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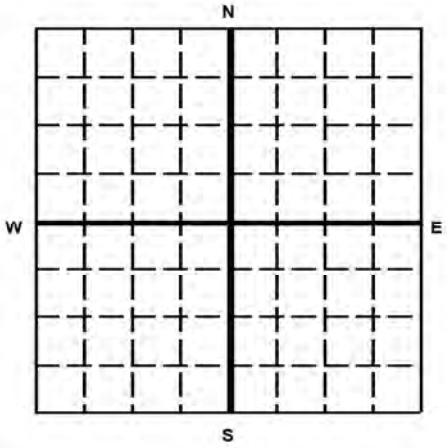

State	County	Permit Number
Arizona	Pinal	AZ396000001

Surface Location Description
SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1120 ft. frm (N/S) N Line of quarter section
and 1045 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- [ ] Individual Permit
- [x] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number WB-03

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
16"	31.66	20	20	20"
4"	5.61	510	510	10"
4"	2	690	690	10"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	4						
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Sacks of Cement To Be Used (each plug)	82						
Slurry Volume To Be Pumped (cu. ft.)	105						
Calculated Top of Plug (ft.)	0						
Measured Top of Plug (if tagged ft.)	NA						
Slurry Wt. (Lb./Gal.)	15.4						
Type Cement or Other Material (Class III)	V						

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
525	600	1125	1200
675	750		
825	900		
975	1050		

Estimated Cost to Plug Wells
$12,500 - abandonment costs

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)

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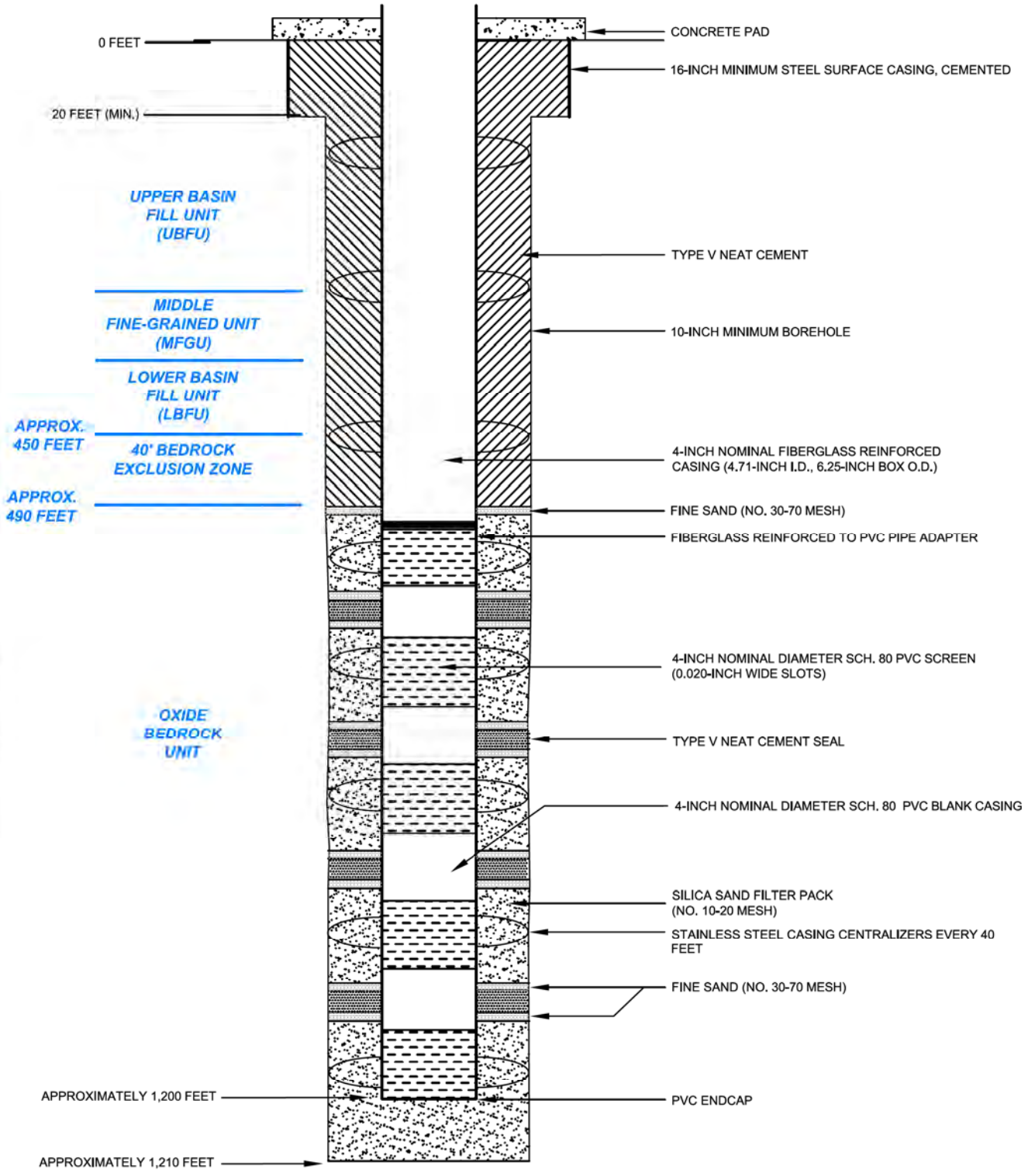

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JULY 2014

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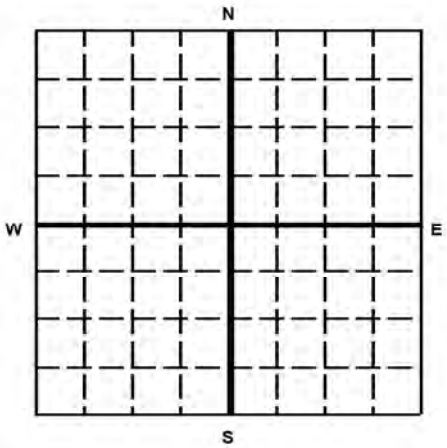

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- [ ] Rule

Number of Wells 1

Lease Name NA

WELL ACTIVITY
- [ ] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] CLASS III

Well Number WB-04

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
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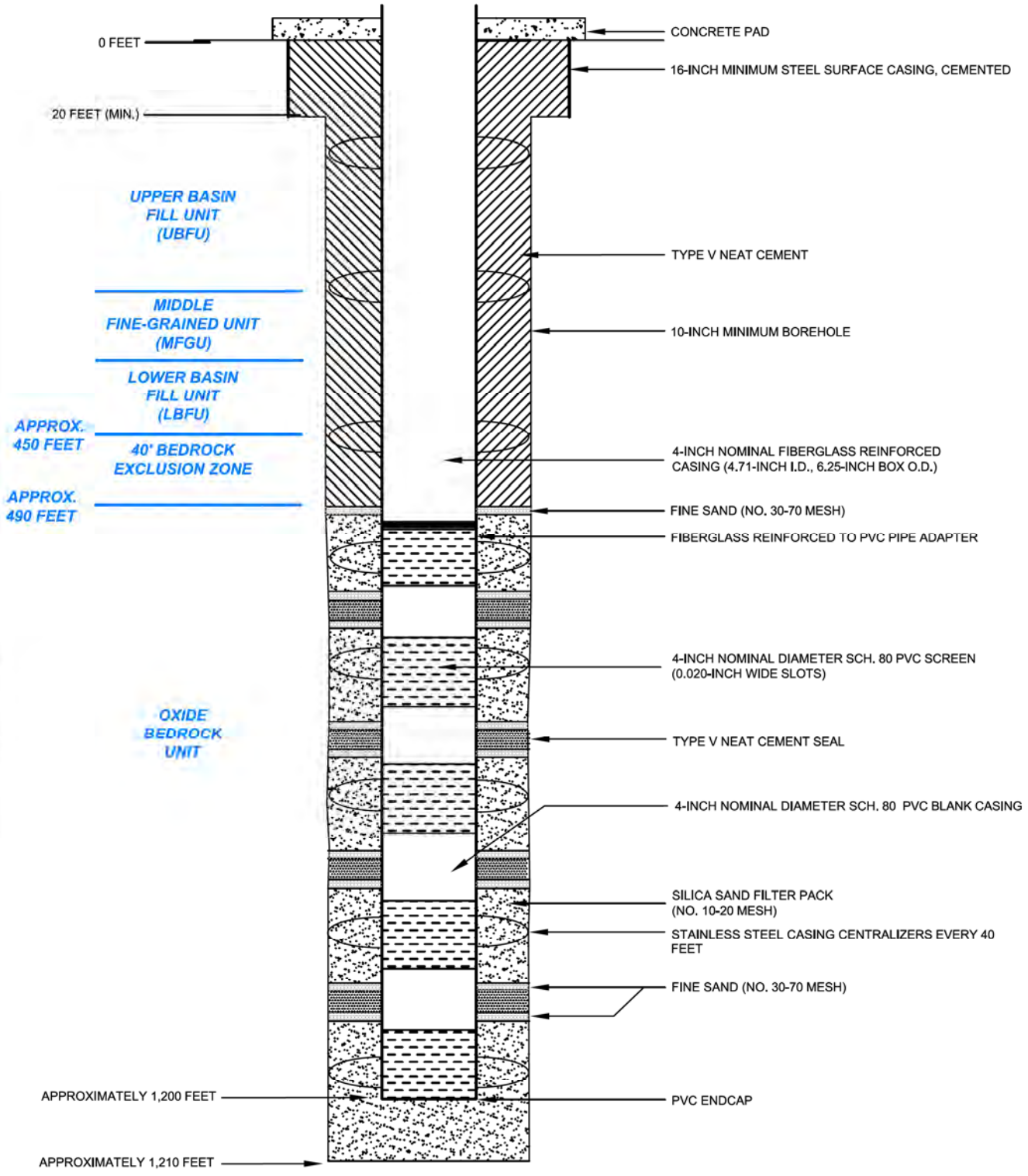

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WB-01, WB-02, WB03, WB-04

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FLORENCE COPPER, INC.
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PROPOSED TEST FIELD
WESTBAY WELL DESIGN

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
JULY 2014

FIGURE 1

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APPENDIX 10

Revised Attachment S Text

FLORENCE COPPER, INC.

UIC PERMIT APPLICATION

FLORENCE COPPER PROJECT – PRODUCTION TEST FACILITY

ATTACHMENT S – AQUIFER EXEMPTION

Table of Contents

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Figure S-1 Lateral Extent of Aquifer Exemption

Figure S-2 Vertical Extent of Aquifer Exemption Boundary

List of Exhibits

Exhibit S-1 Aquifer Exemption (May 1, 1997)

Exhibit S-2 NI 43-101 Technical Report Pre-Feasibility Study, Florence, Pinal County, Arizona

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.